



ADAPTATION FUND

AFB/PPRC.19/10
24 September 2016

Adaptation Fund Board
Project and Programme Review Committee
Nineteenth Meeting
Bonn, Germany, 4-5 October 2016

Agenda Item 7 e)

PROPOSAL FOR ECUADOR

Background

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US\$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (OPG, Annex 4) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.

3. The first four criteria mentioned above are:

1. Country Eligibility,
2. Project Eligibility,
3. Resource Availability, and
4. Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:

5. Implementation Arrangements.

5. It is worth noting that since the twenty-second Board meeting, the Environmental and Social (E&S) Policy of the Fund was approved and consequently compliance with the Policy has been included in the review criteria both for concept documents and fully-developed project documents. The proposals template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the E&S Policy.

6. In its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals. The latest version of this document was launched in conjunction with the revision of the Operational Policies and Guidelines in November 2013.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following project concept document titled “Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management” was submitted by the Corporación Andina de Fomento (CAF), which is a Regional Implementing Entity of the Adaptation Fund.

10. This is the second submission of the proposal. It was first submitted to the twenty-sixth meeting of the Board, and the Board decided to:

- (a) *Not endorse the project concept, as supplemented by the clarification response provided by the Banco de Desarrollo de America Latina (CAF) to the request made by the technical review*
- (b) *Suggest that CAF reformulate the proposal taking into account the observations in the review sheet annexed to the notification of the Board's decision, as well as the following issues*
 - (i) *In the development of the fully-developed proposal, it is recommended that the analysis of the full cost of adaptation reasoning be done for each component; The proposal should clarify more clearly the ultimate and overall objective of the project (concrete outcomes expected for both communities and the hydropower sector), and most importantly, why/how the intended activities are envisioned to contribute to this objective in concrete terms;*
 - (ii) *The proposal should provide further information on the sustainability of the assets that would be developed or protected, such as the ones under component 1;*
 - (iii) *The proposal should explain whether watershed management plans, relevant to this project, were developed and implemented as part of the establishment of the hydro-power plant, and how the proposed project would build upon these plans;*
 - (iv) *The proposal should further elaborate on the outcomes of consultations held with communities and demonstrate the extent to which they were taken into account during the design of the project, as well as clarify further how target regions and communities will be selected for the project;*
 - (v) *The proposal should more clearly and robustly evaluate the cost-effectiveness of the project relative to viable adaptation alternatives, as*

well as comparing the proposed interventions to the baseline of no Adaptation Fund funding to justify the investment; and

(c) Request CAF to transmit the observation under item (b) to the Government of Ecuador.

(Decision B. 26/7)

11. The current submission was received by the secretariat in time to be considered in the twenty-eighth Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number ECU/RIE/Rural/2016/1, and completed a review sheet.

12. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with the CAF, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

13. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section. In accordance with decision B.25.15, the proposal is submitted with changes between the initial submission and the revised version highlighted.

Project Summary

Ecuador – Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management

Implementing Entity: CAF

Project/Programme Execution Cost: USD 180,000

Total Project/Programme Cost: USD 2,370,000

Implementing Fee: USD 119,373

Financing Requested: USD 2,489,373

Project Background and Context:

The project objective is to strengthen the adaptive capacity of the local population in the Toachi – Pilatón water system. The project focus on key drivers that will worsen the probable impact from climate change. The expected mid-term impacts are improved enabling conditions to sustain forest cover and sustainable small-scale farming in the area. In the long-term, it is expected that this will result in improved adaptive capacity. It is also envisioned that the lessons of the project are useful to other parts of Ecuador and other Andean countries.

Component 1: Conserve vegetative cover (USD 950,000)

The component includes activities that support the conservation of forests to secure key ecosystem services. Three outcomes will be generated by (i) expanding protection of existing forests under mechanisms of conservation and sustainable forest management, (ii) strengthening the management of existing protected forests and private reserves, and (iii) building artisanal sediment retention dams in key risk areas.

Component 2: Adapt farming practices to new climate change conditions (USD 900,000)

Component 2 will introduce sustainable farming practices to reduce the impact on the local water cycle and to adapt to probable conditions of reduced rainfall. One outcome will be generated by introducing best practices in about 250 ha of pasture land and 200 ha of crops (including sugarcane).

Component 3: Strengthen local capacities and share lessons (USD 340,000)

The component will strengthen private and public local capacities to implement adaptation measures. Three outcomes will be generated by (i) strengthening climate-monitoring, (ii) introducing adaptation to climate change into parish development and land use plans, and (iii) implementing public communication and education plans.



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

Country/Region: **Ecuador**

Project Title: **Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management**

AF Project ID: **ECU/RIE/Rural/2016/1**

IE Project ID:

Requested Financing from Adaptation Fund (US Dollars): **\$2,489,373**Reviewer and contact person: **Daouda Ndiaye**Co-reviewer(s): **Ming Yang**IE Contact Person: **Ligia Castro, Development Bank of Latin America (CAF)**

Review Criteria	Questions	Comments on 22/8/16	Comments on 6/9/16
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes. Ecuador is a country that is particularly vulnerable to the impacts of climate change, largely felt through impacts related to water.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	Yes.	
	2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive	Yes, but minor clarification is requested. The importance of the proposed interventions is clear, however, the project would benefit from a more explicit description of the	

	<p>capacity to the adverse effects of climate change and build in climate resilience?</p>	<p>climate change impacts that the project is aiming to address.</p> <p>CR1: Please clarify which particular climate change impacts the project is addressing, including by including relevant information from assessments and projections that are cited in the project document, and how the proposed interventions address those impacts.</p> <p>CR2: The structure of the project appears coherent. However, for the concept stage, additional detail would enable a stronger technical review of the intended scope of each outcome. Please add additional details for each outcome and output in the initial description of the project to define the scale, locations (to the extent possible), and types of activities that are envisioned.</p> <p>Particularly:</p> <p>CR3: Please also provide more details about the ways that the project will identify the target areas for protection in Component 1 (modelling, mapping, and/or participatory approaches), how issues related to land tenure will be resolved, and what management or regulatory mechanism will be used to sustain the conservation of these areas.</p> <p>CR4: The use of the Socio Bosque approach is welcomed – please clarify if the involvement of private sector partners has been secured.</p>	<p>CR1: Addressed sufficiently for the concept stage.</p> <p>CR2: Somewhat addressed, some additional detail has been provided but not expanded to explain how outcomes will be achieved.</p> <p>CR3: Addressed – the level of detail provided should be reflected in the project document as well.</p> <p>CR4: Addressed, with the expectation that more information will be supplied at the full proposal development phase.</p>
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	3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	<p>Yes, mostly, however the proponent will be expected to outline, detail, and quantify the benefits of the project more extensively at the full proposal stage.</p> <p>CR5: Please clarify how beneficiaries will be selected for the project, and how this will be sensitive to marginalized groups, indigenous people and women.</p>	CR5: Somewhat addressed provided a much more thorough analysis at the project preparation phase. More consideration should be given to marginalized groups and women, however.
	4. Is the project / programme cost effective?	<p>Requires clarification. The project invests in low-cost ecosystem-based measures and presumably will enhance the resilience of people, ecosystems, and other stakeholders in the region. However, the section is too simplistic and does not fully justify the cost-effectiveness of the proposed program.</p> <p>CAR1: This section should compare the proposed intervention (and the intended outcomes of each component) with alternate adaptation options to achieve the same result to determine if the investment is cost-effective. To the extent possible, the project should provide evidence on the return on this investment.</p> <p>CR6: Please quantify the scale and scope of the sub-bullets in paragraph 46.</p>	<p>CAR1: Not addressed. This section should compare the proposed intervention (and the intended outcomes of each component) with alternate adaptation options that will likely achieve the same results (strengthening the conservation of about 230,000 ha of forest area and benefiting about 14,000 people). If data is missing, please use assumed data, and state clearly assumptions of the data.</p> <p>CR6: Addressed</p>
	5. Is the project / programme consistent with national or	Yes, the project aims are in alignment with the relevant national strategies	

	sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	and plans.	
	6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	Mostly. The project will comply with current regulations however the list of regulations should be more extensive and should refer to any relevant assessments that will be done. CR7: Please clarify any relevant regulations and standards for with respect to land rights and tenure.	CR7: Addressed, however additional analysis of how the project will apply these laws would be useful.
	7. Is there duplication of project / programme with other funding sources?	Not likely, however, the proponent has not outlined how the current proposal will learn from or build upon the projects listed. CR8: Please comment on what lessons or resources the project will build upon.	CR8: Addressed.
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes, component 3 has several intended activities targeting knowledge management and learning. However, more detail will be expected within the fully-developed proposal.	
	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	Yes, consultations were held. However, it is not clear how the consultations have informed the design of the project. CR9: Please provide information on outcomes of community consultations,	CR9: Somewhat addressed, however a more complete plan for how gender

		clarifying how the proposed project responds to local community needs, as well as how the consultations informed the design of the project. Please also comment on how gender considerations were taken into account, as well as how other vulnerable groups such as indigenous peoples were consulted and included in the project design as appropriate.	and vulnerable groups' considerations will be addressed should be provided. Expanded paragraphs 68-74 do not address gender issues in Ecuador that are related to the project, or that were alluded to on page 26.
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Not entirely. This section should outline the full cost of adaptation by component. CR10: Please include assessment of the project relative to a baseline for each component.	CR10: Addressed
	11. Is the project / program aligned with AF's results framework?	Yes, potentially. CR11: Please quantify the figures in the Framework Table on pages 22 and 23.	CR11: Addressed.
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Possibly. CR12: Please expand on what kind of actions, specifically, will lead to sustained stewardship of forest areas, and how coordination platforms will be maintained beyond the lifetime of the project.	CR12: Addressed.
	13. Does the project / programme provide an overview of environmental and social impacts / risks identified?	Somewhat. CR13: As the proposal has already identified that "Further analysis will be needed on gender issues, the role of women in the farms and local organizations is not clear at the moment", this is contradictory with the statement that no further assessment is required for compliance with the	CR13: Somewhat addressed, however the screening information does not appear to reflect a complete assessment, or the information provided in the environmental and social risks analysis matrix.

		ESP. Please provide a more complete assessment of potential risks that might result from the project, as well as a category of risk (A, B, or C) and additional assessments that will be done in the preparation of the full project document.	
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes	
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes, 7.6%	
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget?	Yes, 4.8%	
Eligibility of IE	4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes, the proposal has been submitted by an accredited RIE.	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management?	N/A	
	2. Are there measures for financial and project/programme risk management?	N/A	
	3. Are there measures in place for the management of for environmental and social risks, in line with the	N/A	

	Environmental and Social Policy of the Fund? Proponents are encouraged to refer to the draft Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.		
	4. Is a budget on the Implementing Entity Management Fee use included?	N/A	
	5. Is an explanation and a breakdown of the execution costs included?	N/A	
	6. Is a detailed budget including budget notes included?	N/A	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	N/A	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	N/A	
	9. Does the project/programme's results framework align with the AF's results framework?	N/A	

	Does it include at least one core outcome indicator from the Fund's results framework?		
	10. Is a disbursement schedule with time-bound milestones included?	N/A	

Technical Summary	<p>The proposed project aims to address main drivers of deforestation and degradation in four sub-basins in Toachi-Pilatón and enhance local communities' adaptive capacity to the adverse effects of climate change.</p> <p>The initial technical review found that the project was presented coherently and combined policy, training, and ecosystem-based measures to address acute climate stressors in the region. However, the project, while clear, lacked certain details to fully define and outline the scope, scale, and on-the-ground impact of the project.</p> <p>The following corrective action requests were made:</p> <p>CAR1: This section should compare the proposed intervention (and the intended outcomes of each component) with alternate adaptation options to achieve the same result to determine if the investment is cost-effective. To the extent possible, the project should provide evidence on the return on this investment.</p> <p>The following clarification requests were made:</p> <p>CR1: Please clarify which particular climate change impacts the project is addressing, including by including relevant information from assessments and projections that are cited in the project document, and how the proposed interventions address those impacts.</p> <p>CR2: The structure of the project appears coherent. However, for the concept stage, additional detail would enable a stronger technical review of the intended scope of each outcome. Please add additional details for each outcome and output in the initial description of the project to define the scale, locations (to the extent possible), and types of activities that are envisioned.</p> <p>Particularly:</p> <p>CR3: Please also provide more details about the ways that the project will identify the target areas for protection in Component 1 (modelling, mapping, and/or participatory approaches), how issues related to land tenure will be resolved, and what management or regulatory mechanism will be used to sustain the conservation of these areas.</p> <p>CR4: The use of the Socio Bosque approach is welcomed – please clarify if the involvement of private sector partners has been secured.</p> <p>CR5: Please clarify how beneficiaries will be selected for the project, and how this will be sensitive to</p>
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marginalized groups, indigenous people and women.

CR6: Please quantify the scale and scope of the sub-bullets in paragraph 46.

CR7: Please clarify any relevant regulations and standards for with respect to land rights and tenure.

CR8: Please comment on what lessons or resources the project will build upon.

CR9: Please provide information on outcomes of community consultations, clarifying how the proposed project responds to local community needs, as well as how the consultations informed the design of the project. Please also comment on how gender considerations were taken into account, as well as how other vulnerable groups such as indigenous peoples were consulted and included in the project design as appropriate.

CR10: Please include assessment of the project relative to a baseline for each component.

CR11: Please quantify the figures in the Framework Table on pages 22 and 23.

CR12: Please expand on what kind of actions, specifically, will lead to sustained stewardship of forest areas, and how coordination platforms will be maintained beyond the lifetime of the project.

CR13: As the proposal has already identified that “Further analysis will be needed on gender issues, the role of women in the farms and local organizations is not clear at the moment”, this is contradictory with the statement that no further assessment is required for compliance with the ESP. Please provide a more complete assessment of potential risks that might result from the project, as well as a category of risk (A, B, or C) and additional assessments that will be done in the preparation of the full project document.

The final project review finds that the revised proposal has resolved several of the clarification requests made in the initial technical review. However, several fundamental issues remain to be fully resolved before the concept can be endorsed. The proposal fails to sufficiently address the clarifications requests made in the initial review, and defers too many issues to the full proposal development.

The following observations are made:

- a) The proposal should provide more detail about the activities in each project output and component to define the elements of the project design – in other words, including details of the “how” outcomes will be achieved in addition to “what” is being proposed. In cases where data is not available, the proponent should include the assumptions made as well as the plan to verify certain features in the design of the fully-developed proposal,
- b) The proponent should more clearly outline how it will engage and involve women and other marginalized groups, and
- c) The proposal should provide additional detail on the environmental and social screening, which is partially reflected in the matrix that was provided with the revised concept, as well as an explanation of the plan to

	fully comply with the ESP of the AF during the fully-development proposal preparation.
Date:	6 September 2016



ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

Title:	Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management
Category:	Regular project/Programme
Country:	Ecuador
Type of Implementing Entity:	Regional Implementing Entity (RIE)
Implementing Entity:	CAF Latin America Development Bank
Executing Entities:	Ministry of Environment (MAE)
Amount of Financing Requested:	2.489.373,00 (in U.S Dollars Equivalent)

Project / Programme Background and Context:

1. The present project concept focus on the Toachi – Pilatón water system. This is a 2,154.42 km² drainage basin, where about 74,000 people live (~~Table 1~~~~Table 1~~). Toachi - Pilatón is a system of two drainage units that originate in the steep western slope of the Andes, and flows downhill to merge in the Blanco river. The Toachi – Pilatón is the southernmost subbasin of the Esmeraldas river watershed (Ecuador's fourth largest watershed); it covers 10% of the Esmeraldas drainage basin.
2. The Toachi drainage unit has four subbasins (Map 1). The Toachi river is formed by several tributaries, most of them originating in the paramos (> 3,000 metres above sea level) within the Ilinizas Ecological Reserve¹ (e.g., río Las Juntas, río Negro, río Zarapullo). The Pilatón drainage unit is about a fourth of the size of the entire system. The Pilatón river is also formed by high altitude tributaries, some of them also originate in the Iliniza reserve (e.g., río Negro). However, both the Toachi and Pilatón rivers have a large contribution from tributaries that accumulate and channel water from the forests located on the steep hills.

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¹ Created in 1996, it covers 149,900 ha.

3. The lower part of the system is humid with annual precipitation above 2,000 mm/year (Table 2Table 2). In contrast, the upper part of the Toachi drainage unit is much drier. In Sigchos, the annual rainfall in 2012 was about 1,130 mm. There are two marked seasons, a rainy season between December and May, and a dry season between June and October (Figure 1Figure 1).

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Table 1. Population in the Toachi – Pilatón system.

Drainage unit	Province	Canton	Parrish	Total population in the Parrish	Population within the drainage unit
Toachi	Cotopaxi	Latacunga	Toacaso	7,685	7,685
		Pujilli	Guangaje	8,026	8,026
			Zumbahua	12,643	12,643
		Sigchos	Chugchilan	7,811	7,811
			Isinlivi	3,227	3,227
			Las Pampas	1,943	1,943
			Palo Quemado	1,030	1,030
			Sigchos	7,933	7,933
		Pichincha	Mejía	1,456	NA
Pilatón	Pichincha	Mejía	Aloag	9,237	NA
	Pichincha	Mejía	Manuel Cornejo Astorga (Tandapi)	3,661	3,661
	Santo Domingo de los Tsachilas	Santo Domingo	Alluriquin	9,725	9,725
Total population in 2010				74,377	53,959

NA = Not available, but it is known to be very small

Source: Ecuador Population and Housing Census 2010.

Table 2. Precipitation in five meteorological stations of the Toachi – Pilatón system.

Station	Data series (years)	Annual precipitation (mm/year)	Monthly minimum (mm/month)	Monthly maximum (mm/month)
Alluriquin	1980-1993	2288.3	43.2	398.5
Toachi AJ Pilatón	1967-1985	2745.8	64.8	451.7
Palo Quemado	1965-1995	2126.8	55.5	326.4
Las Pampas	1985-2006	2126.8	33.9	353.0
Sigchos	2012	1130.4	5.2	247.60

Source: INAMHI meteorological yearbooks.

4. Three provinces and five cantons share the elements of the Toachi – Pilatón water system. Local communities depend mostly on extensive farming. On the Toachi side, the main activities are ~~small-scale~~ subsistence agriculture and extensive cattle farming. In the area of Palo Quemado, farmers cultivate

sugarcane to produce panela (unrefined whole cane sugar); there are about 450 ha of sugarcane plantations, 98% of the harvest is used to produce panela (GADPRPQ, 2013). Panela is more profitable than other cultivars, but its artisanal production is based on the use of local trees for firewood. Each farmer uses about three trees per week to cook and reduce the sugarcane juice. On the Pilatón side, extensive cattle farming and subsistence agriculture is common. Commerce and small family restaurants predominate along the Aloag – Santo Domingo road (part of route E20). This is the main road which connects the country's highlands and the coast; it runs along the west bank of the Pilatón river.

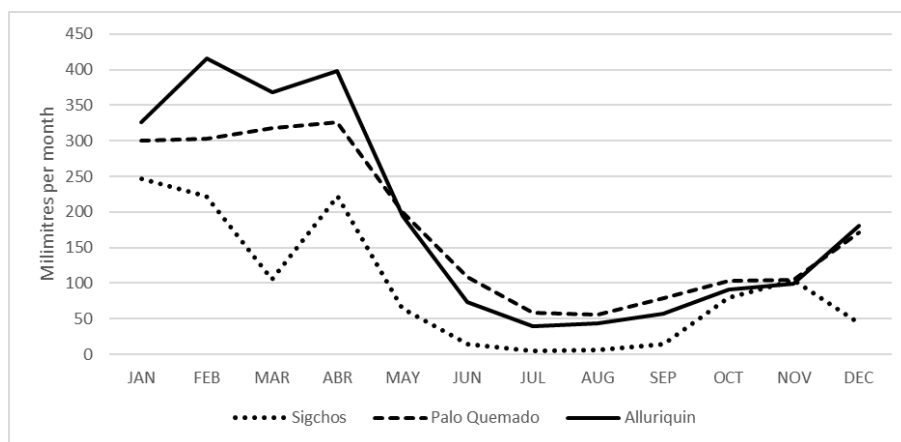


Figure 1. Monthly precipitation in three stations of the Toachi – Pilatón system. Sigchos is located in the upper part of the Toachi unit (2,880 masl) (precipitation data from 2012). Palo Quemado is in the lower part of the Toachi unit (ca., 1,100 masl) (average 1965-1995). Alluriquin is in the lower part of Pilatón unit (ca., 739 masl) (average 1980-1993).

5. The population has very high levels of poverty by unsatisfied basic needs. In 2010, four parishes located in the upper part of the Toachi unit had poverty levels above 98% (Figure 2Figure-2). Even parishes with more developed economic activities like Palo Quemado, Alluriquin, Manuel Cornejo Astorga and Aloag had poverty levels well above the national average. In the same line, the levels of illiteracy are above the national level (Figure 3Figure-3). The highest levels of illiteracy are also concentrated in the upper part of the Toachi unit.
6. In the lower part of the drainage system, mainly along the hillsides, it is common to have frequent landslides mainly during the rainy season. The area along the Pilatón river has high risk of both landslides and flooding (Jiménez, 2013; Proaño, 2015). Landslides are frequent along the Aloag – Santo Domingo road. Younes & Erazo (2016) found that landslide susceptibility along this road is related to active erosive processes, soil condition and rainfall between 1,500 and 1,750 mm. Road closures and traffic restrictions produce important economic losses and access problems to local communities. On April 2015, the road was

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closed for 20 days and isolated the locality of Tandapi. Landslides and flooding are aggravated during El Niño conditions². During the 2015 / 2016 El Niño, there were frequent and large landslides along the Aloag – Santo Domingo road. Only in April 2016, there were about 25 landslides. In addition, on 26 April 2016, the Damas river flooded the locality of Alluriquin (739 masl), as a consequence four people were killed and 80 houses were damaged (15 destroyed).

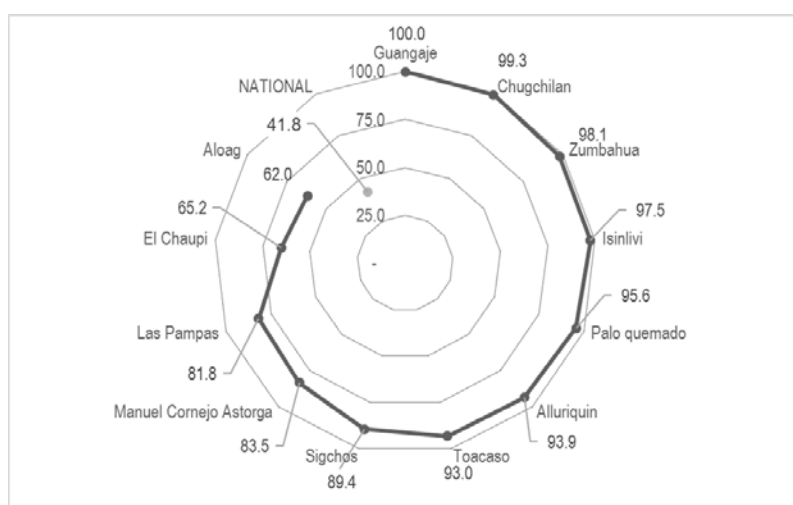


Figure 2. Poverty by unsatisfied basic needs in the parishes of the Toachi – Pilatón water system (2010 census).

7. The hillsides in the lower part of the drainage system maintain large areas of natural and intervened montane cloud forest, which are important for the water cycle and biodiversity (Map 2). The rest of the system is mostly used for agriculture and extensive cattle farming. The forest cover is mostly included in two Protected Forests³: (1) Toachi – Pilatón (BP156) and (2) Zarapullo (BP165). The Toachi – Pilatón Protected Forest was created in 1987, and is a large area of about 212,000 ha. The Zarapullo Protected Forest (BP165) was created in 1986, it covers 21,585 ha. In addition, there are several private reserves that are trying to develop services like trail hiking and bird watching. The forest area has a high biodiversity conservation value. There are populations of puma (*Puma concolor*)

² El Niño is the warm phase of El Niño Southern Oscillation (ENSO), recurrent planetary climate phenomenon. El Niño produces an extreme increase in rain and floods in Ecuador. In contrast, La Niña (cold phase of ENSO) produce very dry conditions and drought in Ecuador.

³ Protected Forest are areas established by the Ministry of Environment with the main purpose to conserve watersheds and water sources and to contribute to protect wildlife. These can be public or private land, and managed by public entities or private land owners. The protected forests are not considered a protected area, and do not integrate the national system of protected areas.

and the spectacled bear (*Tremarctos ornatus*), which are classified, respectively, as vulnerable and endangered in Ecuador's IUCN red list of threatened species. The main threat to these species are habitat loss caused by deforestation, and hunting by farmers. In addition, a major part of the drainage system is an Important Bird and Biodiversity Area⁴ (IBA).

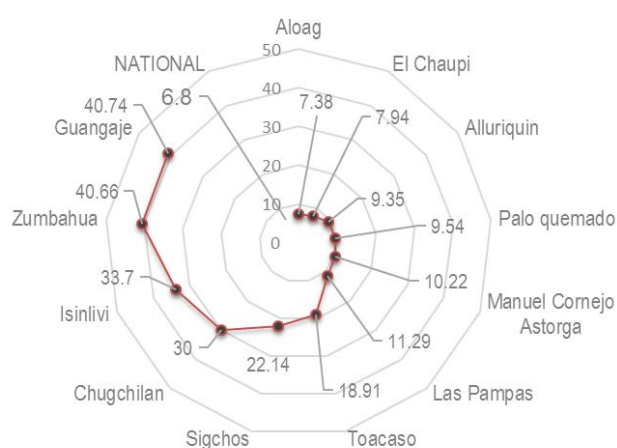


Figure 3. Percentage of illiteracy in the parishes of the Toachi – Pilatón water system (2010 census).

8. A hydropower plant is being built in the lower part of the Toachi – Pilatón system (i.e., HIDROTOAPI), and it is expected to initiate operation during 2017. It has two turbine systems, one based on the Toachi – Alluriquin confluence planned to produce ca., 204 MW, and the other based on the Pilatón – Sarapullo confluence planned to produce ca., 49 MW (Map 1). The total energy production will be 254.4 MW.
9. In 2014, the Ministry of Environment (MAE) analysed the climate change risk in the watersheds where major hydroelectric plants are based⁵. In the Toachi – Pilatón system it was found that:
 - I. The change in rainfall patterns projected into future scenarios under the effects of climate change in the watershed's recharge zone has a clear

⁴ The Pilatón drainage unit is part of the Río Toachi – Chiriboga IBA (EC044) which cover 68,000 ha (Birdlife International, 2016). The area houses about 450 bird species, including *Pachyrhamphus spodiurus* which is endangered. The lower part of the Toachi drainage system is part of the Reserva Ecológica Los Ilinizas y alrededores IBA (EC045) which cover 150,900 ha (Birdlife International, 2016a). This IBA house about 257 bird species.

⁵ Project "analysis of the vulnerability of flagship hydropower plants to the effects of climate change" (CHECC). The project was executed by MAE in collaboration with Ministry for Coordination of Strategic Sectors (MICSE), Ministry of Electricity and Renewable Energy (MEER), National Water Secretariat (SENAGUA), National Meteorological and Hydrological Institute (INAMHI), and the Electric Corporation of Ecuador (CELEC).

downward trend, indicating and resulting in a clear reduction of water volumes (Map 3).

- II. The changing trends in land use and land cover in the watershed due to human pressures such as deforestation and expansion of the agricultural frontier scenarios point toward soil degradation in the basin, which produces, under the effects of climate change, an altered hydrological cycle with its resulting lower retention of sediments under extreme weather events, as well as a clear and observable increase of sediments in the basin in future periods (Map 4). Today, the main drivers of deforestation and degradation in the basin are the expansion of pastures for livestock and small-scale agriculture.

10. For the previously mentioned diagnostic and projection of climate change study in the areas of interest, MAE used two lines of climate modelling:

- An assemblage of about 23 global models provided under the CMIP5 project (MAE, 2015), and
- The regional model REMO adjusted by the CIIFEN-MAE 2014.

11. In order to capture smaller-scale processes, limited area climate models, nested within global models ("downscaling"), were used in such a way that it is assumed that local phenomena are based on large-scale patterns resolved in global models. This work employs the regional high resolution climate model REMO-RCM (Max Planck Institute for Meteorology in Hamburg) under the framework of the CORDEX project. The modelling was carried out within three analysis periods (2016-2035; 2046-2065; 2081-2100). The climate scenarios analysed with the REMO model are the three representative pathways of concentration which, in order of emissions levels, are: CPR2.6, RCP4.5, and RCP8.5.

12. The periods and scenarios studied pointed towards a marked reduction in rainfall, which will result in a significant reduction in the flow available at the intake points of the hydroelectric plant.

13. The results obtained for temperature and precipitation readings in the feeder watershed were used as inputs for modelling flow and sediment through the Soil and Water Assessment Tool (SWAT) model. The modelling indicates that the sediments, under the effects of future climate change scenarios, will increase to about twice the current level in the hydropower station's water intakes.

The adaptation challenge and barriers

14. Adaptation to climate change is a major challenge for local communities. Climate change will affect local communities in the Toachi – Pilatón water system by reducing water provision for human consumption, farming production and hydroelectric energy production. Figure 4 summarise the situation and the interaction with human pressures.

14.15. MAE has found that the Toachi – Pilatón water system will be strongly affected by climate change, it is foreseen that future changes in climate conditions will result in an overall marked reduction of rainfall. precipitation will be reduced and that sedimentation will greatly increase. In addition, it is anticipated that climate change will produce stronger and more frequent ENSO events (Cai et al., 2014; Cai et al., 2015). Therefore, it has to be considered that during El

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Niño conditions heavy rainfall will exacerbate landslides, erosion, river sedimentation and floods. But, during La Niña conditions, there will severe drought. These changes, alone, will be sufficient to alter the structure of the native montane cloud forests, which capture cloud moisture and feed streamflows. However, ongoing human pressures will exacerbate the impacts of climate change. The two main drivers are deforestation and soil erosion. It is anticipated that climate change will produce stronger and more frequent ENSO events (Cai et al., 2014; Cai et al., 2015).

16. In the lower part of the water system, Ddeforestation is caused by for expansion of extensive agriculture and cattle farming-is a major problem in the lower part of the water system. Farmers invade the forests and riversides⁶ mainly to expand grazing areas for cattle and subsistence agriculture. Another factor which contributes to deforestation is that ~~Also, ss~~ sugarcane farmers depend on firewood for artisanal panela production.

45.17. In general, farmers use inadequate agriculture practices which produces soil depletion, this reduces production and motivates further expansion of the agriculture frontier. All this contributes to soil degradation, soil erosion, and ~~the a~~ reduction of vegetated areas.

~~The foreseen future situation will also affect HIDROTOAPI. MAE has estimated that its susceptibility may lead to a decrease of $\geq 25\%$ of its current annual projected generation capacity, and it may be exposed to greater risk due to reduced flow and increased sediments.~~

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⁶ According to the Ecuadorian legislation, riversides are public domain and cannot be used in order to protect the water sources.

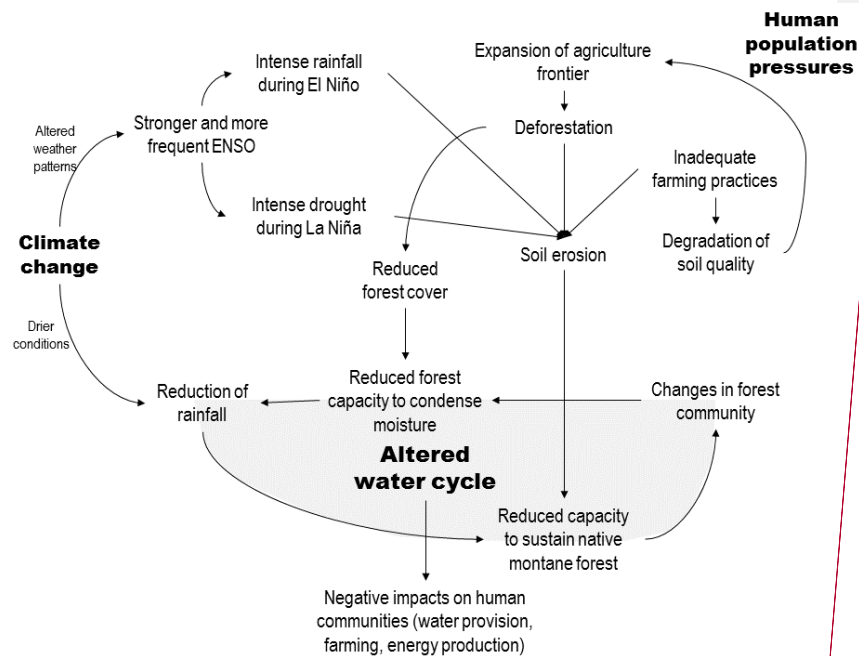


Figure 4. Conceptual diagram of climate change impacts on the water cycle of the Toachi – Pilatón water system.

18. The foreseen reduction in runoff and the increase in sediments (from hillside erosion) will also affect HIDROTOAPI. MAE has estimated that its susceptibility may lead to a decrease of > 25% of its current annual projected generation capacity, and it may be exposed to greater risk due to reduced flow and increased sediments.

46. —

17-19. Adaptation to climate change is a major challenge for local communities. The main barriers that limit adaptation in the lower basin of the Toachi – Pilatón water system are:

- Local population not fully aware of climate-related impacts. The interviews with local stakeholders revealed that there is no clear understanding of the probable impacts to be generated by the climate change. The future climate scenarios and the probable worsening of existing risks are not in the common dialogue. This contributes to the fact that local population does not demand that elected authorities address adaptation as a priority matter.
- Local development plans do not incorporate adaptation measures. Local plans (i.e., parishes and municipalities) mention climate change, but do not have specific actions to adapt living conditions to the future scenarios nor

to take action to address key drivers like deforestation, land use change and invasion of riversides.

- c. Local production is based on extensive farming practices. Most farmers have small plots (≤ 20 ha per plot) with very low yields and, in general, use inadequate agriculture practices. In Palo Quemado ca., 50% of the farmers only have subsistence production. Cattle farmers use extensive grazing; cattle produce about 7 litres of milk / day. It is common to clear forests to expand the grazing and agriculture areas. Sugarcane farmers clear forests to obtain firewood to produce panela for their artisanal process. They indicate that firewood is every time more scarce and difficult to obtain.
- d. Forest areas are not protected. The large protected forests, that are public property, are not managed and guarded. Therefore, extensive areas have been invaded and cleared to establish farms. Land tenure is an additional related issue, because invaders claim possession rights to the municipal and central governments. Private landowners of forest areas also face pressure from illegal farmers. The extent of the invaded area is unknown.
- e. Limited climate-related information. The monitoring of hydro-meteorological variables within the watershed has limitations in terms of quality and availability, generating less understanding of the behaviour of water flows and sediments in the basin. The National Meteorological and Hydrological Institute (INAMHI) has eight meteorological stations in the Toachi - Pilatón water system (Map 5), but only two (i.e., M0362 Las Pampas, M0363 Sigchos) are operational.

18-20. The present project will contribute to address these barriers by developing practical adaptation actions to strengthen the resilience of local communities in the lower part of the Toachi – Pilatón water system (i.e., subbasins 1, 2 and 3). Key lines of action will be:

- a. To conserve forest cover, to sustain the hydrological cycle and prevent as much as possible a reduction of rainfall, and to protect hillsides from erosion.
- b. To introduce sustainable farming practices to increase the yield per hectare, concentrate production in less space and therefore reduce the expansion of the agriculture frontier, soil erosion and deforestation.
- c. To mainstream adaptation into local development plans and engage the local population by increasing awareness of the impacts derived from climate change.

Project / Programme Objectives:

19-21. The project objective is to strengthen the adaptive ~~capaity~~capacity of the local population in the Toachi – Pilatón water system. The project focus on key drivers that will worsen the probable impact from climate change. The expected mid-term impacts are improved enabling conditions to sustain forest cover and sustainable small-scale farming in the area. In the long-term, it is expected that this will result in improved adaptive capacity. It is also envisioned that the lessons of the project are useful to other parts of Ecuador and other Andean countries.

20-22. The project is organised into three components;

- a. Component 1 will focus on the conservation of forests. Three outcomes will be generated by (i) expanding protection of existing forests under mechanisms of conservation and sustainable forest management⁷, (ii) strengthening the management of existing protected forests and private reserves, and (iii) to build artisanal sediment retention dams⁸ in key risk areas.
- b. Component 2 will focus on introducing sustainable farming practices to reduce the impact on the local water cycle and to adapt to probable conditions of reduced rainfall. One outcome will be generated by introducing best practices in about 250 ha of pasture land and 200 ha of crops (including sugarcane).
- c. Component 3 will focus on strengthening private and public local capacities to implement adaptation measures. Three outcomes will be generated by (i) strengthening climate-monitoring, (ii) introducing adaptation to climate change into parish development and land use plans⁹, and (iii) implementing public communication and education plans. It is foreseen that this component will facilitate dialogue and collaboration among stakeholders to strengthen social capital.

Project / Programme Components and Financing:

Components	Outcomes	Outputs	Amount (USD)
1. Conserve vegetation cover	1. At least 230,000 ha of native vegetation is conserved to reduce the impact of climate change on the watershed's hydrological cycle.	1. 1,000 ha of native vegetation is conserved by sustainable forest management and conservation mechanisms.	500,000
		2. Improved management of existing protected forests and private conservation areas (ca., 230,000 ha)	270,000
		3. Five artisanal sediment	180,000

⁷ The United Nations describe sustainable forest management as a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations (United Nations forest instrument, formally known as Non-Legally Binding Instrument on All Types of Forests, adopted by the United Nations General Assembly on 17 December 2007).

⁸ During stakeholder consultation, it was proposed that this element is further analysed during the preparation of the full project proposal.

⁹ Parishes have a local government elected by public vote formed by a President and a council. The parish government has a set of competences established by law, those relevant to the present project are: (i) to plan local development and land use in coordination with the municipal and provincial governments, (ii) to promote productive activities, biodiversity conservation and environment protection, and (iii) to promote the organization of rural communities.

Components	Outcomes	Outputs	Amount (USD)
		retention dams.	
2. Adapt farming practices to new climate change conditions	2. At least 500 ha of agriculture land apply sustainable farming practices appropriate to the foreseen impacts of climate change	4. 250 ha of pasture and 250 ha of crops apply sustainable farming practices ¹⁰ .	900,000
3. Strengthen local capacities and share lessons	3. Local population and parish governments with increased capacity to implement climate change adaptation measures.	5. Improved monitoring stations (3 meteorological and 4 hydrometric) provide prompt and reliable information to the local population and relevant authorities	150,000
		6. Six development plans ¹¹ incorporate measures for climate change adaptation with a watershed perspective.	70,000
		7. Public communication and education plan implemented in the lower basin (ca., 13,000 people)	120,000
Project/Programme Execution cost			180,000
Total Project/Programme Cost			2.370.000
Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			119.373
Amount of Financing Requested			2.489.373

¹⁰ The surface to be intervened will be decided with local stakeholders during preparation of the full proposal. The current figures were proposed by local farmers during the inception workshop in July 2016.

¹¹ Parishes Manuel Cornejo Astorga, Aloag, El Chaupi, Palo Quemado, and Las Pampas, and the rural area of Sigchos. These parishes are located in the lower basin of the Toachi – Pilatón water system.

Projected Calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	August 2017
Mid-term Review (if planned)	September 2019
Project/Programme Closing	August 2021
Terminal Evaluation	May 2021

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

~~21-23.~~ The project strategy focusses on implementing actions that will minimize, as much as possible, the foreseen impacts of climate change in the Toachi – Pilatón water system. The main conceptual frameworks will be a sustainable livelihoods approach (Chambers & Conway, 1991; Scoones, 1998), ecosystem-based adaptation¹² (EbA), and watershed management approach for climate change adaptation.

~~24.~~ Component 1 will promote conservation of the forest cover. Outcome 1 will promote ecosystem-based measures by promoting improved management of the existing protected forests (ca., 230,000 ha) and expanding the conserved area under conservation with local stakeholders. In addition, artisanal sediment retention dams will be built to reduce the flow of material to the rivers.

~~22-~~

~~23-25.~~ OutcomeOutput 1 will promote the conservation of 1,000 ha of native vegetation that contribute to the regulation of the hydrological cycle, and which are not currently guarded by any protective measure. Incentives will be provided to rural populations that voluntarily commit to the conservation and protection of their native forests and vegetation. The Socio Bosque¹³ approach will be used,

¹² Ecosystem-based adaptation uses biodiversity and ecosystem services in an overall adaptation strategy. It includes the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to the adverse effects of climate change (CBD, 2009).

¹³ Socio Bosque is an initiative, started in 2008, of the Ministry of the Environment that offers economic incentives to owners of land with native forests to guarantee its protection over the medium to long-term. The programme provides direct payments for each hectare of native vegetation conserved per year; payments are made annually for a period of 20 years once a conservation agreement is signed between the owner and MAE.

but including long-term contributions of key stakeholders like HIDROTOAPI and water companies. This mechanism will be developed during the preparation of the full proposal.

24-26. Outcome-Output 2 will strengthen the institutional and legal frameworks to manage the Toachi – Pilatón (ca., 212,000 ha) and ZSarapullo (ca., 21,000 ha) protected forests, as well as existing private reserves¹⁴. Currently these areas do not have management strategies and are under pressure to be converted in extensive farming grounds.

25-27. To protect these areas, the status of the protected forests will be assessed and safeguarding strategies will be designed with local partners interested in supporting the conservation of the standing forests. It is expected that interested parties contribute to the long-term conservation of these areas. Probable partners may include parish governments, municipalities, provincial governments, HIDROTOAPI, water companies, and the Ministry of Public Works (MOP). The option of establishing a water fund will be analysed during project preparation.

26-28. From the perspective of ecosystem-based adaptation, it is necessary to strengthen the conservation of areas that remain in good condition as an adaptation measure with a lower long-term cost. The conservation of protected forests and private reserves contribute to maintaining connectivity between local and national conservation areas, both public and private, and all related climatic and hydrological regulation services, such as sediment retention, infiltration and interception of horizontal rain, very important in these mountainous areas.

27-29. Outcome-Output 3 takes into account that EbA also includes the construction of low-impact local infrastructure to improve the availability of water for productive activities, human consumption and flood control in ravines exhibiting levels of soil degradation and deforestation. The previous experiences of the Project for Adaptation to Climate Change through an Effective Water Governance in Ecuador (PACC) will be applied in the areas of intervention. With local groups, small-scale dams for sediment retention and the reduction of flow rate will be constructed in small ravines. The location and scope of these structures will be decided during preparation of the full proposal.

28-30. Component 2 will promote the use of sustainable farming practices. Outcome 2 will focus on introducing best practices in at least 500 h of farmland, to reduce the impacts of farming and cattle raising on native forests and land degradation.

31. Working with farmers' organizations¹⁵, best practices will be introduced to increase production using a smaller area. The main lines of work will be (i) cattle and pasture management and (ii) sugarcane production. Nonetheless, other crops will also be addressed (e.g., mortiño, naranjilla, yuca, tomato).

32.- So far there is interest to participate from:

¹⁴ On the first screening three private reserves were identified: [1] Reserva de Bosque Integral Otonga (1000 ha), [2] La Hesperia Reserva Natural (814 ha), and [3] Reserva Florística Río Guajalito (1000 ha). During project preparation an in-depth analysis will be done, because it is very likely that more private protected areas exist.

¹⁵ So far there is interest to participate from Las Pampas cattle ranchers' association, Flor de Caña Association (sugarcane producers) and the association of producers from Quinticusig (they grow and process *Vaccinium meridionale* Swartz).

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a. Las Pampas cattle ranchers' association to introduce improved cattle and pasture management practices in 250 ha.

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b. Flor de Caña Association (sugarcane producers) to introduce improved practices for sugarcane production in 250 ha and to explore forms to improve panela production units to reduce the use of firewood.

c. The association of producers from Quinticusig who grow and process mortiño (*Vaccinium meridionale* Swartz).

~~29. Sugarcane producers are interested in improving the technology of their panela production units to reduce the use firewood.~~

~~30-33.~~ Component 3 will focus on strengthening local capacities. Outcome 3 will aim at empowering local stakeholders and institutions to drive basin-wide adaptation to the effects of climate change and watershed management.

~~31-34.~~ Outcome-Output 5 will potentiate and expand INAMHI's hydro-meteorological network to have information of the water system. INAMHI will identify the most suitable sites for which there is no information. In this way, existing information gaps on the basin can be filled. Various meteorological and hydrological stations will be installed; they will be linked to INAMHI's national network and the corresponding early warning systems¹⁶. Also sediment samplers will be installed in key sites to monitor the sediment load. It is anticipated that this information will support informed decisions about watershed management by local stakeholders and pertinent authorities. The number and location of meteorological stations and sediment samplers will be decided during project preparation. ~~It is anticipated that this information will support informed decisions about watershed management by local stakeholders and pertinent authorities.~~

~~35.~~ Outcome-Output 6 will support mainstreaming climate change adaptation into parish development plans using MAE's guidelines¹⁷. It is foreseen to work with five parishes: (1) Manuel Cornejo Astorga, (2) Aloag, (3) El Chaupi, (4) Palo Quemado, and (5) Las Pampas. The combined population of these parishes is about 17,000 people. It is also foreseen to work with the central urban parish of Sigchos, which in fact has mostly rural population¹⁸. These parishes are located in the lower basin of the Toachi – Pilatón water system.

~~32-36.~~ There will be emphasis in articulating collaboration and dialogue among local authorities in support of integrated watershed management and EbA. Actions will include training on climate change adaptation. All this will promote engagement and empowerment of local governments.

~~33-37.~~ Outcome-Output 7 will be the backbone of the project's learning process. A Public communication and education plan, grounded on the parish governments, will promote (i) understanding of probable climate change impacts, (ii) knowledge

¹⁶ The Risk Management Secretariat (SGR) administer the early warning systems. There is a decentralised national system for risks management in which includes, at the municipal level, a Risk Management Committee and an Emergency Operations Committee.

¹⁷ MAE issued guidelines for climate change plans, programmes and strategies of decentralized autonomous governments by Ministerial Agreement 137 of 19 May 2014. A manual was published by MAE (2014).

¹⁸ The central urban parish of Sigchos has a population of 7,933 people, but only 25% of them live in the urban area. The other are scattered rural population.

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about appropriate adaptation measures, (iii) sound water management with a watershed perspective, (iv) biodiversity conservation, and (v) multi-level dialogue and collaboration among stakeholders. The purpose will be to foster improved long-term collaborative action and management of the basin which includes implementation of effective measures to confront climate change.

34-38. The project will systematically document experiences and lessons and disseminate them to stakeholders and interest groups. The mid-term Review and Terminal Evaluation will be a key part of the project's learning process. It is foreseen that the project's lessons and best practice will be useful to other part of the country.

B. Describe how the project / programme would provide economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme would avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

Beneficiaries

35-39. Direct beneficiaries are defined as those residents, organizations or institutions that will receive a transfer of resources or technology from the project's funds. Within this group of principal beneficiaries are:

- a. Parish governments of Las Pampas, Palo Quemado, El Chaupi, Aloag and Manuel Cornejo Astorga that will mainstream the climate change variable and adaptation measures in their planning and land use zoning. It is also expected to mainstream adaptation into the plans for the rural area of Sigchos¹⁹. These parishes will also have improved forest conservation, better agriculture production, access to hydro-meteorological information, and enabling conditions for multi-level dialogue and collaboration. The population in these areas is about 14,000 people (~~Table 1~~**Table 4**).
- b. At least 25 technical staff from the parish governments and municipalities (i.e., Sigchos and Mejía) will benefit from training on adaptation to climate change.
- c. At least 200 stakeholders will benefit from the exchange of experiences.
- d. At least 60 farmer families will benefit sustainable farming practices.

36-40. Indirect beneficiaries are those persons or institutions that will participate in the project's activities without directly receiving project funds. Within this group ~~theef~~ principal beneficiaries are:

- a. Water users from the Toachi – Pilatón drainage basin.
- b. About 22,000 people who live in the lower part of the drainage basin.

¹⁹ Sigchos is a canton formed by four rural parishes (i.e., Chugchilán, Isinlivi, Las Pampas and Palo Quemado) and an urban parish (Sigchos). The urban parish is very large, but the urban centre is small. In 2010, the canton had 21,900 people, 91.1% was rural population. Rural parishes have a parish government, but the urban parish is managed by the municipality.

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- c. HIDROTOAPI hydroelectric plant and the users of the electricity it will generate.

Economic benefits

- 37-41. Farmers that apply sustainable farming practices will benefit from an increased yield and income. It is expected that these farmers will catalyse the use of improved practices by a larger number of producers.
- 38-42. Better hydro-meteorological information will support the early warning systems. This will contribute to reduce damages and losses caused by landslides and flooding on the Aloag – Santo Domingo road and the local villages.
- 39-43. HIDROTOAPI will benefit from ensuring sufficient water flow for power generation and will avoid a significant increase in maintenance costs due to increased frequency in changing out parts or doing major maintenance or overhauls due to the expected increase in suspended solids.

Environmental Benefits

- 40-44. The conservation of a large vegetation cover will sustain the water cycle by ensuring condensation in the cloud forest and related flora. In addition, these areas will continue to support local biodiversity (including high-value conservation species) and connectivity among diverse habitats and ecosystems.

Social Benefits

- 41-45. Stakeholders from the lower part of the water system will benefit from increased social capital. This can be a powerful catalyst for further action to improve the livelihoods of local groups. The improved dialogue, networking, and collaboration among stakeholders will be a major contribution to local development.
- 42-46. Mainstreaming adaptation into daily actions and decision making will also generate major benefits for local communities. This will allow them to adjust their lifestyles and livelihoods to the impacts to be generated by climate change.
- 43-47. Better hydro-meteorological information provided to the early warning systems will contribute reduce the risk of impacts from landslides and flooding.
- 44-48. In the long-term, HIDROTOAPI's greater stability in electrical generation is an additional benefit at a national level.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

- 45-49. The AF investment will directly benefit about 14,000 people, and indirectly will benefit the entire population of the lower part of the Toachi – Pilatón water system (ca., 22,000 people). The project will contribute to strengthen the adaptive capacity of local stakeholders reducing the level of future impacts generated by climate change.
50. The project will ensure the cost-effectiveness of resources by allocating AF funds to activities and products with high catalytic potential, such as:

<u>Activity</u>	<u>Target</u>	<u>Investment</u>	<u>Cost per unit target</u>
<u>Improve management of protected forest.</u>	<u>230,000 ha</u>	<u>USD270,000</u>	<u>USD1.17/ha</u>
<u>Increase conservation area</u>	<u>1,000 ha</u>	<u>USD500,000</u>	<u>USD500/ha</u>
<u>Introduce sustainable farming practices.</u>	<u>500 ha</u> <u>>60 families (ca., 300 people)</u>	<u>USD900,000</u>	<u>USD1,800/ha</u> <u>USD15,000/family</u>
<u>Mainstream adaptation into local plans</u>	<u>6 parishes</u> <u>ca., 14,000 people</u>	<u>USD70,000</u>	<u>USD11,666/parish</u> <u>USD5/person</u>
<u>Implement a public communication plan focused on specific interests and channels of key stakeholders.</u>	<u>6 parishes</u> <u>ca., 14,000 people</u>	<u>USD120,000</u>	<u>USD20,000/parish</u> <u>USD8.6/person</u>

46.

- ~~a. Improve management of protected forest.~~
- ~~b. Introduce sustainable farming practices.~~
- ~~c. Mainstream adaptation into local plans.~~
- ~~d. Systematic documentation and dissemination of lessons.~~
- ~~e. Implement a public communication plan focused on specific interests and channels of key stakeholders.~~

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D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

~~47-51.~~ One of Ecuador's advantages in relation to climate change is the articulation of public policies at all levels. The project is aligned directly with current national environmental regulations. The Constitution of the Republic of Ecuador (2008) contains two articles, 413 and 414, relating to climate change management in the country. Article 414 establishes that "the state will adopt appropriate and transverse measures to mitigate climate change, by limiting emissions of greenhouse gases, deforestation and atmospheric pollution; also will take measures for the conservation of forests and vegetation and will protect the population at risk." In addition, the Constitution recognizes the need to "oversee land use planning of watersheds and encourage the creation of watershed councils, in accordance with the law."

[48-52.](#) The national development plan (SENPLADES, 2013) states in its general objective 7 that climate change is a multisector problem of national scope that should be approached with programmatic actions which generate results in the short and medium term. Specific objective 7.10 focus on implementing measures to mitigate and adapt to climate change to reduce the economic and environmental vulnerability with emphasis on priority groups. In addition, specific objective 7.6 focus on managing water resources in a sustainable and participatory manner, with a focus on watersheds and ecological flows to ensure the human right to water.

[49-53.](#) The project is in line with the National Climate Change Strategy (MAE, 2012), in particular with specific objectives 2 and 4. The first, focus on initiate action so that the performance levels of productive and strategic sectors and the country's infrastructure are not affected by the effects of change climate. The second, focus on managing water resources with a comprehensive and integrated approach by hydrographic unit, to ensure the availability, quality and sustainable use of water resources for the various human and natural uses. In addition, the National Plan for Climate Change 2015-2018 established the water sector as a national priority and required the analysis of the vulnerability of flagship hydropower plants to the effects of climate change. The results of the analysis for the Toachi -Pilatón hydropower plant have been used to prepare the present project.

[50-54.](#) The project will contribute to implement Ecuador's national plan for integrated and integral management of water resources of watersheds and micro-watershed, and is in line with the national regulations on water resources management.

[54-55.](#) Finally, the project will contribute to strengthen the development and land use plans of parish governments.

E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

[56.](#) MAE is the national environment authority and administer (i) the environmental impact evaluation system, (ii) forest use, (iii) protected forests, and (iv) the national system of protected areas. The project intervention will comply with the environmental regulatory framework established by the Environmental Management Law (Law 37 of 1999, coded in 2004), the environmental impact evaluation system (Executive Decree 061 of 2015), the Forestry and Conservation of Natural Areas and Wildlife law (Law 2004-017 coded in 2004) and complementary regulations.

[57.](#) The project will seek to take advantage of the recently adopted Organic Law on rural land and ancestral territories (signed on March 2016). This law establishes that rural lands must serve social and environmental functions (articles 11 and 12). The social function refers to be productive, and the environmental function refers to apply sustainable practices and conserve key habitats. It is relevant to the present project that the law:

- a. The law recognises that private or communal rural land fulfils the environmental function when is dedicated to conservation of renewable natural resources, including forest protection and production, conservation incentives (e.g., Socio Bosque), ecotourism and recreation. There will be incentives to those who fulfil the social and environmental functions.
- b. The law states that rural state land cannot be claimed by possessors or invaders (article 18); this opens a line of action to solve certain land-tenure issues.
- 52-c. The law forbids the expansion of the agriculture frontier into fragile and threatened ecosystems (article 50), including cloud forests. However existing subsistence agriculture activities will be respected.

53-58. The project infrastructure will be minimal (i.e., artisanal sediment retention dams) and may not require an environmental impact assessment. Nonetheless, the design and construction will comply with pertinent building regulations.

54-59. The meteorological stations will comply with INAMHI's required specifications and will be integrated into the national monitoring system.

F. Describe if there is duplication of project / programme with other funding sources, if any.

55-60. No duplication with other funding sources was found. However, the project will have synergies with a number of initiatives.

56-61. The project will complement the Socio Bosque Programme, by promoting with local partners the development of long-term mechanisms to provide conservation incentives to local landowners.

57-62. The project will use the results of the following projects:

- a. Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security (FORECCSA). This project is funded by the Adaptation Fund (AF), the implementing agency is the World Food Programme, and the project partners are MAE, the Ministry of Agriculture, Livestock, Aquaculture and Fisheries (MAGAP), the Jubones River Basin Public Consortium, and the Provincial Government of Pichincha. The present project will use the experience and lessons on mainstreaming gender in rural communities for food security and adaptation to climate change.
- b. Adaptation to Climate Change through Effective Water Governance (PACC). This is a GEF sponsored project (GEF ID 2931) under implementation. The executing agency is MAE, and the GEF implementing agency is UNDP. It does not cover the present area of intervention, but its lessons will be useful to the present project. The present project will use the experience and lesson on mainstreaming water climate risk in local planning and application of water saving measures by farmers.
- c. Analysis of the vulnerability of flagship hydropower plants to the effects of climate change (CHECC), in particular la results for the Toachi – Pilatón hydropower plant. The present project is using the results of the watershed vulnerability analyses.

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- d. Third National communication (3NC) and First Biennial Update Report (BUR). This is a GEF funded project (GEF ID 5478) under implementation in Ecuador. The executing agency is MAE, and the GEF implementing agency is UNDP. The project objective is to prepare the third national communication on climate change and the first biennial update report. The present project will use the results of 3NC, in particular the outcomes of the climate change models and the guidelines for climate change adaptation.

~~58-63.~~ The present project will aim for collaboration and synergies with HIDROTOAPI's Environmental Management Plan (EMP) which focus on those communities located in the direct area of influence of the hydropower plant. Actions include strengthening the provision of basic services, education, health and production development. The last element includes improving livestock and agriculture management, promoting tourism microenterprises, and afforestation and reforestation.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

~~59-64.~~ Component 3 of the project focus on learning and knowledge management. It comprises one outcome (i.e., outcome 3) and three outputs (i.e., outputs 5, 6 and 7).

~~60-65.~~ The backbone is the public communication and education plan that will (i) raise public awareness and engagement, (ii) facilitate communication and collaboration among stakeholders and project partners, and (iii) enable dissemination of information and lessons.

~~64-66.~~ The project will disseminate information and results through MAE's website and the social networks it uses (e.g., Facebook, Twitter). MAE's policy is to maintain a webpage for each project within its main portal. MAE's communications office will ensure that information will be channelled to local and national media to reach a wider audience.

~~62-67.~~ The project team will systematically document and record the advances. A monthly electronic information bulletin will be prepared and disseminate to inform the stakeholders and interest groups. It is envisioned to produce promotional material and documents to be used by local communities and stakeholders.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project / programme preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

~~63.~~ During preparation of the present project concept, there was consultation with local groups and relevant government organizations.

~~68.~~

~~69.~~ Local stakeholders were approached during 2015 to discuss the project idea (Annex 4).

70. During June 2016, the intervention area was visited to identify key stakeholders and gather initial information about their perspectives and needs. This information served to prepare the inception workshop.

71. On 15 July 2016, an inception workshop was held in Unión del Toachi. Participatory -rural appraisal techniques were used to gather local perceptions, views and opinions.

72. Thirty-nine people participated, including the main farmer's organizations, all the parish governments, the two main municipalities (Sigchos and Mejia), local NGOs, and key government entities (e.g., MAGAP, SENAGUA, INAMHI, MAE). Transportation was provided to facilitate attendance of remote participants. Some areas are quite retired, with limited access to public transportation. Participants from Sigchos (the most distant site) had to travel for about three hours to attend the meeting. The memoir of the workshops (including list of participants) is in Annex 5.

73. The workshop had the following main elements:

- a. The existing knowledge about future weather conditions in the area, and the probable impacts of climate change were presented. The results of MAE's analyses (paragraphs 10 to 13) were handed in printed maps. Participants were motivated to clarify doubts and present their views and experience.
- b. The initial ideas of a project concept (i.e., draft results framework and budget allocation) were presented. Participants were motivated to comment and provide initial recommendations.
- c. Two groups were formed, corresponding to the major subbasins (Pilatón and Toachi). Each group prepared a participatory situation analysis, identifying the key issues, probable causes and groups involved. In plenary, priority issues were selected for each subbasin.
- d. The same groups identified priority actions and probable sites and local partners. In plenary, proposals were reviewed and adjusted. Also, farmer organizations and parish governments confirmed their interest to contribute to project design and execution. There were recommendations of other key groups that need to be approached.
- e. To close the workshops, participants outlined a set of agreements for adjustments of the project concept, and pending elements to be addressed in the following months (e.g., prepare maps using more recent information on land use and forest cover, analyse land tenure and conflicts in protected forests).

64.74. This workshop focused on presenting the draft project concept, prepare a participatory situation analysis, and identify intervention sites and analyse the proposed project elements. National and local entities, and main stakeholders were invited. The memoir of the workshops (including list of participants) is in Annex 5. As a result of the consultation process the project concept was adjusted and specific targets were set.

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I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

75. The present project will allow to mainstream adaptation into local communities and implement actions to address specific threats and barriers. The AF contribution will allow to implement three key adaptation measures within a watershed perspective: (i) to conserve vegetation cover, (ii) to reduce pressure from farming activities, and (iii) to engage the local population into climate change adaptation.

Component 1. Conserve vegetation cover

Baseline

76. The two existing protected forest (Toachi – Pilaton and Zarapullo), cover a large area of the water system (ca., 230,000 ha) to safeguard the water cycle. MAE's Forestry National Directorate is responsible for managing these forest. However, these areas are not being managed and guarded. Farmers have invaded and cleared extensive areas to establish grazing areas and extensive farming systems. Some invaders have claimed possession rights to the municipal and central authorities, creating a severe land tenure issue. The extent of the invaded area is unknown.

77. Some land owners have established private reserves to conserve biodiversity. There are at least three private reserves covering about 2,800 ha. There are limited incentives to maintain forest areas in natural condition. The Socio Bosque programme was an interesting option, but after a promising start ran into financial problems. Private landowners of forest areas also face pressure from illegal farmers.

78. It is foreseen that climate change will reduce rainfall in the Toachi – Pilatón water system and produce stronger and more frequent ENSO events. Deforestation and forest degradation will exacerbate climate change impacts. The reduction in water availability will affect farmers, household water use, water companies and HIDROTOAPI hydroelectric plant.

With Adaptation Fund investment

79. The project will support the protection of forest cover to mitigate, as much as possible, the impacts from climate change. The key premise is that a large forest will better withstand changes in weather conditions and will continue to capture moisture and feed river streams.

80. The project will allow to:

- a. Develop and implement a system of incentives to finance the conservation of the existing protected forests and to provide incentives to landowners that voluntarily commit to the conservation and protection of their native forests and vegetation. This may be a water fund, that consolidate contributions from water users (e.g., HIDROTOAPI, water companies, rural water boards) and invest in forest conservation (e.g., incentives to landowners, protection, reforestation).
- b. Strengthen the institutional and legal framework to manage and protect the Toachi – Pilaton and Sarapullo protected forest and private reserves.

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Component 2. Adapt farming practices to new climate change conditions
Baseline

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81. Local farmers contribute to forest degradation. Their production is based on extensive and subsistence farming and the use inadequate practices that contribute to soil degradation and erosion. The main pressures come from cattle producers and sugarcane farmers. Cattle producers clear forests and invade river margins to establish grazing grounds. Sugarcane farmers, mainly based in Palo Quemado parish, clear forests to expand the production area and to obtain firewood for the artisanal production of panela. Each family furnace consumes about three trees per week.

With Adaptation Fund investment

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82. AF support will allow to introduce sustainable farming practices to increase production per unit area, therefore reducing the need to clear forest to expand farming areas.

83. Improved farming practices will be introduced in at least 250 ha of cattle production and 250 ha of sugarcane fields. The project will work with farmers' organizations in Las Pampas and Palo Quemado parishes.

84. Panela production will be analysed and improvements to the furnaces will be introduced to improve efficiency and reduce the consumption of fire wood.

Component 3. Strengthen local capacities and share lessons

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Baseline

85. The local population and stakeholders are not fully aware of the climate-related risks, and are not engaged into advance adaptation to climate change. Parish plans mention climate change, but do not incorporate actions to implement adaptation measures.

86. INAMHI has eight meteorological stations in the area, but only two are functioning. Therefore, weather monitoring is very limited and the local population do not have access to sound information for decision making. In addition, INAMHI has serious financial limitations to sustain the operation of a network of meteorological stations in the area.

With Adaptation Fund investment

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87. With AF support a public communication and education plan, grounded on the parish governments. It will cover about 14,000 people of the six parishes that are part of the Toachi – Pilaton water system. In addition, the project will directly support parish governments to mainstream climate change into the local development plans. All this will allow to engage local stakeholders into climate change adaptation action, and will be a valuable catalyst to increase local resiliency and build social capital.

88. The project will also allow to update and expand INAMHI's hydro-meteorological network in the area. Sediment samplers will be installed to monitor sediment load. Partnerships will be developed to sustain the operation of the hydro-meteorological network and to feed the information to local stakeholders. A option is to include these costs into the water fund that is being considered.

~~65. It is foreseen that climate change will increase the temperature and produce stronger and more frequent ENSO events. As mentioned before, the models for the area estimate that precipitation will be reduced and that sedimentation will greatly increase.~~

~~66. Under the present conditions, the current drivers of deforestation and expansion of the agriculture frontier will exacerbate the impacts of climate change. In turn, this will alter the hydrological cycle of the Toachi—Pilatón water system. It is probable that montane vegetation cover will degrade and reduce, therefore decreasing the capacity to condense and precipitate water, and increasing soil erosion.~~

~~67. In addition, the local population and stakeholders are not fully aware of the climate-related risks, and are not engaged into advance adaptation to climate change.~~

~~Situation with AF contribution~~

~~68. The present project will allow to mainstream adaptation into local communities and implement actions to address specific threats and barriers. The AF contribution will allow to implement three key adaptation measures within a watershed perspective: (i) to conserve vegetation cover, (ii) to reduce pressure from farming activities, and (iii) to engage the local population into climate change adaptation.~~

~~69. Improved means to conserve the vegetation, based on a watershed ecosystem approach, will contribute to sustain the hydrological cycle and to prevent, as much as possible, a reduction in water availability and soil erosion.~~

~~70. In addition, local farmers will be provided with knowledge and tools to implement sustainable farming practices. Also, sugarcane producers will use improved technology to reduce the use of firewood. It is envisioned that these practices will allow farmers to produce more in a smaller area. All this will in turn, contribute to reduce deforestation and expansion of the agriculture frontier.~~

~~71. Finally, the project will facilitate mainstreaming adaptation in to local development plans and to execute a strong public communication and education plan. This will allow to engage local stakeholders into climate change adaptation action, and will be a valuable catalyst to increase local resiliency and build social capital.~~

J. Describe how the sustainability of the project / programme outcomes has been taken into account when designing the project / programme.

~~72-89.~~ The project will have positive environmental impacts. There will be actions to contribute to maintain vegetation cover and to reduce pressures from deforestation and expansion of the agriculture frontier.

~~73-90.~~ Social sustainability will be based on the participatory approach and the integration of key stakeholders. The project will promote multi-level dialogue, networking and collaboration to build social capital in support of watershed conservation.

~~74-91.~~ The project is anchored in pertinent local and national authorities responsible for local development and climate change adaptation. Parish governments are the centrepiece of the project, but it will also involve municipal and provincial

governments, pertinent sectoral authorities (e.g., MAGAP, SENAGUA) and community organizations (e.g., Flor de Caña). It is foreseen that through this networking the core elements of the project will continue in the institutional agendas.

92. A water fund is being considered as a financial and technical mechanism to sustain critical elements like forest conservation, technical support to local farmers and weather monitoring. It is expected that HIDROTOAPI and other water users will be motivated to contribute to the water fund to maintain long-term key actions. The viability of this instrument will be assessed during project preparation.

75-93. Finally, it is foreseen that parish governments and other project partners will integrate actions into their institutional budgets to ensure post-project sustainability. of actions will be ensured by integration into institutional budgets of parish governments and other project partners. It is also expected that HIDROTOAPI will contribute in maintain long-term key actions.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

94. The project was screened and assessed as required by the Adaptation Fund's Environmental and Social Policy (ESP).

95. Screening was done using CAF's preliminary environmental and social risk analysis matrix (instrument FR-086), which is part of CAF's environmental and social management system. As stated in ESP's article 8 "implementing entities that use a different but functionally equivalent system of categorization can continue to use that system and still meet the requirements of the policy".

96. The project was classified as 1C according to CAF's procedure.

97. The number 1, refers to context sensitivity. It has three ranks: "1" high sensitivity, "2" moderate sensitivity, and "3" low sensitivity. The present project has a high context sensitivity because it will involve working with mature forest areas, in an area highly vulnerable to El Niño / La Niña, where there is evidence of conflicts for the use of natural resources.

98. The letter C, refers to project type. CAF's screening instrument It has three categories: "A" projects known to generate multiple and complex environmental and social impacts, "B" projects with medium impacts, and "C" projects with low or negative environmental and social impacts.

99. Complementarily, the project was screened using AF's screening matrix. The project corresponds to Category C (no adverse environmental or social impacts), the screening matrix is included in Table Table 3 and the results are presented latter.

76-100. During project preparation a detailed stakeholder analysis will be prepared and details on the role of women. Enclosed is a preliminary analysis of compliance with the 15 principles of the Adaptation Fund's Environmental and Social Policy. A thorough analysis will be made during the preparation of the full proposal. Further analysis will be needed on gender issues, the role of women in in the farms and local organizations is not clear at the moment will be obtained. This will serve to adjust project actions to be gender sensitive.

[illegible][illegible][illegible]

<i>Climate Change</i>	No risk or adverse impacts. The project will not increase greenhouse gas emissions or the main drivers of climate change indicated in principle 11.*		Formatted: Font: Arial Narrow
			Formatted: Left
<i>Pollution Prevention and Resource Efficiency</i>	No risk or adverse impacts. The project does not imply major use of energy or the production of wastes and pollutants. On the contrary, it will contribute to more efficient use of water in farming and the reduction of pollutants.*		Formatted: Font: Arial Narrow, 11 pt
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<i>Public Health</i>	No risk or adverse impacts. The project does not imply negative impacts on public health.*		Formatted: Font: Arial Narrow, 11 pt
			Formatted: Font: Arial Narrow
<i>Physical and Cultural Heritage</i>	No risk or adverse impacts. The project will not intervene in cultural / archaeological sites or sites with unique natural values.*		Formatted: Font: Arial Narrow, 11 pt
			Formatted: Font: Arial Narrow
<i>Lands and Soil Conservation</i>	No risk or adverse impacts. The project does not imply soil conversion or degradation. On the contrary the project will contribute to soil conservation and to reduce soil erosion.*		Formatted: Left
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PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

~~78~~-102. CAF will be the implementing agency and MAE will be the responsible entity. The project will be implemented following CAF's administrative and financial regulations as agreed with the Adaptation Fund.

~~79~~-103. The project partners are the parish governments of Manuel Cornejo Astorga, Aloag, El Chaupi, Palo Quemado, and Las Pampas, the municipal governments of Mejía and Sigchos, MAGAP, INAMHI, SENAGUA and CELEC. Complementary collaboration agreements will be signed with the provincial governments of Cotopaxi and Pichincha, HIDROTOAPI and relevant local organizations.

B. Describe the measures for financial and project / programme risk management.

~~80~~-104. The following key risks have been identified:

Project risks					
Description	Type ²⁰	Impact & Probability level ²¹	Mitigation Measures	Responsible	Status ²²
Change of central government in Ecuador. The new president and will take office in 2017 ²³	Political	P = 5 I = 3	Present the project to new authorities in MAE	CAF	No change
Change of municipal government in Ecuador. The new authorities will take office in 2019 ²⁴ .	Political	P = 5 I = 3	Present the project to new authorities	MAE and CAF	No change
Effect of La Niña in precipitation and local weather conditions ²⁵ .	Environmental	P = 3 I = 3	Monitor information and alerts in national meteorological entities, NOAA, and World Meteorological Organization	CAF	Increasing

²⁰ Environmental, Financial, Operational, Organizational, Political, Regulatory, Strategic, Other

²¹ 1 = low / 5 = high.

²² Over, reducing, increasing, no change.

²³ During the first year of project implementation.

²⁴ In the mid-term of Project execution.

²⁵ In Ecuador, La Niña produces dryer conditions. Currently, La Niña is favoured to develop during August - October 2016, with about a 55-60% chance of La Niña during the fall and winter 2016-2017 (NPC, 2016).

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

~~84-105.~~ This section will be developed during preparation of the full proposal.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

~~82-106.~~ Project-level monitoring and evaluation will be undertaken in compliance with standard CAF requirements as agreed with the Adaptation Fund. It is expected to prepare annual Adaptation Fund Project Performance Reports that include the Adaptation Fund Results Tracker.

~~83-107.~~ There will be an independent mid-term review and a terminal evaluation to assess progress and lessons.

~~84-108.~~ The budgeted monitoring and evaluation plan will be drafted during preparation of the full proposal.

E. Include a results framework for the project / programme proposal, including milestones, targets and indicators.

~~85-109.~~ This section will be developed during preparation of the full proposal.

F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s) ²⁶	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount ²⁷ (USD)
To strengthen the adaptive capacity of the local population in the Toachi – Pilatón water system	Number of people (men and women) with improved adaptive capacity <u>[target 14,000 people]</u>	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	70,000
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	120,000

²⁶ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

²⁷ The allocations listed below do not sum the total project Budget. Component 3 (i.e., outputs 7.1 and 7.2) deal with knowledge management and dissemination of lessons and best practice. The AF's results framework does not have a specific outcome or output dealing with knowledge management.

		Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5.1. Number of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	770,000
		Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure access to livelihood assets	900,000
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Outcome 1. At least 230,000 ha of native vegetation is conserved to reduce the impact of climate change on the watershed's hydrological cycle.	Surface (ha) under improved management. [target 230,000 ha]	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. Number of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	770,000
Outcome 2. At least 500 ha of agriculture land apply sustainable farming practices appropriate to the foreseen impacts of climate change	Production area (ha) under improved management. [target 500 ha] Number of people (men and women) who implement sustainable farming practices [target >300]	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. Number and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	900,000
Outcome 3. Local population and parish governments with increased capacity to implement climate change adaptation measures.	Number of strengthened local development plans [target 6] Number of staff (men and women) of local governments and pertinent entities trained on adaptation to climate change [target >25] Number of people (men and women) who have participated in awareness activities and events. [to be defined] Number of visitors to the project's website [to be defined]	Output 2: Strengthened capacity of national and subnational centres and networks to respond rapidly to extreme weather events	2.1.1. Number of staff trained to respond to, and mitigate impacts of, climate-related events (by gender) 2.1.2 Number of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	220,000
		Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1 Number of news outlets in the local press and media that have covered the topic	120,000

G. Include a detailed budget with budget notes, broken down by country as applicable, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

~~86~~110. This section will be developed during preparation of the full proposal.

H. Include a disbursement schedule with time-bound milestones.

~~87~~111. This section will be developed during preparation of the full proposal.

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List of Annexes

Annex 1. Abbreviations

Annex 2. Bibliography

Annex 3. Maps

Annex 4. Supporting evidence of consultation during 2015

Annex 5. Memoir of inception workshop in 2016

Annex 6. CAF's preliminary environmental and social risk analysis matrix

PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government²⁸

Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project / programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:

<i>(Enter Name, Position, Ministry)</i>	<i>Date: (Month, day, year)</i>
<i>(Enter Name, Position, Ministry)</i>	<i>Date: (Month, day, year)</i>
<i>(Enter Name, Position, Ministry)</i>	<i>Date: (Month, day, year)</i>

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²⁸ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (.....list here.....) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Name & Signature

Implementing Entity Coordinator

Date: (Month, Day, Year)

Tel. and email:

Project Contact Person:

Tel. And Email:

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ADAPTATION FUND

Letter of Endorsement by Government

Government of Ecuador
Ministry of Environment

Quito, 29th July, 2016

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for the National Project Proposal "*Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management*"

In my capacity as designated authority for the Adaptation Fund in Ecuador, I confirm that the above national project proposal is in accordance with the government's National Development Plan and its priorities in implementing adaptation activities to disaster risk reduction and early warning systems of Ecuador.


Accordingly, I am pleased to endorse the above national project proposal with support from the Adaptation Fund. If approved, the project will be implemented by CAF- Latin American development bank and executed by the Ministry of Environment of Ecuador

Sincerely,

MARIA VICTORIA CHIRIBOGA
National Designated Authority
Climate Change Undersecretary
Ministry of Environment - Ecuador

Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social
Development and Environmental Projects

Annex 6. CAF's preliminary environmental and social risk analysis matrix

Name of the Project	Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management
Country	Ecuador
Client	Ministry of Environment of Ecuador. Donor: Adaptation Fund
Date	July 2016
Environmental Executive	Carolina Cortés
Project Category	1C -  Category II Moderate risk (3a, 2b, 1c)

Project Type (PT)

Type of Project	Characteristics
Type a	Those that by their dimensions and components are known that can generate multiple and complex environmental and social impacts.
Type b	Those medium impacts, however, can significantly affect some features of the natural, social, economic or cultural environment.
Type c	Those with low or negative environmental and social impacts, which generally include planning programs and social and institutional improvement, which usually do not include infrastructure.

Type a		Project (*)
Electric Energy	<ul style="list-style-type: none"> - Plants hydroelectric power generation (large-scale) - Plants thermoelectric power generation - Plants nuclear power generation 	
Water y Sanitation	<ul style="list-style-type: none"> - Dams and reservoirs for drinking water - Use of watersheds - Transfer of basins - Macro drains 	
Transport	Construction and / or opening, reconstruction: <ul style="list-style-type: none"> - Primary Roads - Secondary roads - Rural roads and / or tertiary - Railways and underground - International and domestic airports - Sea and river ports - Major urban roads 	

**Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social
Development and Environmental Projects**

Agriculture y Fishing	<ul style="list-style-type: none"> - Irrigation and drainage (large scale) - Aquaculture and ocean-culture (large scale) - Expansion and agricultural development - Forestry - Agro-industrial scale projects (e.g. industrial plantations for biofuel) 	
Environmental	<ul style="list-style-type: none"> - Facilities for handling solid waste and / or hazardous - Forestry production 	
Hydrocarbons	<ul style="list-style-type: none"> - Exploration - Production - Pipelines - Refining 	
Mining	- All	
Other	Specify	
Type b		
Electric Energy	<ul style="list-style-type: none"> - Electric power transmission / Rural Electrification - Small hydroelectric power plants (PCH) - Use of alternative energies (wind , biomass) 	
Water y Sanitation	<ul style="list-style-type: none"> - Treatment Plants drinking water and / or wastewater - Transmission and distribution of drinking water - Public Sewer 	
Transport	Rehabilitation / Maintenance : <ul style="list-style-type: none"> - Secondary roads - Rural roads and / or tertiary - Urban Roads 	
Agriculture y Fishing	<ul style="list-style-type: none"> - Irrigation and drainage (small scale) - Aquaculture and ocean-culture (small scale) 	
Environmental	- Facilities for the recycling of solid waste	
Hydrocarbons	- Distribution of domestic gas	
Other	<ul style="list-style-type: none"> - Ecotourism infrastructure - Industrial Restructuring - Expansion projects , operation and maintenance of category "A " - Projects involving significant generation of electromagnetic fields 	
Type c		
Electric Energy	<ul style="list-style-type: none"> - Commercial distribution of electricity - Photovoltaic Parks 	
Telecommunications	- Projects involving the use of optical fiber and minimal generation of electromagnetic fields	
Health	<ul style="list-style-type: none"> - Health Programs - Health infrastructure (hospitals) 	
Education	<ul style="list-style-type: none"> - Education Programs - Infrastructure in Education (schools) 	
Environmental	<ul style="list-style-type: none"> - Integrated Watershed Management - Comprehensive Management of Protected Areas - Restoration of degraded natural areas 	X

Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social
Development and Environmental Projects

Other	<ul style="list-style-type: none"> - Institutional Development - Technical assistance - Ecotourism no infrastructure - Risk management infrastructure: [1] Alluvial Energy Dissipation and mudflow containment systems in Antofagasta / [2] Retaining wall / Slope stabilization in Esmeraldas. 	
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(*) Mark the appropriate

Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social
Development and Environmental Projects

Meanwhile, the CS may be divided into three grades:

Context Sensitivity (CS)

Context Sensitivity	Characteristics
High Sensitivity (1)	It corresponds to an environment in which certain physical, natural, economic, social and cultural characteristics, their level of fragility or vulnerability, enhance the level of involvement of the intervention. The mere presence of one of the variables considered high sensitivity is crucial and overrides the other classified as moderate or low sensitivity.
Moderate Sensitivity (2)	It corresponds to an environment where the nature or extent of current intervention of the physical, natural, economic, social and cultural environment , determine a lower level of involvement by the intervention , to the extent that the values that may be lost are lower with respect to an ecosystem without intervention.
Low Sensitivity (3)	It corresponds to an environment where the characteristics or degree of actual physical intervention , natural, economic , social and cultural environment, determined little to no level of involvement by the intervention.

High Sensitivity (1)		Project (*)
Physical component	<ul style="list-style-type: none"> - Mountain area with rugged terrain (> 35 % slope) - Areas of high seismic activity - Areas highly vulnerable to El Niño / La Niña and extreme weather events - Areas under the influence of volcanic activity - High potential for erosion - Rising water or water bodies of environmental and social strategic importance 	X
Biological component	<ul style="list-style-type: none"> - Wetlands and / or mangroves, permanently flooded areas, corals - Primary or secondary forest mature - Exceptional Ecosystems - Presence of local or regional protected areas - Presence of threatened or endangered 	X
Social, Economic and Cultural component	<ul style="list-style-type: none"> - Sites of archaeological and anthropological - Areas with armed conflicts or conflicts over the use of natural resources - Urban settlements with low levels of social equipment - Areas subject to resettlement population (> 20 people) - Areas with incompatible uses for the purposes of the project - Use wooden or products from natural forests primary or secondary - High water consumption in areas of low abundance or intensive - High power consumption in areas of low abundance or intensive - High production of discharges, emissions and / or solid waste - Areas or settlements with high levels of Unsatisfied Basic Needs - Areas with presence of indigenous communities - Areas with high tourist value 	X

Referencia: Procedimiento para la Evaluación y
Seguimiento Ambiental y Social de Operaciones de
Infraestructura, Desarrollo Ambiental y Social
FR / DACC – 086

**Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social
Development and Environmental Projects**

Moderate Sensitivity (2)		
Physical component	<ul style="list-style-type: none"> - Undulating land (15-35 % slope) - Moderate earthquake risk - Moderate potential for erosion - Sporadically flooded areas 	
Biological component	<ul style="list-style-type: none"> - Young secondary forests or in succession 	
Social, Economic and Cultural component	<ul style="list-style-type: none"> - Urban settlements with moderate levels of social equipment - Areas of uses not defined - Areas subject to resettlement population (<20 people) - Use or wood products from planted forests. - Moderate consumption of water in areas of low abundance or heavy use - Moderate energy consumption in areas of low abundance or heavy use - Areas or settlements with high levels of Unsatisfied Basic Needs 	
Low Sensitivity (3)		
Physical component	<ul style="list-style-type: none"> - Land undulating planes (< 15 % slope) - Areas without flooding 	
Biological component	<ul style="list-style-type: none"> - Herbaceous vegetation operated and / or wide geographical distribution 	
Social, Economic and Cultural component	<ul style="list-style-type: none"> - Urban settlements with high levels of social equipment - Areas with low levels of social conflict - Areas with alternative uses or consonant to the purposes of the project - Low water consumption in areas of low abundance or heavy use - Low power consumption in areas of low abundance or heavy use 	

(*)Mark the appropriate

Resume

Name of the Project	PT	CS
Increasing adaptive capacity of local communities, ecosystems and hydroelectric systems in the Toachi – Pilatón watershed with a focus on Ecosystem and Community Based Adaptation and Integrated Adaptive Watershed Management	Type C	1

The project focuses on key drivers that will worsen the probable impact from climate change. The expected mid-term impacts are improved enabling conditions to sustain forest cover and sustainable small-scale farming in the area. In the long-term, it is expected that this will result in improved adaptive capacity. It is also envisioned that the lessons of the project are useful to other parts of Ecuador and other Andean countries.

Component 1 will focus on the conservation of forests. Three outcomes will be generated by (i) expanding protection of existing forests under mechanisms of conservation and sustainable forest

Preliminary Environmental and Social Risks Analysis Matrix for Infrastructure, Social Development and Environmental Projects

management⁷, (ii) strengthening the management of existing protected forests and private reserves, and (iii) to build artisanal sediment retention dams⁸ in key risk areas.

Component 2 will focus on introducing sustainable farming practices to reduce the impact on the local water cycle and to adapt to probable conditions of reduced rainfall. One outcome will be generated by introducing best practices in about 250 ha of pasture land and 200 ha of crops (including sugarcane).

Component 3 will focus on strengthening private and public local capacities to implement adaptation measures. Three outcomes will be generated by (i) strengthening climate-monitoring, (ii) introducing adaptation to climate change into parish development and land use plans, and (iii) implementing public communication and education plans. It is foreseen that this component will facilitate dialogue and collaboration among stakeholders to strengthen social capital.

Matrix Preliminary Analysis of Environmental and Social Risk

Category of the Project				Associated Risk	
SM \ TO	a	b	c		
1	1a	1b	1c	■	Category I High risk (1a,1b, 2a)
2	2a	2b	2c	■	Category II Moderate risk (3a, 2b, 1c)
3	3a	3b	3c	■	Category III Low Risk (3b, 2c, 3c)

Assigned Category: 1C - ■ Category II Moderate risk (3a, 2b, 1c)