



ADAPTATION FUND

AFB/PPRC.15/6
25 September 2014

Adaptation Fund Board
Project and Programme Review Committee
Fifteenth meeting
Bonn, Germany, 7-8 October 2014

Agenda Item 6 b)

PROPOSAL FOR MEXICO

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", 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 8 April 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 titled “Local and Comprehensive Adaptation Measures to Address Climate Change in Two Sub-Basins of Guanajuato, Mexico” was submitted by the Mexican Institute of Water Technology (IMTA), which is the National Implementing Entity of the Adaptation Fund for Mexico.

10. This is the first submission of the proposal. It was received by the secretariat in time to be considered in the twenty-fourth Board meeting, and assigned the diary number MEX/NIE/Rural/2014/1. The initial technical review was conducted based on the information provided by the proponent that the proposal was a fully-developed project document. In accordance with a request to the secretariat made by the Board in its tenth meeting, the secretariat shared this review sheet with IMTA, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC. After this, the proponent informed the secretariat that it wanted the proposal to be considered as a concept instead, and the final review was done on this basis.

11. 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.

Project Summary

Mexico – Local and Comprehensive Adaptation Measures to Address Climate Change in Two Sub-Basins of Guanajuato, Mexico

Implementing Entity: IMTA

Project/Programme Execution Cost: USD 695,000

Total Project/Programme Cost: USD 8,008,000

Implementing Fee: USD 622,000

Financing Requested: USD 8,630,000

Programme Background and Context:

The proposed project area includes 14 municipalities of the state of Guanajuato, located in the northern area of the Lerma-Chapala basin. This river basin lies in the center of Mexico and is of critical importance as it collects a large proportion of the water used by the country's major poles of industrial development: the cities of Mexico and Guadalajara and their respective metropolitan areas. The water resources in the region aquifer are overexploited, the surface water polluted, and land-use change causes additional problems. These challenges are likely to be exacerbated under climate change scenarios of higher temperatures and reduced precipitation during the low-water period, and extreme precipitation events during the rainy season. These problems are compounded by the facts that 80% of the localities in the project area are highly marginalized, and 38% of the population in a situation of extreme poverty in the state of Guanajuato lives in the two basins of interest to the project. The stated aim of the proposed project is to implement climate change adaptation measures targeted at 1) strengthening social and institutional capacities, 2) building and improving infrastructure, 3) modifying production practices, as well as 4) conserving and managing natural ecosystems in a sustainable way. At the same time, adaptation measures would be sought to be compatible with the needs, interests and capacities of the communities, in order for them to take ownership of these measures and give them continuity.

Component 1: Social Capacity Strengthening (USD 688,000)

This component would aim at strengthening local social capacity through supporting decision making by creating and strengthening spaces to raise the issue of climate change adaptation as a cross-cutting objective of the different government sectors; training experts in climate change and, more specifically, in climate change adaptation, in CSOs and government authorities; and conducting studies to provide a baseline for some indicators. It would also improve government institutions coordination by determining the compatibility or incompatibility of policies and programs and aligning programs and actions to support climate change mitigation and adaptation efforts. Further, the component would promote a network of government, educational, and civil society organizations involved in climate change mitigation and adaptation and strengthen the State Climate Change Council. The component would also support people's ownership of adaptation measures by disseminating information via radio and the Internet and by engaging with the local population, especially young people, in preparing news bulletins and segments. This would be supported by organization of workshops aimed at developing a regional view that would enable the population to design their own climate change adaptation strategy, by promotion of intercommunity experience sharing through mobilizing leaders, implementers and parties interested in climate change adaptation measures, and community-based monitoring activities.

Component 2: Infrastructure and Ecological Conservation (USD 6,450,000)

This component would reinforce natural resources conservation interest through integrated systems of environmentally sound technologies for water and food security (rainwater harvesting systems, biofilters, dry toilets, cisterns, wood-saving stoves, vermicomposting systems, backyard gardens) and through municipal wastewater purification systems. It would also reinforce soil conservation culture through promoting soil conservation practices, sustainable farming practices, and reforestation, revegetation and rehabilitation of riparian ecosystems, forests and wetlands.

Component 3: Monitoring and Evaluation (USD 175,000)

This component would develop monitoring and evaluation indicators, including those for environmental health, for the adoption of the implemented measures by the population and for inter-institutional coordination. It would also collect a baseline for these indicators, and strengthen monitoring of implementation through training, establishment of a monitoring team, obtaining remote sensing data, conducting laboratory and field analyses, and publishing booklets of monitoring procedures. Finally, the component would promote transparency by creating a publicly accessible online platform containing the monitoring records of the impacts of adaptation measures.



ADAPTATION FUND

**ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW
OF PROJECT/PROGRAMME PROPOSAL**

PROJECT/PROGRAMME CATEGORY: **REGULAR PROJECT CONCEPT**

Country/Region: **Mexico**
 Project Title: **Local and comprehensive adaptation measures to address climate change in two sub-basins of Guanajuato, Mexico**
 AF Project ID: **MEX/NIE/Rural/2014/1**
 IE Project ID:
 Reviewer and contact person: **Mikko Ollikainen**
 IE Contact Person: **Jesus Magallanes Patiño**

Requested Financing from Adaptation Fund (US Dollars): **8,630,000**
 Co-reviewer(s): **Christian Severin**

Review Criteria	Questions	Comments on 25 August 2014	Comments on 11 September 2014
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	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	Yes (endorsement letter dated 16 July 2014).	

	<p>2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?</p>	<p>Requires significant clarification. A general comment: the level of information provided in the proposal is not adequate for a fully-developed project document and in some cases not even for a project concept. As it has been identified by the proponent as a fully-developed proposal, it has been reviewed as such.</p> <p>The proposed activities do not appear to form a coherent and coordinated set, and information on the activities themselves and their mutual linkages is lacking. The project objective <i>“to implement climate change adaptation measures targeted at strengthening social and institutional capacities, building and improving infrastructure, modifying production practices, as well as conserving and managing natural ecosystems in a sustainable way”</i> is not focused, which does not support achieving desired impact. Even as the project is planned to follow a participatory approach, it should include a clear plan of what it would hope to achieve. With numerous references to on-going planning and contemplation, it appears the activities have not been decided upon.</p>	
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		<p>Further, quantified expected results are missing from the majority of the proposal (the exception being the budget notes which provide some quantified information which is, however, not clearly linked to other parts of the proposal).</p> <p>CR1 (overall request): Please provide comprehensively more information on different aspects of the proposed project. Please see the document “Instructions for Preparing a Request for Project or Programme Funding from the Adaptation Fund” on the AF website for specific guidance on what is generally expected from a fully-developed project proposal.</p> <p>CR2: Please provide substantially more contextual information on the planned project area, including its economy and livelihoods, non-climatic development challenges and past climate change adaptation interventions.</p>	<p>CR1: The proponent clarified that the proposal had been erroneously submitted as a full proposal, and wished it to be considered as a concept instead. The final review considers the proposal a concept and has adjusted the application of review criteria accordingly.</p> <p>CR2: Not adequately addressed: additional information is scarce on economy and livelihoods and non-climatic challenges. Also, the section on past climate change adaptation interventions does not provide information on duration and budget of the mentioned activities.</p>
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		<p>CR3: Please analyse the structure of the project as a whole, consider the proposed activities, and reassess how they could constitute a strong project in which different parts contribute to, and are necessary for, each other and to the project objective. For instance, please explain how the Component 3 on monitoring and evaluation contributes and is necessary for achieving the project objective. Currently it is not clear what is to be monitored: environmental variables for their own right or project indicators for the purposes of tracking project performance. Also, please explain what the specific purpose of the meetings, trainings and other activities under Component 1 would be.</p> <p>CR4: In the project components and financing table (p. 17), please formulate the expected outputs more clearly. Currently what is listed as outputs, are actually activities, and the outputs are missing.</p>	<p>CR3: The proposal has included (p. 29) a schematic presentation on how the proposed solutions would address existing problems related to water availability. However, the project is proposed to include also activities related to development of government agencies' capacity and coordination, and there is no explanation of why it would be necessary. As the proposal mentions, water management would need to be looked at the catchment level, and Component 1 includes activities for "building a regional view of climate change and dealing with its effects". However, between the levels of awareness and institutional capacity (Component 1) and concrete on-the-ground interventions (Component 2) it is not clear how land use planning would be taken into account to guide the positive changes in land use and water management, even though land use changes have been identified as a major driver of the problems. Also, the activities under Component 3 still seem to include both activities for regular project monitoring that should fall under execution costs and not be included as component costs.</p> <p>CR4: Not addressed. Activities are still listed as outputs.</p>
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		<p>CR5: While presenting the proposed concrete adaptation interventions, such as rainwater harvesting and water treatment schemes, please provide quantified information on the water stress and existing solutions in the target area, obstacles for development, and how this project would help overcome those obstacles. Similarly for home gardens, please explain what the current situation of home gardens is, what obstacles there have been for their further development, and how this project would help overcome those obstacles. Similarly for ecological conservation, please describe the natural or pre-existing vegetation, what has caused the land-use change that is portrayed as a challenge, and how the project would tackle the drivers of land-use change. For soil conservation, please provide an analysis of current situation and past drivers of erosion and decrease in soil fertility.</p> <p>CR6: In the problem diagram (Figure 9), please include effects of climate change, and explain the interaction of climatic and non-climatic drivers in the text.</p>	<p>CR5: As the proposal is reviewed as a concept, the level of detail needed is less. However, the proposal still does not explain what, apart from access to finance, the obstacles for development of rainwater harvesting, water treatment schemes and home gardens have been, and how this project would overcome those obstacles. On the issue of land-use change, the proposal still does not explain how it would seek to address the drivers behind the trends of harmful land-use change, which might pose a risk to the project's intentions to reforest and restore ecosystems.</p> <p>CR6: Figure 9 has been replaced with a new figure 8. Linkages between climate and other stressors have been explained in the text.</p>
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	<p>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>	<p>Some of the suggested activities may provide such benefits but there is a lack of explanation on how the totality of the activities will be providing economic, social and environmental benefits to the vulnerable communities. CR7: After deciding on the specific activities to be implemented in the project, please provide quantified information on the expected benefits in relation to the baseline situation. Please identify particularly vulnerable groups and describe benefits to them.</p>	<p>CR7: The information provided is sufficient for a concept stage proposal.</p>
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	<p>4. Is the project / programme cost effective?</p>	<p>It is difficult to to establish if project is cost effective, as the synergies between the suggested components and the issues they would be addressing are very weak. For instance, the construction of wetlands for wastewater treatment towards removing water hyacinths from Lake Yuriria seems out of context from the other activities that all would be aimed at providing adaptation and economic benefits to the local communities. It is not clear how water hyacinths are related to climate change, or merely an effect of introduction to the water system, as well as having water carrying heavy nutrient loads into the lake (in this case). On the other hand, recycling treated wastewater into the home gardens as a grey water irrigation source (through subsurface drip irrigation systems – to avoid potential e-coli on fresh crops) might support the other proposed activities and provide benefits for local communities. However, it is difficult to conclude what the plans are exactly.</p> <p>CR8: After the more specific project activities have been decided upon, please present the selected option compared to the cost-effectiveness of other possible options that were not selected.</p>	<p>CR8: With the remaining lack of clarity on the overall design of the project (CR3) it is not possible to conclude that the project would be cost effective. Some of the individual activities appear cost effective (p. 32).</p>
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	<p>5. Is the project / programme consistent with national or 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?</p>	<p>Requires considerable clarification. The section mentions the sub national climate change law and the federal program against hunger but does not explain how the project would address the priorities of those. The proposal also lacks information of national level strategies and policies on climate change and the sectors in which the project is planned to work. CR9: Please explain more comprehensively and in detail what the relevant national level strategies and policies on climate change and the relevant sectors are, and how the project would be aligned with them. Please also explain how the project would align with the mentioned state law.</p>	<p>CR9: Not adequately addressed. The proposal identifies climate change related strategies and policies but it does not mention how the proposed activities would be consistent with the goals of those strategies and policies. Further, the proposal does not identify relevant sector policies and strategies e.g. in agriculture and water resources management.</p>
	<p>6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund??</p>	<p>This section of the proposal is missing. CR10: Please include the section on compliance with national technical standards, and provide information as outlined in the Instructions to Proponents.</p>	<p>CR10: Not adequately addressed. The proposal identifies a number of technical standards but it does not state how the project would comply with these standards.</p>

	7. Is there duplication of project / programme with other funding sources?	This section of the proposal is missing. CR11: Please include the section on duplication with other funding sources, and provide information as outlined in the Instructions to Proponents.	CR11: Not adequately addressed. The proposal has not explained whether there would be duplication with any potentially overlapping projects / programmes. For example, the complementarity of the proposed project in relation to the other initiatives listed in section "Previous climate change adaptation interventions" (pp. 16-17) has not been explained.
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes, however, the activities have only been described generally, without a proper implementation plan, explanation of mutual linkages, and quantified expected results. CR12: Please explain in detail the component on knowledge management and lessons learned.	CR12: The information is sufficient for a concept.

	<p>9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?</p>	<p>It seems the consultation has taken place only with institutional stakeholders and before the project has been formulated. There is no information on consultations with communities, or consultations that would have been informed by technical assessments. CR13: For a fully-developed project document, please carry out a comprehensive consultative process which involves all direct and indirect stakeholders of the proposed project. Please consult the instructions for proponents for further information on the requirements. In addition, please include the dimensions of gender and vulnerable groups in the consultation.</p>	<p>CR13: The consultations have been adequate for a concept stage proposal. These would need to be later followed up by more comprehensive consultations with communities, informed by technical assessments (if any such assessments have to be conducted).</p>
	<p>10. Is the requested financing justified on the basis of full cost of adaptation reasoning?</p>	<p>The information provided in the section does not respond to the request to justify the requested financing based on the full cost of adaptation reasoning. CR14: Please provide a justification on the proposal's cost in relation to the full cost of adaptation.</p>	<p>CR14: Not addressed. The proposal should provide a justification on the proposal's cost in relation to the full cost of adaptation, as explained in the document "Instructions for Preparing a Request for Project or Programme Funding from the Adaptation Fund".</p>
	<p>11. Is the project / program aligned with AF's results framework?</p>	<p>Yes, broadly.</p>	
	<p>12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?</p>	<p>Requires considerable clarification. The argumentation currently provided on sustainability of the suggested activities does not address the issue. CR15: Please provide a justification</p>	<p>CR15: Not adequately addressed.</p>

		that describes how the different activities have been selected while considering long term sustainability, adaptability to local settings as well as adoptability. All key areas of sustainability should be addressed, including but not limited to economic, social, environmental, institutional and financial sustainability.	Even for a concept, there would need to be a reflection of the whole project in terms of the sustainability, and at least a basic plan on how sustainability would be achieved for each component of the project.
	13. Does the project / programme provide an overview of environmental and social impacts / risks identified?	The proposal provides a general introduction of its approach, and a checklist of environmental and social principles, with 6 principles checked as “no further assessment required” and 9 with “potential impacts and risks”. In accordance with the environmental and social policy, assessments and management plans for any areas with identified risks should be completed before project submission. The current proposal does not include such elements. CR16: After selecting the specific project activities for the proposal, please conduct a serious assessment of the risks that may require assessments and management/mitigation plans.	CR16: Not adequately addressed. No explanation on the actual risks for the identified 9 areas has been given, instead they are portrayed as “tentative indicators for monitoring adaptation measures”. For a concept, the screening matrix should be used to illustrate areas where potential environmental and social impacts and risks have been identified, taking into account the Fund’s environmental and social principles. Based on the screening, the project should be categorized in terms of the level of the potential risk as explained in the AF Environmental and Social Policy. In areas where further assessments or development of management plans are envisaged before submitting the fully-developed project document, the plan to do so should be stated.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes.	
	2. Is the Implementing Entity	Yes.	

	Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?		
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?	Yes	
Eligibility of IE	4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management?	No, the proposal has not described in detail how the project would be implemented. CR17: Please explain the roles of the implementing and executing entities, and which kind decision-making and advisory bodies would be used in the project. Please provide an organogram.	CR17: Not applicable for a concept stage proposal.
	2. Are there measures for financial and project/programme risk management?	Requires clarification. CR18: Please expand on this section, and following a risk analysis, cover a more comprehensive range of potential risks.	CR18: Not applicable for a concept stage proposal.

	<p>3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund?</p>	<p>Requires considerable clarification. CR19: In this section, please provide a detailed explanation on how the risks identified in principles of the environmental and social policy, would be addressed. CR20: Please clarify how IMTA would ensure that the executing entity is fully aware of their responsibilities with regards to the provisions of the Environmental and Social Policy of the Adaptation Fund, including the promotion of human rights, where applicable, and how the executing entity and direct beneficiaries would be made aware of the grievance mechanism available in the country and of the complaint handling mechanism of the Fund, in case of non-compliance.</p>	<p>CR19: Not applicable for a concept stage proposal. CR20: Not applicable for a concept stage proposal.</p>
	<p>4. Is a budget on the Implementing Entity Management Fee use included?</p>	<p>Yes.</p>	
	<p>5. Is an explanation and a breakdown of the execution costs included?</p>	<p>No, the execution cost budget is missing. CAR1: Please include a breakdown of the execution costs in the project.</p>	<p>CAR1: Not applicable for a concept stage proposal.</p>

	6. Is a detailed budget including budget notes included?	<p>A budget has been included. However, it is general and not nearly detailed enough. Also, the cost table on p. 4 of the proposal does not correspond to the table on pp. 17-18. The monitoring budget on pp.37-38 does not correspond to the budget on pp. 43-44.</p> <p>CR21: Please provide a detailed budget, broken down to at least the output level, and ensure that budget figures throughout the proposal are consistent.</p>	CR21: Not applicable for a concept stage proposal.
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	<p>Arrangements for M&E have been provided. However, the results framework does not include quantified targets, or sex-disaggregation of indicators. The statement on p. 36 that USD 1.5 million would be allocated to M&E is not clear.</p> <p>CR22: Please include quantified targets at least at the output level, and disaggregate by gender wherever possible.</p>	CR22: Not applicable for a concept stage proposal.
	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?	<p>The role of the NIE has been included in the monitoring plan but the cost allocation is not clear. NIE expenses should be covered by the IE Fee.</p> <p>CR23: Please clarify the costs of the M&E functions between the executing entity and the implementing entity.</p>	CR23: Not applicable for a concept stage proposal.

	<p>9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?</p>	<p>Yes.</p>	
	<p>10. Is a disbursement schedule with time-bound milestones included?</p>	<p>Yes</p>	

<p>Technical Summary</p>	<p>The proposed project area includes 14 municipalities of the state of Guanajuato, located in the northern area of the Lerma-Chapala basin. This river basin lies in the center of Mexico and is of critical importance as it collects a large proportion of the water used by the country's major poles of industrial development: the cities of Mexico and Guadalajara and their respective metropolitan areas. The water resources in the region aquifer are overexploited, the surface water polluted, and land-use change causes additional problems. These challenges are likely to be exacerbated under climate change scenarios of higher temperatures and reduced precipitation during the low-water period, and extreme precipitation events during the rainy season. These problems are compounded by the facts that 80% of the localities in the project area are highly marginalized, and 38% of the population in a situation of extreme poverty in the state of Guanajuato lives in the two basins of interest to the project. The stated aim of the proposed project is to implement climate change adaptation measures targeted at 1) strengthening social and institutional capacities, 2) building and improving infrastructure, 3) modifying production practices, as well as 4) conserving and managing natural ecosystems in a sustainable way. At the same time, adaptation measures would be sought to be compatible with the needs, interests and capacities of the communities, in order for them to take ownership of these measures and give them continuity.</p> <p>The initial technical review was conducted based on the information provided by the proponent that the proposal was a fully-developed project document. The initial technical found that the proposal was far from meeting the content requirements of fully developed proposals. Information was found to be general, tentative and partly conflicting, and several sections of the proposal were missing. A large number of clarification requests were made:</p> <p>CAR1: Please include a breakdown of the execution costs in the project.</p> <p>CR1 (overall request): Please provide comprehensively more information on different aspects of the proposed project. Please see the document "Instructions for Preparing a Request for Project or Programme Funding from the Adaptation Fund" on the AF website for specific guidance on what is generally expected from a fully-developed project proposal.</p> <p>CR2: Please provide substantially more contextual information on the planned project area, including its economy and livelihoods, non-climatic development challenges and past climate change adaptation interventions.</p>
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CR3: Please analyse the structure of the project as a whole, consider the proposed activities, and reassess how they could constitute a strong project in which different parts contribute to, and are necessary for, each other and to the project objective. For instance, please explain how the Component 3 on monitoring and evaluation contributes and is necessary for achieving the project objective. Currently it is not clear what is to be monitored: environmental variables for their own right or project indicators for the purposes of tracking project performance. Also, please explain what the specific purpose of the meetings, trainings and other activities under Component 1 would be.

CR4: In the project components and financing table (p. 17), please formulate the expected outputs more clearly. Currently what is listed as outputs, are actually activities, and the outputs are missing.

CR5: While presenting the proposed concrete adaptation interventions, such as rainwater harvesting and water treatment schemes, please provide quantified information on the water stress and existing solutions in the target area, obstacles for development, and how this project would help overcome those obstacles. Similarly for home gardens, please explain what the current situation of home gardens is, what obstacles there have been for their further development, and how this project would help overcome those obstacles. Similarly for ecological conservation, please describe the natural or pre-existing vegetation, what has caused the land-use change that is portrayed as a challenge, and how the project would tackle the drivers of land-use change. For soil conservation, please provide an analysis of current situation and past drivers of erosion and decrease in soil fertility.

CR6: In the problem diagram (Figure 9), please include effects of climate change, and explain the interaction of climatic and non-climatic drivers in the text.

CR7: After deciding on the specific activities to be implemented in the project, please provide quantified information on the expected benefits in relation to the baseline situation. Please identify particularly vulnerable groups and describe benefits to them.

CR8: After the more specific project activities have been decided upon, please present the selected option compared to the cost-effectiveness of other possible options that were not selected.

CR9: Please explain more comprehensively and in detail what the relevant national level strategies and policies on climate change and the relevant sectors are, and how the project would be aligned with them. Please also explain how the project would align with the mentioned state law.

CR10: Please include the section on compliance with national technical standards, and provide information as outlined in the Instructions to Proponents.

CR11: Please include the section on duplication with other funding sources, and provide information as outlined in the Instructions to Proponents.

CR12: Please explain in detail the component on knowledge management and lessons learned.

CR13: For a fully-developed project document, please carry out a comprehensive consultative process which involves all direct and indirect stakeholders of the proposed project. Please consult the instructions for proponents for further information on the requirements. In addition, please include the dimensions of gender and vulnerable groups in the consultation.

CR14: Please provide a justification on the proposal’s cost in relation to the full cost of adaptation.

CR15: Please provide a justification that describes how the different activities have been selected while considering long term sustainability, adaptability to local settings as well as adoptability. All key areas of sustainability should be addressed, including but not limited to economic, social, environmental, institutional and financial sustainability.

CR16: After selecting the specific project activities for the proposal, please conduct a serious assessment of the risks that may require assessments and management/mitigation plans.

CR17: Please explain the roles of the implementing and executing entities, and which kind decision-making and advisory bodies would be used in the project. Please provide an organogram.

CR18: Please expand on this section, and following a risk analysis, cover a more comprehensive range of potential risks.

CR19: In this section, please provide a detailed explanation on how the risks identified in principles of the environmental and social policy, would be addressed.

CR20: Please clarify how IMTA would ensure that the executing entity is fully aware of their responsibilities with regards to the provisions of the Environmental and Social Policy of the Adaptation Fund, including the promotion of human rights, where applicable, and how the executing entity and direct beneficiaries would be made aware of the grievance mechanism available in the country and of the complaint handling mechanism of the Fund, in case of non-compliance.

CR21: Please provide a detailed budget, broken down to at least the output level, and ensure that budget figures throughout the proposal are consistent.

CR22: Please include quantified targets at least at the output level, and disaggregate by gender wherever possible.

CR23: Please clarify the costs of the M&E functions between the executing entity and the implementing entity. Following the initial review, the proponent informed the secretariat that it wished the proposal to be considered a concept rather than a fully-developed proposal. The final technical review finds that even as reviewed as a concept and taking into account the revisions made following the initial review, the proposal had a number of areas that would need to be amended before the concept could be recommended for endorsement. Such areas include:

- The proposal should provide more contextual information on the economy, livelihoods and non-climatic challenges of the target region, as well as more specific information (such as duration, financier and budget) on past climate change adaptation interventions.
- The proposal should justify the requested financing based on the full cost of adaptation reasoning. It should also elaborate on the needs, gaps and obstacles that would be addressed by the proposed activities to develop government agencies’ capacity and coordination, and the development of rainwater harvesting, water treatment schemes and home gardens. The proposal should also explain how the longer-term sustainability of project activities would be ensured.

	<ul style="list-style-type: none">- The proposal should explain how land-use planning at the catchment scale is taken into account in the design of the project activities, and consider including relevant activities that would also tackle challenges related to drivers of land-use change.- The proposal should clearly set its output targets, and distinguish between environmental monitoring that is aimed at achieving certain set result objectives, and regular project monitoring that is meant to gauge whether the project meets its objectives.- The proposal should explain how the proposed activities would be consistent with the goals of the identified climate change related strategies and policies. It should also identify relevant sector policies and strategies e.g. in agriculture and water resources management. The proposal should also explain how it would comply with applicable technical standards.- The proposal should explain how the project would avoid duplication with any potentially overlapping projects / programmes, and how it would ensure complementarity with them.- The proposal should use the screening matrix to illustrate potential environmental and social impacts and risks, and categorize the project in terms of the level of the potential risk as explained in the AF Environmental and Social Policy.
Date:	15 September 2014

LOCAL AND COMPREHENSIVE ADAPTATION MEASURES TO ADDRESS CLIMATE CHANGE IN TWO SUB-BASINS OF GUANAJUATO, MEXICO

Proposal by the General Directorate for Ecological Planning and Ecosystem Conservation Research, National Institute of Ecology and Climate Change (INECC)

EXECUTING SUMMARY

The project area includes 14 municipalities of the state of Guanajuato, located in the northern area of the Lerma-Chapala basin. This river basin lies in the center of Mexico and is of critical importance as it collects a large proportion of the water used by the country's major poles of industrial development: the cities of Mexico and Guadalajara and their respective metropolitan areas.

One of the project's main contributions will be the consideration of basins as territorial units, which provides a systemic approach to understanding the issue of climate change. Adaptation to climate change will thus be seen as the result of a process, not as that of an isolated action. To achieve this, concrete actions will be implemented together with measures relating to capacity building as well as to the monitoring and evaluation of actions and process.

Given that adaptation processes occur at the local level, it is essential to involve the population of the various communities where the project will be taking place. It is these communities that will decide what kind of actions would be most appropriate, depending on their exposure and vulnerability to climate change. In this full project proposal, a series of climate change adaptation measures are analyzed in order to satisfy the needs of the territory. However, it is not specified which localities will carry out the different actions, nor is how these will be carried out, as such measures are expected to arise from local initiatives.

The adaptation process cycle begins with the local recognition of the problem, continues through the taking of ownership and implementation of actions, and ends with the monitoring of the impacts of these actions. An evaluation will be conducted at the end of each stage of the process to justify moving to the next stage (Figure 1).

The main problems related to water resources faced by the region are aquifer overexploitation, surface water pollution and land-use change, which are very likely to be exacerbated under climate change scenarios of higher temperatures and reduced precipitation during the low-water period, and extreme precipitation events during the rainy season. These problems are compounded by the facts that 80% of the localities in the project area are highly marginalized, and 38% of the population in a situation of extreme poverty in the state of Guanajuato lives in the two basins of interest to the project. In light of this, the climate change adaptation actions contemplated for the region are divided into the strengthening of local capacities, the

implementation of infrastructure and conservation practices, and the monitoring and evaluation of these local capacities, of the built infrastructure and of the conservation practices carried out.

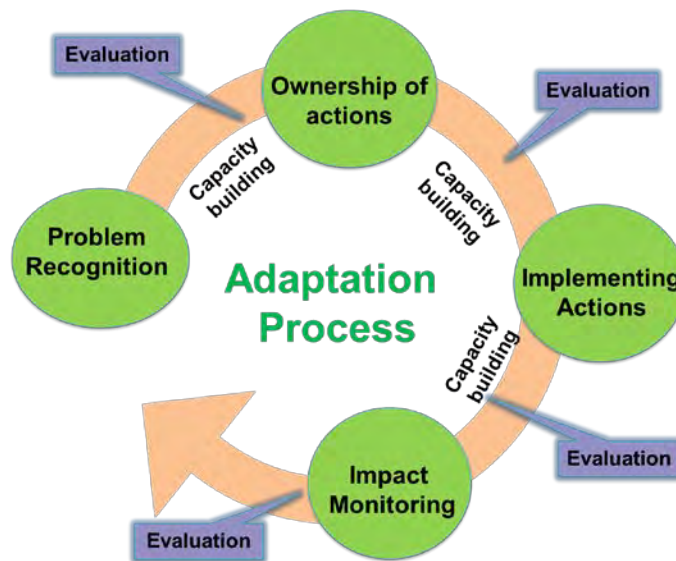


Figure 1. Adaptation process taking into account the need to involve the population in the definition and implementation of adaptation measures.

For the population to take ownership of the climate change adaptation measures relating to infrastructure and conservation practices, it is necessary that these measures arise from their needs, as part of a well-informed planning process. As a first step, we will seek to work with the communities in order for them to be able to express how they perceive the threat climate change may pose or is already posing to their quality of life and to the region's ecological and production systems. As a second step, we will compile the experiences and practices identified as important for climate change adaptation and, concomitantly, will work on the training of various stakeholders in order for them to be able to get involved in due time in the implementation and monitoring of the retained measures. Strengthening communication between local units from different sectors will also be an activity relevant to this project. Some of the actions that are contemplated regarding local capacity strengthening are:

- the training of experts in climate change and, more specifically, in climate change adaptation, in civil society organizations (CSOs) and government authorities;
- the promotion of a network of government, university and civil society organizations involved in climate change mitigation and adaptation;
- the dissemination of information via the radio and the Internet and the participation of the local population, especially young people, in preparing the news bulletins and segments;
- the organization of workshops aimed at the selection of climate change adaptation measures by the population;

- the promotion of intercommunity experience sharing by mobilizing leaders, implementers and parties interested in climate change adaptation measures;
- the acknowledgement of the compatible and incompatible policies and programs that may respectively support or interfere with mitigation and adaptation efforts; and
- the community-based monitoring of indicators of climate change and of the impact of the adaptation measures.

Given the uncertainty associated with climate change, adaptation actions should be flexible enough to be adjusted based on how relevant they will prove to be. For this reason, implementing irreversible measures that drastically change the environment and cannot be removed in case of having negative impacts should be avoided. Likewise, designing the infrastructure and conservation practices will require information from climate modeling, the building of climate change scenarios and the analysis of current and projected water availability in the project area using hydrological modeling.

With regard to infrastructure and ecological conservation, we plan to undertake the following actions:

- the installation of rainwater harvesting infrastructure, which will reduce groundwater extraction and allow households to save on the purchase of bottled water. Water-saving facilities such as dry toilets will also be installed;
- the treatment of domestic wastewater using low-cost artificial wetlands. This measure will improve the quality of water bodies and, consequently, the health of the population, while promoting fishing activities;
- the conservation and rehabilitation of soil and vegetation in highly degraded lands where unsustainable productive activities are carried out. Preventing soil erosion and restoring natural ecosystems should improve water infiltration and, in consequence, should ameliorate aquifer water levels. The side benefits of these measures include increased agricultural productivity and reduced siltation problems. Since siltation affects both natural and artificial water bodies, reducing this problem lowers not only the costs of dredging these water bodies, but also the vulnerability of human settlements to flooding, because the capacity of water bodies to store water is increased; and
- the implementation of backyards orchards to allow households to reuse domestic water, save on the purchase of fruits and vegetables and reduce their vulnerability to food shortage in case of isolation due to extreme weather events.

Evaluating the implemented adaptation measures will be a challenge for this project, as we plan to use an adaptive process that will allow to correct those actions that will prove to be ineffective in reducing vulnerability and increasing resilience to climate change. The chosen indicators should enable to capture short-term changes in the land's ecological functionality and structure, the communities' quality of life, the taking of ownership of the implemented measures by the

population and the level of inter-institutional coordination achieved. Two concrete actions that are contemplated in this component are:

- the building of a publicly accessible online platform containing the monitoring records of the adaptation measures' impacts; and
- the installation of infrastructure for monitoring the basins' health.

Summary of costs:

Item	Cost
Component I. <i>Local Capacity Strengthening</i>	0.688 million USD
Component II. <i>Infrastructure and Ecological Conservation</i>	6.450 million USD
Component III. <i>Monitoring and Evaluation</i>	0.750 million USD
Project execution (9.5%)	0.695 million USD
Total cost of the project	8.008 million USD
Project implementation (8.5%)	0.622 million USD
Total financing requested	8.630 million USD

PART I: PROJECT/PROGRAMME INFORMATION

Project/programme category:	Project
Country/ies:	Mexico
Title of project/programme:	Local and Comprehensive Adaptation Measures to Address Climate Change in Two Sub-Basins of Guanajuato, Mexico
Type of implementing entity:	National implementing entity
Implementing entity:	Mexican Institute of Water Technology (IMTA)
Executing entity/ies:	National Institute of Ecology and Climate Change (INECC)
Amount of financing requested:	US\$8.63 million

PROJECT/PROGRAMME BACKGROUND AND CONTEXT:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic, social, development and environmental context in which the project would operate.

Introduction

Mexico is a country highly susceptible to extreme weather events, which are increasing in frequency and intensity as a result of climate change (Fifth National Submission, 2012). Given its vulnerability to climate change, it is imperative that the country take measures to reduce its negative impacts by increasing the resilience of the country's population, economic activities and natural ecosystems.

In June 2012, Mexico became one of the few countries in the world having a General Law on Climate Change, in support of its commitment to addressing this complex issue. There are many challenges ahead to which this country is preparing itself in a number of different ways, including the analysis of climate change adaptation strategies.

In this regard, the opportunity to access financial resources through the Adaptation Fund will enable Mexico to concretely implement the actions and methodologies that are being discussed and analyzed by academics, authorities, CSOs, communities and individuals with a view to reduce the vulnerability of populations and ecosystems to the adverse impacts of climate change.

In many regions of the country, there is a lack of coordination between local projects and programs (SEMARNAT, 2012). Such a lack of coordination refers not only to the fact that these

projects and programs are, at times, incompatible, but also to the fact that they tend to be repetitive, monothematic and non-complementary.

The project presented here places emphasis on the elaboration of comprehensive climate change adaptation mechanisms that include technical, institutional as well as social measures. It is based on the premise that adaptation is the result of a process occurring at the local level and, therefore, that it requires building institutional and social capacities (Secretaría de Medio Ambiente y Recursos Naturales [SEMARNAT] 2012). Involving the different sectors is essential, and one of the most desired project outcomes is the possibility for the measures to be replicated by other local stakeholders. It is also proposed to carry out the actions mainly in rural areas, not only because these are the most vulnerable to climate change, but also because in rural environments, the cost-benefit ratio of investing in adaptation measures can be lower than in urban environments.

In the issue of climate change, water is the key element that articulates all the problems encountered. The sectorial approach to managing water resources, and natural resources in general, is nowadays outdated. Water management requires sound management of the land that recharges aquifers and directs water flow, and conservation of the soil and vegetation that regulate its quantity and quality. When tackling climate change, a systemic approach to the land is essential and in this regard, the river basin appears to be the suitable unit to propose local climate change adaptation actions. This unit, indeed, takes into account the natural interrelationship among the different sectors and the different activities, and how these are connected to the land in both space and time (Cotler and Caire 2009, Paré et al. 2008, Davenport 2002).

In accordance with this view, the unit of analysis and action in this project will be two sub-basins of the Lerma-Chapala basin, in the state of Guanajuato. Delineated in this way, the project area will allow us to monitor the impacts of the different climate change adaptation measures on land functionality. Monitoring and evaluation will be conducted rigorously: for each adaptation measure, indicators will be determined to establish the land's baseline biophysical, social and institutional conditions and capture their evolution. In this way, the project's evaluation will not be based on indicators showing the number of actions, but rather on the impact of these actions.

Importance of the project area

The area proposed for developing a climate change adaptation strategy under this fund is the Lerma-Chapala basin (Figure 1). Located in central Mexico, this basin supports over 10% of the national population and catches the water that enables the country's most industrialized regions to develop. In spite of being a key area for the country's economic development, its environmental situation is quite deplorable (IMTA-SEMARNAT 2009). This region needs urgent attention if it is to continue to provide water to the country's largest cities, especially if the intention is to prevent the population's quality of life from further deterioration and, hopefully, to improve it.



Figure 1. Location of the Lerma-Chapala basin in Mexico.

The Lerma-Chapala basin covers a total area of 53 591 km². This project will focus specifically on the La Begoña and the Pericos sub-basins, which cover nearly 10 000 km² and support 14 municipalities, 3132 communities and nearly 1.5 million inhabitants of the state of Guanajuato (Figure 2). Concrete actions will be carried out in about 50 communities, 80% of which are highly marginalized, with a total population of approximately 22 000 inhabitants. These communities have been preselected based on the trust already built between them and the institutions collaborating in this proposal—a government unit, a university and an NGO. It is worth mentioning that about 150 CSOs are already working on environmental issues in the state of Guanajuato, and that many of these will take an active part in the strengthening of capacities and the implementation of infrastructure and conservation practices.

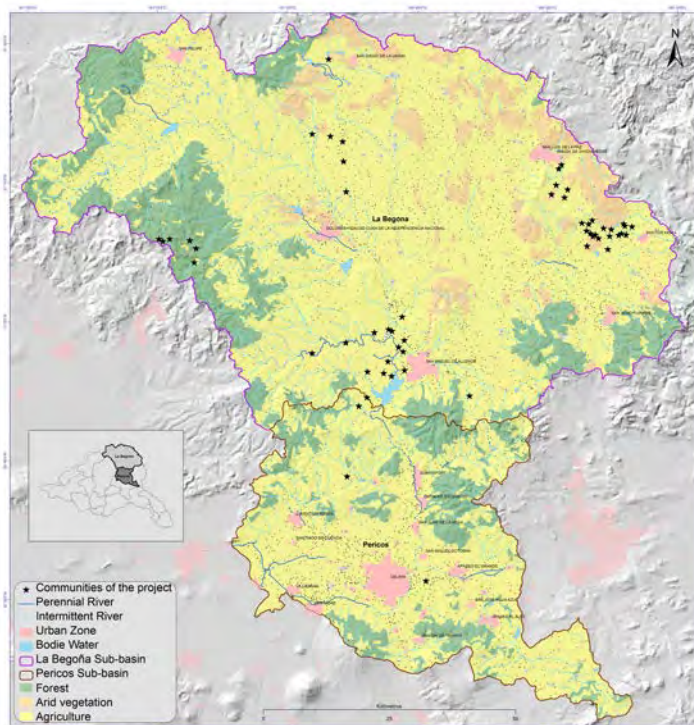


Figure 2. Sub-basins of the Lerma-Chapala basin, where the project will be conducted.

Land use in those sub basins is as follows: 69% agriculture, 11% pasture, 8% Quercus forest, and 12% other types of vegetation (figure 3).

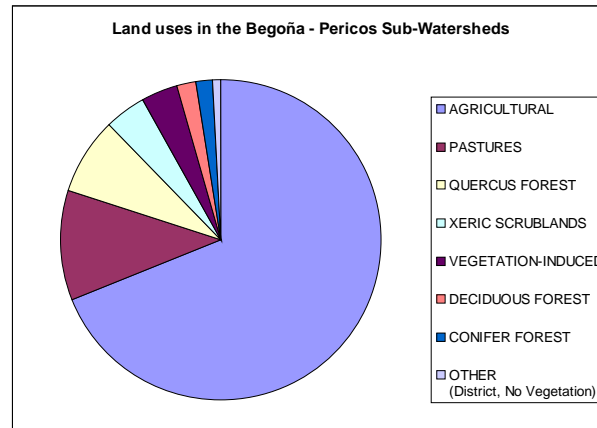


Figure 3. Land uses in Begoña and perico’s sub basins.

Near-future (2015–2039) RCP 6.0 climate change scenarios

Climate change scenarios for the project area were created based on those proposed by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Report, using the Representative Concentration Pathway (RCP) 6.0 (radiative forcing value of $+6.0 \text{ W/m}^2$) for the 2015–2039 period (near future). Indeed, as for the near future the difference between climate change scenarios resulting from different radiative forcing values is negligible, it was considered sufficient, as a first step, to run only one scenario. The RCP 6.0 scenario was chosen as it represents a medium projection, lying in between the most pessimistic (RCP 8.5) and the most optimistic (RCP 4.5) scenarios. The 2015–2039 period, as for it, was chosen as it represents the near future, which is the most appropriate time frame for planning purposes, where we seek immediate interest and involvement of the communities served by this project.

The RCP 6.0 scenario shows that the mean monthly temperature of the project area could increase relative to that in the historical record (1961–2000), by $0.9 \text{ }^\circ\text{C}$ in January and up to $1.4 \text{ }^\circ\text{C}$ in April (Figure 4-A). Precipitation, on the other hand, is expected to decrease in virtually every month of the year, the most affected month being June, with a precipitation decrease of 0.45 mm/day . August is the only month when precipitation is projected to increase, by about 0.15 mm/day (Figure 4-B).

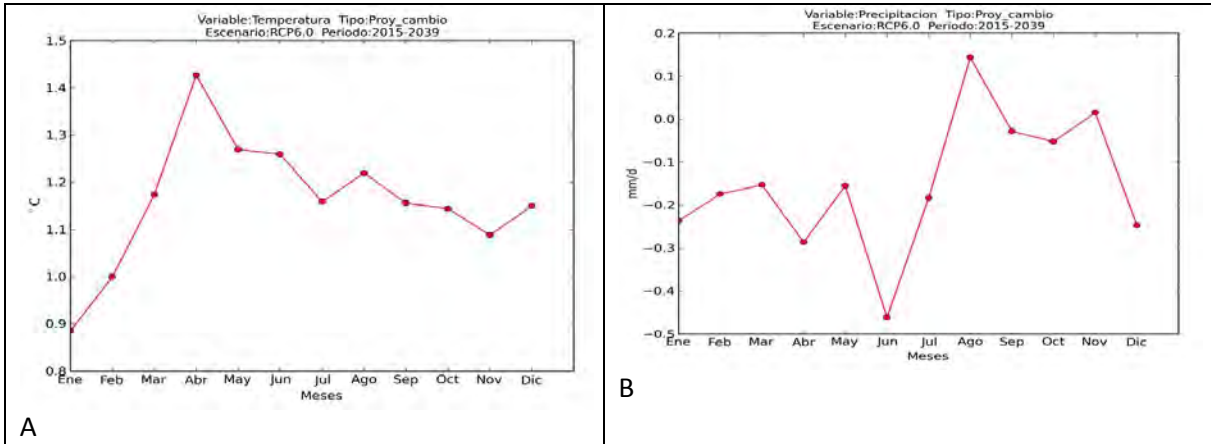
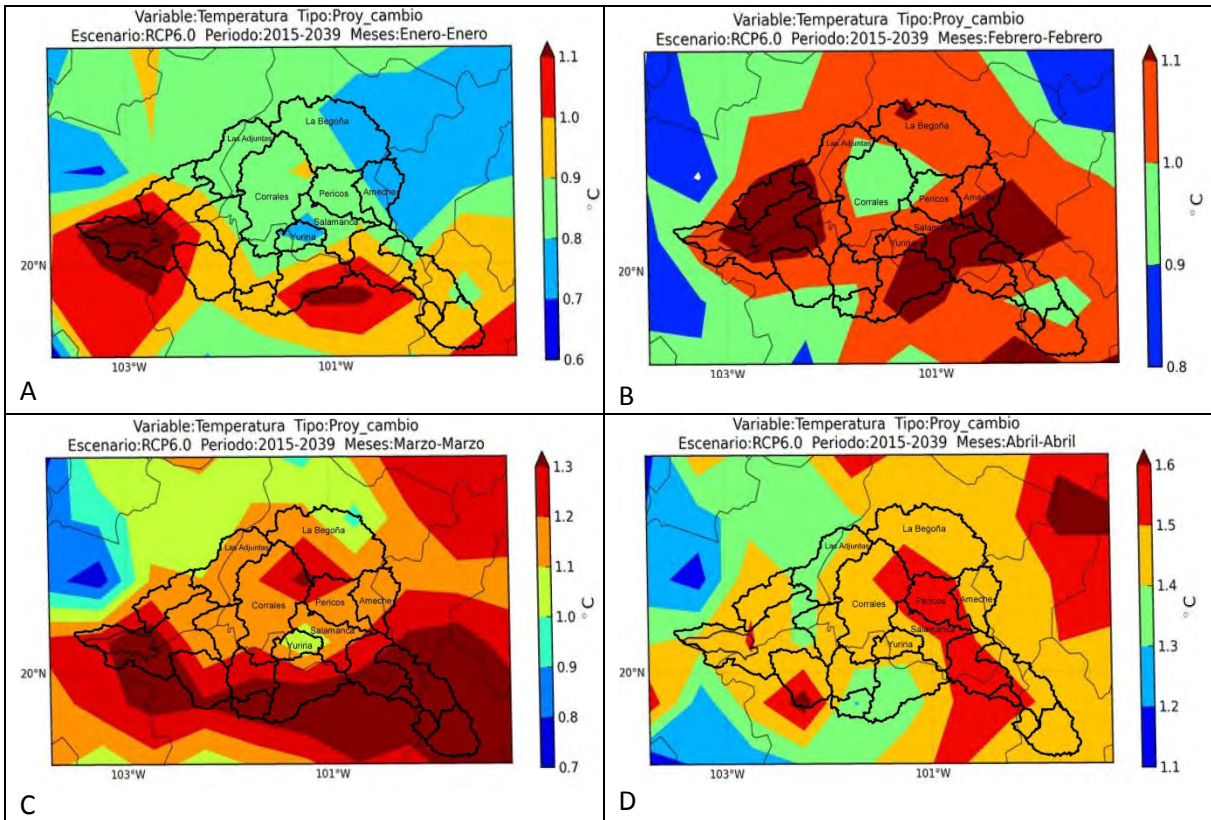


Figure 4. Projections of climate change (temperature and precipitation) for the 2015–2039 period compared to the baseline (1961–2000) climate in the Lerma-Chapala river basin.

Figure 5 shows maps of the projected monthly temperature changes in the whole area of the Lerma-Chapala basin. Special attention should be given to the La Begoña and the Pericos basins, where this project will be taking place.



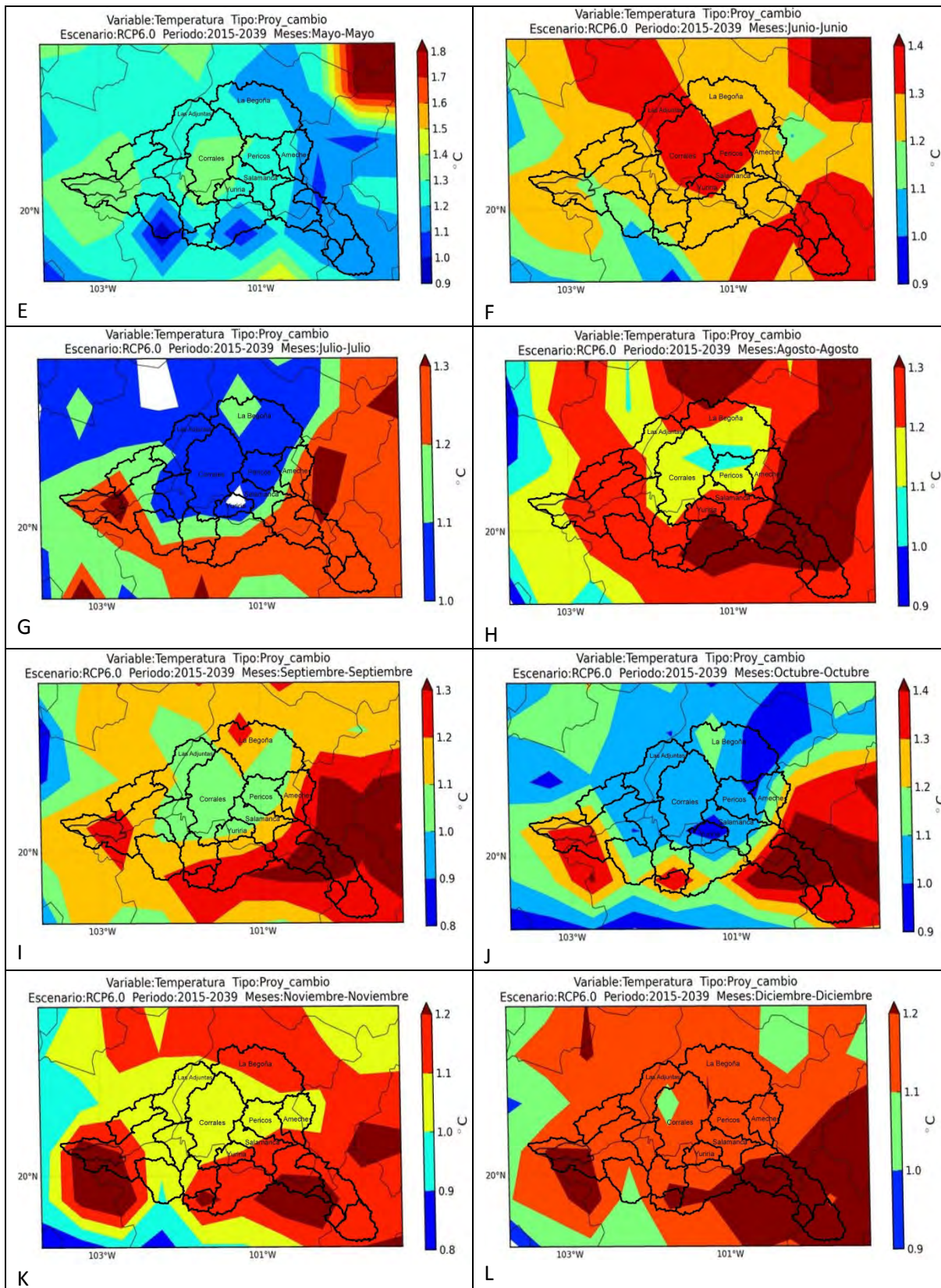


Figure 5. Maps of the projected (2015–2039) monthly temperature changes for the RCP 6.0 scenario in the Lerma-Chapala river basin.

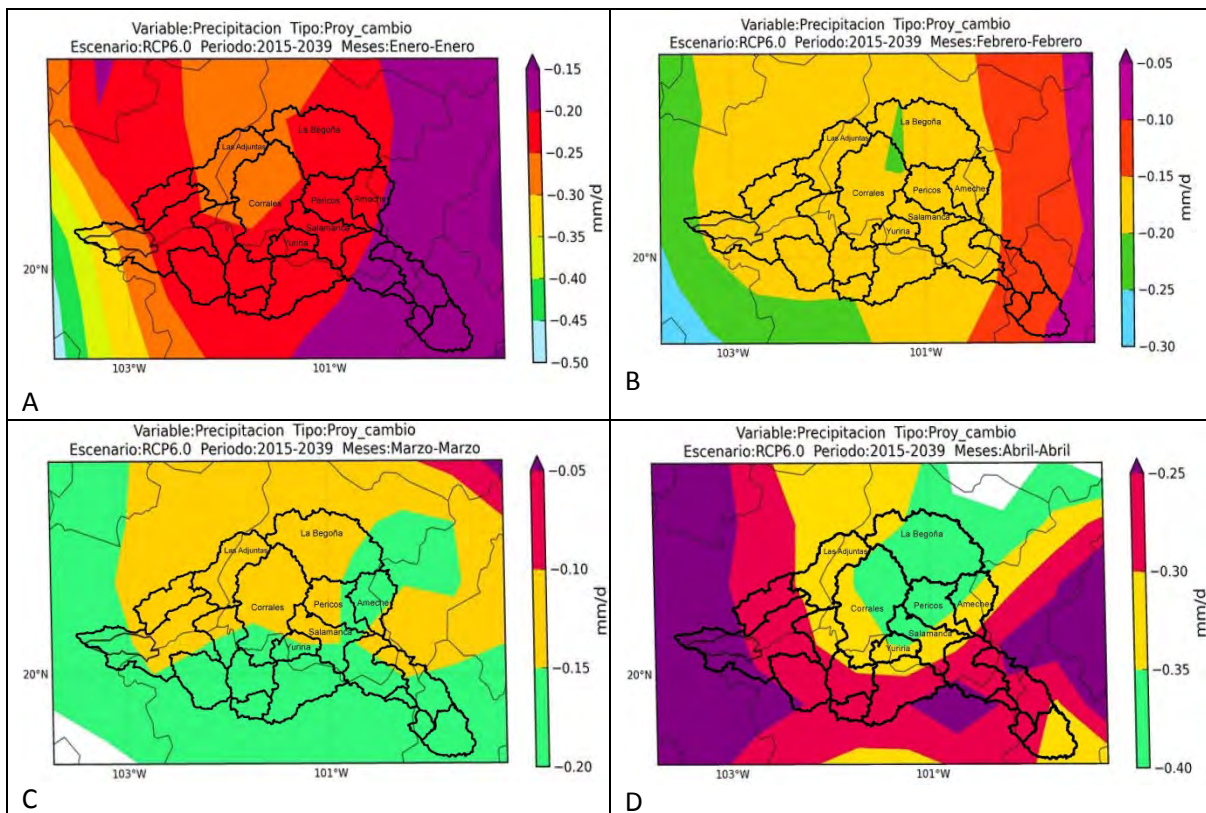
Table 1 shows the ranges of variation of the projected monthly temperature changes in the two basins where this project will be taking place.

Table 1. Projected (2015–2039) monthly temperature changes (in °C) for the RCP 6.0 scenario in two sub-basins of the state of Guanajuato

Month	La Begoña	Pericos
Jan	0.7 to 0.9	0.8 to 0.9
Feb	1.0 to 1.1	0.9 to 1.1
Mar	1.0 to 1.3	1.1 to 1.3
Apr	1.4 to 1.6	1.5 to 1.6
May	1.1 to 1.3	1.2 to 1.3
Jun	1.2 to 1.4	1.2 to 1.4
Jul	1.0 to 1.2	1.0 to 1.2
Aug	1.0 to 1.3	1.0 to 1.3
Sep	1.0 to 1.3	1.0 to 1.2
Oct	0.9 to 1.2	0.9 to 1.1
Nov	1.0 to 1.2	1.0 to 1.2
Dec	1.1 to 1.2	1.1 to 1.2

The maximum temperature change is found in April, and it is the Pericos basin that shows the maximum temperature increase.

Figure 6 shows maps of the projected monthly precipitation changes.



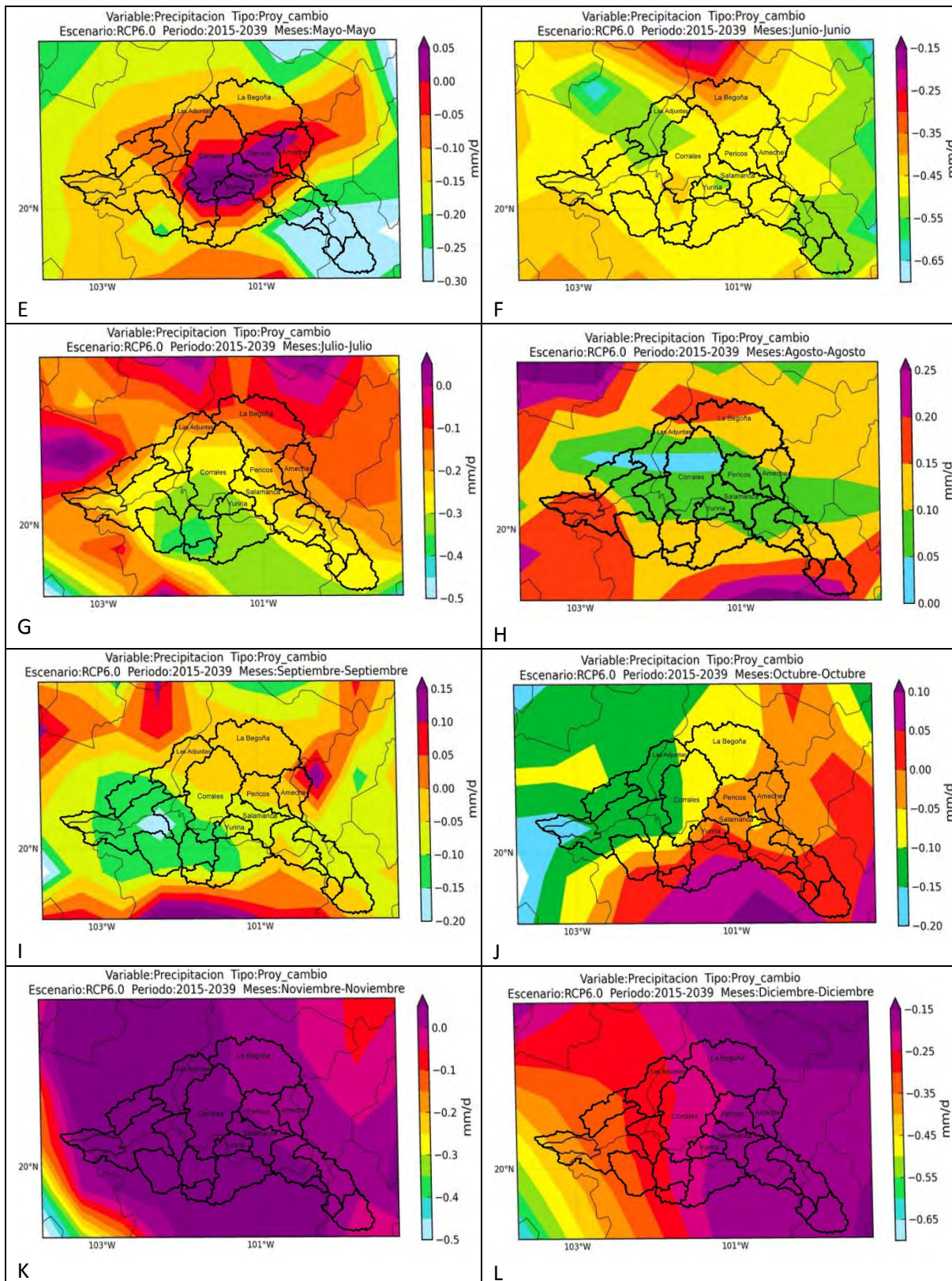


Figure 6. Maps of the projected (2015–2039) monthly precipitation changes for the RCP 6.0 scenario in the Lerma-Chapala river basin.

Table 2 shows the ranges of variation of the projected monthly precipitation decreases or increases in the basins of interest to this project.

Table 2. Projected (2015–2039) monthly precipitation changes (in mm/day) for the RCP 6.0 scenario in two sub-basins of the Lerma-Chapala river basin

Month	La Begoña	Pericos
Jan	-0.2 to -0.3	-0.2 to -0.25
Feb	-0.15 to -0.25	-0.15 to -0.2
Mar	-0.1 to -0.2	-0.1 to -0.2
Apr	-0.3 to -0.4	-0.3 to -0.4
May	-0.05 to -0.2	0.05 to -0.05
Jun	-0.3 to -0.5	-0.45 to -0.5
Jul	-0.05 to -0.25	-0.15 to -0.3
Aug	0.05 to 0.2	0.05 to 0.1
Sep	0 to -0.05	0 to -0.1
Oct	0 to -0.1	0 to -0.1
Nov	0 to 0.1	0.05 to -0.05
Dec	-0.15 to -0.25	-0.15 to -0.25

The maximum precipitation decrease is found from April to June, the largest decrease being in June. In August, on the other hand, precipitation is expected to increase, and it is in La Begoña that it is expected to increase the most, by up to 0.2 mm/day.

Climate change impact in the project area

The two river basins of interest to this project are essentially agricultural: 70% of the corresponding area is occupied by annual crops and 10% by livestock pastures. 99% of water supply for the municipalities within La Begoña and Pericos sub basins comes from underground sources (CONAGUA, 2013). Most municipalities use more than 90% of the extracted volume for irrigated agriculture (table 3) especially for the cultivation of fodder. Aquifers in the region are overdrafted and their recharge capacity has decreased due to vegetation and soil degradation.

Table 3. Percentage of water for agriculture use in municipalities of the two sub basins.

Municipalities	Percentage of water used for agriculture
Apaseo el Alto	82%
Apaseo el Grande	91%
Celaya	78%
Comonfort	93%

Cortázar	96%
Doctor Mora	96%
Dolores Hidalgo Cuna de la Independencia Nacional	93%
Guanajuato	43%
San Diego de la Unión	90%
San Felipe	94%
San José Iturbide	84%
San Luis de la Paz	83%
San Miguel de Allende	85%
Santa Cruz de Juventino Rosas	90%
Villagrán	92%

The area's main natural ecosystems are oak forests and xeric shrublands, but natural vegetation has decreased more than 30% over the last 30 years (Esparza, 2012). 73% of the two sub basins have soil erosion problems, caused by extreme precipitation in vegetation-free land. An additional problem is organic material depletion due to inadequate agricultural practices (table 4.).

Table 4. Degradation soil in the begoña and Perico's sub basins.

Name of Sub-basin	TYPE OF DEGRADATION	Area (Km2)	Percentage
La Begoña	Loss of upper soil layers due to the wind	615	9
	Soil compaction	194	3
	Water erosion with loss of upper soil layers	2413	35
	Reduced fertility and loss of organic material	1,314	19
	Pollution	512	7
		5,048	73
Pericos	Water erosion with land deformation	89	3
	Water erosion with loss of upper soil layers	624	24
	Reduced fertility and loss of organic material	1,186	46
		1,899	73

Thirty-one percent of the population of these two river basins lacks domestic water supply, having to resort to bottled water, which is much more expensive than other water sources. A similar situation happens with drainage systems.

In effect, the main water issues are aquifer over drafting, land-use change from natural vegetation to farming, important erosion processes that cause siltation in the many dams of the area (IMTA-SEMARNAT 2009) and surface water pollution.

As predicted by the above-mentioned climate change scenarios, temperature will increase in the area, which is very likely to result in a greater water shortage and a higher incidence of fire and forest pests in the already scarce wooded areas. In 2012 there were eight forest fires in the Begoña and Pericos watersheds, representing 44% of total events of this type in the State in 2012 (INEGI, 2013).

The considered climate change adaptation measures will be aimed, notably, at promoting natural water infiltration through the conservation of important recharge areas, at managing natural areas so as to reduce the amount of fuel materials in forests and improve ecosystem functionality, and at improving water supply by harvesting rainwater and reusing wastewater.

We will also promote adaptation measures that raise the population's quality of life by implementing environmentally sound technologies that reduce fuelwood consumption, make water for human consumption drinkable, and ensure a stable self-supply of food.

The above climate change scenarios also show increased precipitation during a short period of the year, in August. Unusually heavy precipitation is known to cause flooding problems in the human settlements located close to degraded stream beds or silted dams. Stream bed degradation can be caused by the degradation of riparian ecosystems or by human activities, notably the extraction of gravel from river banks. The silting of dams, as for it, is linked with deforestation and severe soil degradation, which result not only in reduced water infiltration, but also in increased runoff and transport of sediments. To counteract these effects, this project will consider adaptation measures such as the restoration and conservation of riparian areas, the conservation of soils and the promotion of sustainable practices regarding the exploitation of stone resources along river beds.

Even though climate change projections indicate, on an annual scale, that annual temperatures will increase and precipitation will decrease, local people might show little responsiveness to the repercussions of such a change and stand on the sidelines of adaptation efforts that could make them less vulnerable to climate change. To avoid this, this project will emphasize the need to build, together with the local population, a common and responsible view of climate change and to develop, in a participatory way, an adaptation strategy according to their interests and needs. This is the only way to ensure ownership of the adaptation measures by the population, and thus to increase their viability regardless of external financing. Efforts in training and communication, community network creation and inter-institutional coordination will all allow to ensure the people's ability to work together and resolve the conflicts that might result from climate change.

Continuous monitoring and evaluation of the implemented adaptation measures will make it possible to correct those that will prove to be ineffective in reducing vulnerability and increasing resilience to climate change. The challenge will be to determine indicators that capture short-term changes in the land's ecological functionality and structure, the communities' quality of life, the taking of ownership of the implemented measures by the population and the level of inter-institutional coordination achieved (Figure 7).

One of the identified strengths of the project area is a good knowledge of the territory by government officials, employees of CSOs as well as academics. In addition, although they must be better equipped and staffed, spaces already exist for training and the sharing and dissemination of experiences between authorities and civil society. The creation of community networks and of a community radio station to promote the project's activities is another of the contemplated measures.

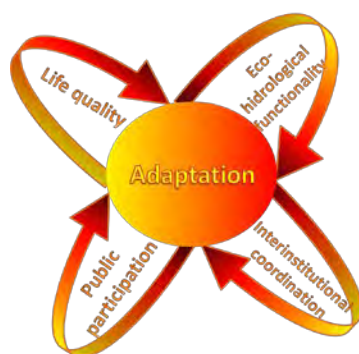


Figure 7. The continuous process of adjusting climate change adaptation measures according to indicators of quality of life, eco-hydrological functionality, inter-institutional coordination and public participation.

Previous climate change adaptation interventions

Table 5 shows sample projects developed in Guanajuato by public-private ventures related to climate change adaptation

Table 5. Previous climate change adaptation projects

Project title	Problems addressed	Type of implemented actions
<i>Pilot implementation of rainwater harvest in the community of Presa El Gato, in Doctor Mora, Guanajuato, Mexico, as a climate change adaptation measure.</i>	Low water availability for most inhabitants who were supplied through a public network system that offered them access to water every other day. Overdrafted wells from which water is extracted at over 300 m deep, with the risk of obtaining low-quality water, contaminated with lead and arsenic.	<ul style="list-style-type: none"> • 52 rainwater harvesting systems, with an installed capacity of over 90,500 liters that are stored for the more than 400 inhabitants. • Training for the community on the benefits, implementation, and maintenance of the equipment used. • Training for the community on the use of a meteorological station for monitoring temperature and precipitation in the region.

<p><i>Actions for offsetting climate change in Celaya, Guanajuato.</i></p>	<p>High levels of atmospheric contamination Water scarcity for human consumption and industrial use Overdrafting of the Valle de Celaya aquifer. Limited sanitation infrastructure Deforestation and land use changes Lack of awareness of the importance of biodiversity</p>	<ul style="list-style-type: none"> • Rainwater absorption wells located in the “Novo Park” industrial park with an infiltration rate of 18 l/s. • Reforestation. • Maintenance of municipal green areas • Vehicle Emissions Testing. • Creation of two technified greenhouses. • Extraction and utilization of biogas in the sanitary landfill of the municipality of Celaya, Guanajuato. • Environmental education.
<p>Creation and strengthening of the Regional Center on Watershed Training</p>	<p>Lack of a territorial scope for the resolution of environmental problems</p>	<ul style="list-style-type: none"> •Local organization. •Inter-institutional coordination. •Integrated water-soil-biodiversity management. •Community development. •Sustainable production and micro-business development. •Use of alternative energy sources. •Sustainable housing. •Training on biodiversity monitoring. •In situ training.
<p>Environmental rehabilitation projects</p>	<p>Water scarcity in relation to current demands. Overdrafting of the aquifer Changes in woodland land use Deforestation and overgrazing Deterioration and contamination of aquatic systems Inadequate extraction of stone materials from the river Soil erosion and soil productivity loss Unawareness of biodiversity</p>	<ul style="list-style-type: none"> •Rehabilitation of the Laja River watershed (rock by rock) •Wetland construction. •Analysis of the landscape of the Biological Corridor of the Laja River Watershed. •Bird Sanctuary. •Environmental education and training. •Deterioration of habitats and wildlife affectation. •Large hydraulic structures impacting the natural dynamics of rivers.

PROJECT/PROGRAMME OBJECTIVES:

List the main objectives of the project/programme.

The aim of this project is to implement climate change adaptation measures targeted at strengthening social and institutional capacities, building and improving infrastructure, modifying production practices, as well as conserving and managing natural ecosystems in a sustainable way. At the same time, adaptation measures will be sought to be compatible with the needs, interests and capacities of the communities, in order for them to take ownership of these measures and give them continuity.

The project proposed here is made of three components:

Component I. Social Capacity Strengthening

- Decision making support
 - creation and strengthening of spaces to raise the issue of climate change adaptation as a cross-cutting objective of the different government sectors
 - training of experts in climate change and, more specifically, in climate change adaptation, in CSOs and government authorities
 - studies to provide a baseline for some indicators
- Improvement of government institutions coordination
 - determination of the compatibility or incompatibility of policies and programs
 - alignment of programs and actions to support climate change mitigation and adaptation efforts
- Institutional development
 - promotion of a network of government, educational, and civil society organizations involved in climate change mitigation and adaptation
 - strengthening of the State Climate Change Council
- People's appropriation of adaptation measures
 - dissemination of information via radio and the Internet and participation of the local population, especially young people, in preparing news bulletins and segments
 - organization of workshops aimed at developing a regional view that will enable the population to design their own climate change adaptation strategy
 - promotion of intercommunity experience sharing by mobilizing leaders, implementers and parties interested in climate change adaptation measures
 - community-based monitoring activities

Component II. Infrastructure and Ecological Conservation

- Reinforced natural resources conservation interest
 - integrated systems of environmentally sound technologies for water and food security (rainwater harvesting systems, biofilters, dry toilets, cisterns, wood-saving stoves, vermicomposting systems, backyard gardens)

- municipal wastewater purification systems
- Reinforced soil conservation culture
 - soil conservation practices
 - sustainable farming practices
 - reforestation, revegetation and rehabilitation of riparian ecosystems, forests and wetlands

Component III. Monitoring and Evaluation

- Development of monitoring and evaluation indicators
 - environmental health indicators
 - indicators of the appropriation of implemented measures by the population
 - indicators of inter-institutional coordination
- Baseline for indicators
 - collection of other indicators' baseline data
- Monitoring implementation
 - training
 - establishment of a monitoring team
 - obtaining remote sensing data
 - laboratory and field analyses
 - booklets of monitoring procedures
- Transparency
 - creation of a publicly accessible online platform containing the monitoring records of the impacts of adaptation measures

PROJECT/PROGRAMME COMPONENTS AND FINANCING:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions/projects.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Social Capacity building	<ul style="list-style-type: none"> ✓ Information meetings with civil society and government to promote the project benefits ✓ Training of authorities, CSOs and the general public ✓ Establish the baseline of the project 	Decision making support	688 000
	<ul style="list-style-type: none"> ✓ Creation of a network of organizations involved in climate change adaptation and mitigation activities ✓ Strengthening of the State Climate Change Council ✓ Analysis of coordination of policies, programs and actions ✓ Promotion of agreements between the different governments agencies 	Government institutions coordination Improvement	
	<ul style="list-style-type: none"> ✓ Experience-sharing between communities ✓ Dissemination of information strategy through participatory radio programs 	People's appropriation of adaptation measures	
2. Infrastructure and Ecological Conservation	<ul style="list-style-type: none"> ✓ Rainwater harvesting at the domestic and community level ✓ Water purification systems ✓ Artificial wetlands ✓ Backyards orchards 	Reinforced Natural Resources conservation interest	6 450 000
	<ul style="list-style-type: none"> ✓ Soil conservation ✓ Revegetation and rehabilitation of forests, wetlands and riparian ecosystems ✓ Construction of plant nurseries and promotion of sustainable production practices 	Reinforced Soil Conservation culture	
3. Monitoring and Evaluation	<ul style="list-style-type: none"> ✓ Development of indicators ✓ Baseline for indicators ✓ Implementation of monitoring ✓ Transparency 	Evaluation of adaptation measures to promote their replicability in other regions of the country	175 000
6. Project/Programme Execution Cost			695 000
7. Total Project/Programme Cost			8 008 000

8. Project/Programme Cycle Management Fee Charged by the Implementing Entity (if applicable)	622 000
Amount of Financing Requested	8 630 000

Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme.

Milestone	Expected Date
Start of Project/Programme Implementation	March 2015
Mid-term Review (if planned)	September 2017
Project/Programme Closing	March 2020
Terminal Evaluation	December 2020

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.

The project submitted here is made of three components—Local Capacity Strengthening, Infrastructure and Ecological Conservation, and Monitoring and Evaluation—which have the potential to impact the social, economic, political as well as ecological spheres.

The climate change adaptation measures pertaining to each component are intended to be implemented where they best respond to local needs and where their local impact is greatest. For example, it will be most relevant to take reforestation actions in important aquifer recharge areas, and water purification measures, in locations where rivers that are contaminated by a point source of pollution and supply human populations downstream meet.

The adaptation measures relating to Local Capacity Strengthening will cut across all the localities served by Infrastructure and Ecological Conservation measures. The Monitoring and Evaluation component, for its part, will use indicators of the impacts of Components I and II, tracking the evolution of the population's quality of life, the sub-basins' eco-hydrological functionality, and the level of inter-institutional coordination and public participation achieved. Figure 8 outlines the problem in the project area, as well as its causes and proposed solutions.

Component I. Local Capacity Strengthening

A key part of the process of adapting to climate change is the society's participation in building alternatives and consensus to counteract the effects of this common problem. The local population will take action according to the extent to which individuals are affected—or perceive that they are affected—by climate change.

The possibility to ensure the continuity of the implemented adaptation measures will depend, to a large extent, on their appropriation by the local population, organizations and authorities. The key criteria for developing and maintaining such a community-based approach will be equity and consensus among community members, both inward—through local forms of organization—and outward—through experience sharing between communities and the implementation of communication and learning networks.

The following climate change adaptation actions are considered to have the potential to strengthen local capacity in the communities in question:

- Training workshops for local development promoters. These workshops will be designed to train representatives of the local population who have leadership skills in issues of climate

change and ecology, so that knowledge is passed from person to person and the resulting climate of trust facilitates the implementation of adaptation actions. There are currently two meeting places that could be used to hold these workshops: the Regional Training Center on Watersheds (*Centro Regional de Capacitación en Cuencas, CRCC*), in northeastern La Begoña basin, and the network of eight Regional Centers for Environmental Competitiveness (*Centros Regionales de Competitividad Ambiental, CERCA*), located all over the state of Guanajuato.

- Meetings of the different government sectors to identify their respective programs and projects related to climate change and align them with one another. On November 15, 2013, a Law on Climate Change was created for the state and municipalities of Guanajuato, defining the mandates of the state government units and emphasizing the need to invest in climate change mitigation and adaptation measures (Art. 6, section XIX). The Climate Change State System will have the State Climate Change Council, chaired by the Governor, as a governing body and involve the State's Interministerial Commission on Climate Change, municipal councils and the Observatorio Ciudadano (Citizen Observatory). This system will serve as a permanent gathering, communication, involvement and coordination mechanism regarding the state policy on climate change, cutting across state agencies and across the state government and municipalities, and promoting short-, medium- and long-term connection and consistency between programs, actions and investments (Art. 22, sections i, II, III and IV; and Art. 23). Strengthening the State System will ensure the continuity of the actions carried out under regional climate change adaptation programs and projects.
- Participatory workshops organized in rural areas to build a regional view of climate change and deal with its effects. Thanks to these workshops, it will be possible to identify the population's perception of climate change and of how it affects their activities and livelihoods. The taking of ownership of the adaptation actions by the population will depend, indeed, on the importance the people give to the issue of climate change.
- Experience sharing. This aims to foster knowledge sharing and feedback between the different communities involved in the project, allowing training and climate change adaptation projects to be replicated by other communities, and actions of regional scope to be reinforced. Furthermore, experience sharing will enable contact with other community organizations having a higher level of social cohesion and/or having made the most progress in implementing adaptation measures, and mutual guidance on the opportunities and difficulties encountered when implementing such projects.
- Installation of a community radio station. This initiative will provide communities with a means of free expression that will also serve as a space for discussion and analysis facilitating participatory work. It will allow to make widely known the knowledge, problems and needs that arise from the process of adapting to climate change. To this end, we will take advantage of a radio station already installed and currently operating. Through a local NGO with experience in preparing news bulletins and community outreach radio programs dealing with environmental and social issues, contents related to local adaptation actions will be disseminated and efforts will be made to get the local population involved in the presentation of radio segments.

- Creation of a network of stakeholders involved in climate change actions and programs, which will foster interaction between the authorities, universities and CSOs interested and committed to the climate change issue. Representatives of these three sectors have already participated in this project through the design of this proposal.
- Community-based monitoring, acting as a catalyst for the taking of ownership of both the environmental issue and climate change adaptation measures by the population. Some efforts have been made in the region to monitor birds (in this case, by farmers) as well as the seed dispersal of some medicinal plants, creating a momentum for the monitoring of other climate change-sensitive species and of the quality and amount of water available.

This increased knowledge and capacity will encourage the local population to take charge of its own development. This is the only way to strengthen its autonomy and self-sufficiency so as to lead to a more inclusive regional development that calls for collective well-being and social justice.

Component II. Infrastructure and Ecological Conservation

Infrastructure installation

The country's hydraulic infrastructure in general faces important challenges if it is to ensure the sustainable consumption and drinkability of water and to prevent the effects of natural disasters (Cámara Mexicana de la Industria de la Construcción [CMIC] 2012). Climate change will undoubtedly intensify the need to upgrade the hydraulic infrastructure in the different regions of Mexico, with priority given to local works benefiting whole communities. The project area, characterized by low water availability per capita, will thus benefit from works aimed at building systems for rainwater harvesting, water purification, and domestic and industrial wastewater treatment.

Rainwater harvesting and water treatment have a dual purpose: reducing water shortage and improving the quality of the water consumed or flowing in water bodies. Aquifer overexploitation and surface water pollution adversely affect the population's health. The exponential increase in groundwater extraction in the area has led to altered geochemical conditions in aquifers and increased concentrations of arsenic and fluoride. At present, both aquifers of the region have an extraction volume that double the natural recharge volume. The poor quality of the water extracted from underground affects human beings through diseases such as skin, cardiovascular, renal, blood and respiratory diseases, and dental and skeletal fluorosis (Smedley and Kinniburgh 2002 and World Health Organization [WHO] 2004, cited in Ortega-Guerrero 2009). The poor quality of the surface water, in turn, due to a deficit of more than 50% in the treatment of domestic and industrial waste water, has caused the project area to be one of the regions in the country with the highest rate of infant mortality resulting from gastrointestinal diseases (Riojas et al. 2010). Groundwater overexploitation and surface water pollution also have impacts on the stability of water supply to the population and the region's eco-hydrological functioning. The degradation of natural environments from pollution diminishes not only the carrying capacity of

the area's ecosystems, but also the income of a population that once depended on fishing or riparian plant harvesting for a living.

Agriculture is the most important water consumer in the region. Negotiations with this activity to convince them to use recycled water is important. But in this project, we will focus on increase domestic water availability through rain water harvesting. The modality of those infrastructures will vary in function of the needs and characteristics of the localities. In some of them, rainwater storage tanks will have to be collective, while in others it would be more convenient that they be private. The objective is to install 2000 rainwater harvesting systems with a capacity to store approximately 10,000 m³ per year. In some areas of the region it rains more than in others, but in average, the collection capacity, given the prevailing precipitation during the rainy season is 5m³.¹

Access and equity could be one of the major risk of this intervention. Poorest homes could have houses whose roofs do not allow the installation of infrastructure necessary for rainwater harvesting. In those cases, water collection systems will have to be designed for use in communitarian buildings, such as schools or health centers. Special attention will be given to avoid any type of communitarian conflict or fragmentation.

Promoting the implementation of backyards orchards will contribute to the self-subsistence of households by enabling them to produce part of their food in their backyards. In order to reduce the demand for water, priority will be given to backyards orchards where species that can adapt to the site's climatic conditions are planted; these may include fruit tree species, timber species or other tree species, forage crops, vegetables, medicinal plants and plants for seasoning. The impact we expect with this measure is related to the utilization of water that might be recycled from homes. This is directly linked to the adaptation to climate change in that low-income population will have the opportunity to ensure their provision of food and thus reduce their level of marginalization, which is directly linked to capacity building for adaptation.

Currently, the Backyard Orchard Project in the area has been implemented in several homes of two communities. A latent risk is that uncovered water storage tanks may attract the mosquito that transmits dengue fever. While the presence of this mosquito has not been detected in the area, the expected temperature increase as a consequence of climate change, plus having uncovered water deposits, may create the necessary conditions for this vector to thrive (INSP, INECC, UNAM, INE, 2014). One way to prevent this risk is emphasizing the need to cover water deposits and to place mosquito traps in order to monitor the presence of *Aedes aegypti*, the vector of the dengue virus. In addition, as more backyard orchards are planted, the area's street cover will increase, hence creating a milder microclimate and contributing to soil conservation and water catchment by the aquifers that supply these localities.

¹Calculation obtained from an average water collection area (roof) of 20 m² with an average accumulated precipitation during the rainy season of 250 mm.

Less than 50% of the wastewater generated is treated. This causes reduced clear water availability and health problems. One of the infrastructures considered for the treatment of municipal wastewater are low-cost operating artificial wetlands that have the advantages of using local species and natural processes, requiring minimal investment for their construction and maintenance, and having a potential of 15 to 20 years of continuous use, on average (Figure 9).

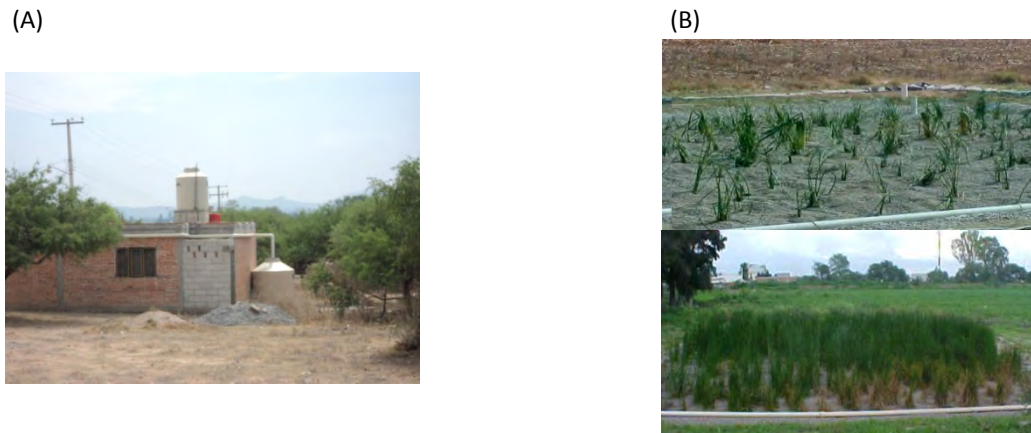


Figure 9. Photographs of a rainwater harvesting infrastructure (A) and a constructed wetland for wastewater treatment (B).

It is convenient to say that the main problem of the lack of wastewater treatment is related to the high operation costs. Artificial wetlands may not be appropriate for some communities due to the locality's topographical features or the scatter of the population. In these cases, the installation of other types of treatment systems will be considered.

Ecological conservation

In addition to actions relating to infrastructure, we plan to carry out in the region climate change adaptation measures aimed at ecological conservation. Natural ecosystems provide humans with a number of services such as the regulation of climatic fluctuations, the control of floods, the purification of water and air, and the prevention of erosion. They also supply natural resources such as food, water, wood and medicinal resources, among others (Balvanera et al. 2009). Between 1979 and 2004, 20% of the natural vegetation area changed to agricultural use, and oak forests became the most affected types of vegetation (based on Perez *et. al.* (2013).

For these reasons, ecological conservation measures, such as reforestation, revegetation, soil conservation, rehabilitation of riparian ecosystems and the promotion of sustainable farming practices, will play an important role in helping to mitigate climate change impacts.

By reforesting, revegetating and rehabilitating the land with native species, we seek to improve water catchment and reduce soil erosion. The presence of dense masses of trees helps to prevent the loss of soils during heavy rainfall events and improves water catchment through the absorption and soil retention

effects of tree roots. Deforestation has been shown to influence climate change processes; forest plants, indeed, play a critical role in capturing carbon dioxide from the atmosphere and when they are removed, the concentration of this greenhouse gas increases. To mitigate the global effects of climate change, it is thus imperative that forests be conserved. Since these forests might also help to increase households' income through the resources they provide, it is also imperative—in order to maintain biodiversity and ecosystem services and to reduce plague incidence—that the land be reforested with a combination of species from the region, instead of using monocultures, such as the Christmas pine. This species is typically preferred due to its high income yield, and unfortunately has been and continues to be promoted by certain groups.

A large proportion of the rivers in the project area have no riparian vegetation. Restoring riparian ecosystems in key sites of the region will, in some cases, prevent sediments from entering into waterways and causing siltation of dams downstream, and in other cases, prevent overflows and resulting flooding.

Soil conservation actions will contribute to increasing water catchment, reducing soil erosion, and improving its fertility. 74% of the two sub basins have problems of soil erosion due to extreme precipitation in vegetation-free lands and to organic material depletion. The diversity of soil types, ecosystems, types of degradation, and types of ecosystem services looked for by each community calls for a project that includes different conservation practices based on revegetation measures, agronomic practices and mechanical measures. A judicious combination of practices, that take into account both the local biophysical conditions and the local population's interests and capacities, will form the backbone of a comprehensive soil conservation strategy whose impacts may be monitored and evaluated based on the actual effectiveness of these measures in the field, and not on the mere number of actions carried out.

The implementation of sustainable farming practices, like agropastoral and agroforestry systems, will be encouraged as a complement to the activities related to soil conservation, reforestation or ecosystem restoration. The intention is that conservation measures benefit production systems, so that the population becomes interested in conserving its environment as a means for improving its quality of life, including its income.

There are, in the two basins of interest to this project, six protected natural areas covering a total of nearly 5% of the project area. These protected areas are of the utmost importance for recharging aquifers; the ecosystem services they provide, however, are threatened by illegal logging to clear land for agricultural use. To mitigate the pressure these protected areas are under, one of the actions considered for improving eco-hydrological connectivity between protected and unprotected natural areas is the promotion of sustainable production alternatives. Over 150 CSOs are currently working in the state of Guanajuato and, hopefully, will serve as a channel to foster production activities that are better suited to the current and future situation of the region.

Component III. Monitoring and Evaluation

Adaptation processes must be monitored and evaluated in each of its different stages. The results should be transparent and widely spread between citizens and institutions. Indicators construction represent an important step of this process because it is the only way to ensure that adaptation measures really have a positive impact. Section “E” shows a table with some indicators, but this has to be complemented taking into account criteria like co-benefits of the measures, equity, and reversibility.

In addition to building indicators, it will be necessary to design and implement a publicly accessible platform to monitor and evaluate the impact of adaptation measures and the project process itself. The structure to do this has to be planned and discussed with local stakeholders. A first proposal is that the monitoring and evaluation team could be composed, at the beginning, by the executing entity, the implementing entity, and some local authorities. The midterm objective is that this team continues to monitor and evaluate adaptation measures without the support of the executing and implementing entities. The main function of this technical team is to record the indicator values at regular intervals, and submit the information to another team (that is, a temporary and academic team) that will validate the information collected and suggest possible changes to the process or measures in order to improve their effectiveness. Once information is validated, the first team will publish the results in a web portal that includes a GIS system.

On the other hand, there will be a monitoring and evaluation mechanism to promote the appropriation of the measures and follow-up of the climate change problem by the population, especially young people through school curricula. Particularly, this mechanism includes the monitoring of climate, water and biodiversity variables. Those variables are representative of their land, which will allow involving community members directly in the problems besetting their territory.

Climate will be monitored by members of the communities trained on the operation of the meteorological station instruments that are planned to be purchased with part of the project funding. In some cases, the meteorological station already exists and is only necessary to provide a trainee and to upgrade some equipment. For the monitoring of water, there is an organization called World Water Watch that gives training to local populations and the reagents for water quality analyses. The biodiversity monitoring will be held by amphibibiologists and ornithologists who are going to develop dissemination material on the species that are threatened by climate change. These specialists will train community members on the identification and record keeping of these species in order to follow up the changes observed in their populations and location.

Therefore, the monitoring and evaluation component will be characterized by two sub components: one related to the monitoring and evaluation of the process and adaptation measures impact, and another one created as a way to involve the population in climate change problems and solutions.

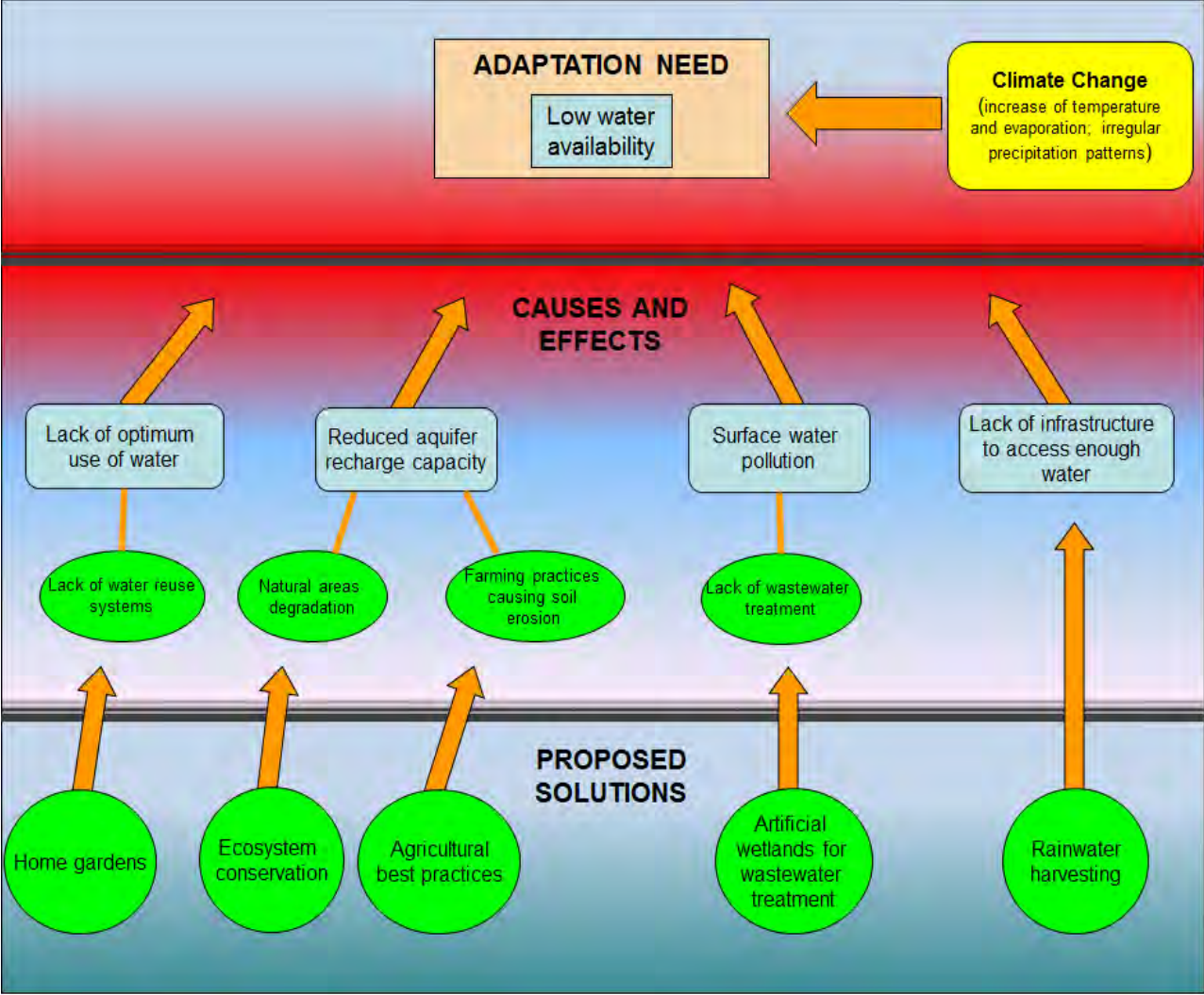


Figure 8. Diagram of the project area’s main problems related to water resources, and its causes and effects.

B. Describe how the project/programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and groups within communities, including gender considerations.

The population that will be served by this project is mainly rural and lives in communities of less than 2500 inhabitants. Eighty percent of these communities are classified as highly marginalized and are thus even more vulnerable to the effects of climate change.

One of the biggest problems affecting the marginalized population in the region of interest is unstable supply of quality water for human consumption. Because springs only emerge in the middle river basin, these communities generally get their water from wells. These wells extract water from the same aquifer from which water is extracted for irrigating crops in the lower-elevation areas. The resulting

overexploitation is obvious and causes the remaining water to be too concentrated in salts for safe human consumption. This is why—when they can afford it—people from the most marginalized communities buy bottled water, which costs them about \$10°000 pesos a year, over one-fifth of the average income of a household from a highly marginalized community (considering a household income equivalent to two minimum wages). Harvesting rainwater during the rainy season would help alleviate the financial burden of these households and, for those who cannot afford to buy bottled water, would reduce health problems caused by the consumption of poor-quality water.

There is a predominance of women in the municipalities of Guanajuato that will be served by this project. Indeed, while at the national level there is an average of 95.4 men for every 100 women, in some of these municipalities there are only 87 men for every 100 women (Instituto Nacional de Estadística y Geografía [INEGI] 2010). The predominance of women is even greater in the productive age group (15 to 65 years old); there is thus a relatively high number of women who are the heads of households. Backyard gardens might help ease the burden of feeding their children for these women by providing them, at least during the rainy season, with enough fruits and vegetables for their own household’s consumption.

In the same sense, water treatment will increase water availability for consumption. At the moment, less than 50% of the wastewater volume generated is treated. This situation causes the pollution of water bodies and affects fishing activities. There used to be an important fishing activity of three native fish: Lerma catfish (*Ictalurus dugesii*), Jalisco chub (*Yuriria alta*) and silverside fish (*Chirostoma* spp.). As of 1960, the reservoir started to show an accelerated process of eutrophication, caused by the discharges of wastewater and agrochemicals from nearby communities. This affected water quality and caused the decline of fishing activities. This was accompanied by the shift of rainfed agriculture to irrigated agriculture, which caused a considerable water level reduction during dry seasons, which finally put an end to the traditional fishing activities in the lagoon (Ramos Ventura y Novelo Retana, 1993; Díaz-Pardo).

The communities concerned also face severe environmental degradation. The combination of overgrazing and agriculture on steep slopes has resulted in a significant loss of soils. Environmental restoration actions have provided the participating households with an income, but these have rarely taken ownership of those actions. It is hoped that the population will take ownership of the conservation and ecological restoration actions that this project will implement through special incentives that will give them the possibility of receiving a financial compensation, like Payments for Ecosystem Services (PES), or of undertaking new production activities, such as honey or biocarbon production.

Table 6 shows the adaptation measures from component 2 and the problems that will be solved.

Table 6. Adaptation Measures and problems to solve.

Adaptation Measure	Problem to be solved
Rainwater harvesting at the domestic or community level	Lack of water availability
Backyard orchards	Take advantage of water system recycling
Wetlands for wastewater treatment	Reduce water bodies pollution and increase fishing activities
Soil conservation (to prevent erosion, one of the project's objectives)	Increase underground water recharge and increase agriculture productivity
Reforestation	Improve soil conditions, biodiversity and reduce plague incidence
Promotion of new productive activities	Reduce natural vegetation pressure

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

The climate change adaptation measures whose expected economic impacts could be quantified are presented in the table below. These few measures alone would allow savings that largely exceed the total cost of the project. Additional information and analysis is required to attribute a monetary value to the actions not appearing in the table, but their environmental and social value is, anyway, undeniable.

Measure	Problem to be solved	Current cost WITHOUT adaptation measure	Cost of the adaptation measure	Duration of the adaptation measure	Total cost without adaptation measure ¹	Saving ²
Rainwater harvesting at the domestic or community level	10°000 m3 of bottled water bought during each annual rainy season (calculated for 20°000 people)	\$ 770,000 US per year	\$1'310,000 USD	15 years	\$11'540,000 USD	\$10'230,000 USD
Backyards orchards	Food shortage in 3500 households	\$1'400,000 USD per year in purchase of fruits and vegetables	\$1'310,000 USD	An estimated 10 years	\$14'000,000 USD	\$12'564,000 USD
Wetlands for wastewater treatment	Costly removal of invasive water hyacinth from Yuriria Lake	\$240,000 USD every two years to clean up 930 ha	\$540,000 USD	An estimated 10 years	\$1'192,000 USD	\$655'
Soil conservation (to prevent erosion, one of the project's objectives)	100°000 m3 of eroded sediment* (3000 ha of degraded land)	\$14.0 USD/m3 of sediment dredged from the lake	\$1'150,000 USD	Indefinite	\$1'408,000 USD	\$254,000 USD (if the measure proves to be effective only 1 year)

*A loss of 40 t of soil per hectare was calculated for a bulk density of 1.2 t/m³.

¹ Total cost without adaptation measure = Cost without adaptation measure * Duration of the adaptation measure

² Saving = Total cost without adaptation measure – Cost of the adaptation measure

³ Money exchange rate SAT, SHCP, date: Tuesday September the 2nd, 2014. Available at: http://www.sat.gob.mx/informacion_fiscal/tablas_indicadores/Paginas/tipo_cambio.aspx

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

In 2012, a General Law on Climate Change was published establishing an institutional framework for climate change at national level but also making provisions for the subnational and local level, including for these two last levels estate and municipal climate change action plans. The Special Programme on Climate Change, for example, functions as guidance to coherently articulate climate programmes at the federal, state and municipal levels (Figure 10). Actually, 12 out of the 32 states of Mexico have climate change state laws .

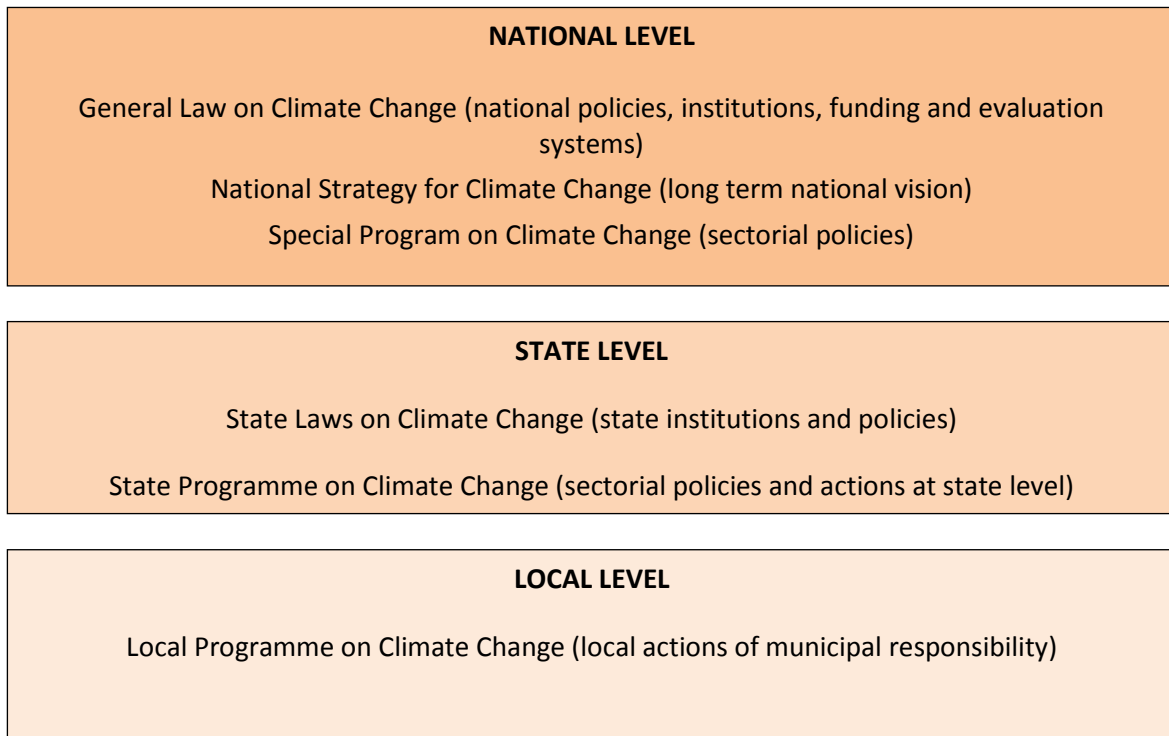


Figure 10. Mexico’s Climate Change Policy Instruments at different governmental levels

Guanajuato is one of those states that already passed a State Climate Change Law, which gives it an institutional structure to which other climate change projects and programs can be connected (figure 11). The institutional climate change structure of the state is composed by:

- A **State Council** integrated by representatives of the State Government, municipalities, the legislative power and civil society representatives. This Council constitutes the highest decision-making body in the climate change policies for the state.
- An **Inter-Ministerial Climate Change Commission** in charge of implementing climate actions and programmes.

- A **Citizen Observatory** oriented to evaluating and to provide advice to the State Council in the implementation of climate actions.

Also, there are several policy instruments developed for the planning and implementation of actions other than the Climate Change State Strategy, which includes a long term vision of the state’s climatic actions, such as the Climate Change State Programme, which envisages the actions of the actual state government, the Municipalities Climate Action Plans, as well as Regional Strategies and Strategic Projects.

There is also a Climate Change State Fund that is supposed to work as a financial instrument that will enable the development of projects and actions. This fund could be composed by a combination of public and private resources. For example, there is an intention to implement a transportation tax to be destined to the Fund.

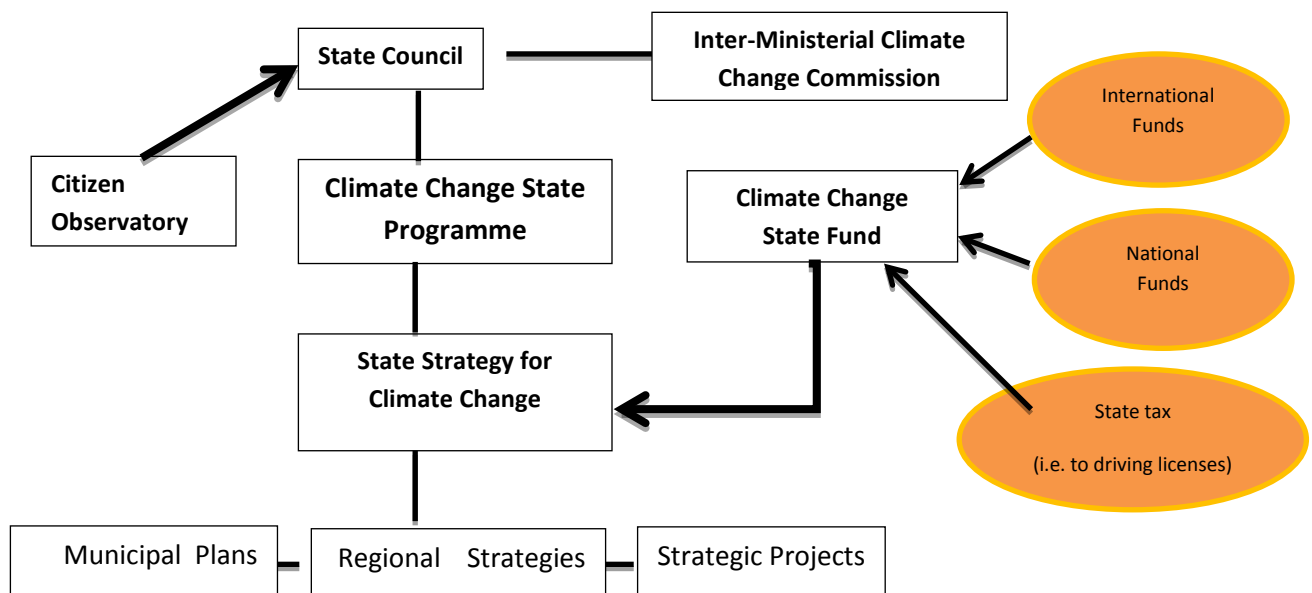


Figure 11. Guanajuato’s Climate Policy Structure

Additionally to climate change politics, one third of the basin of interest to this project is also served by a federal program known as the National Crusade Against Hunger (*Cruzada Nacional Contra el Hambre*), which focuses mainly on the most marginalized and poorest municipalities. Finally, over 150 CSOs are already working in the state on sustainable development and natural resource conservation issues (Secretaría de Desarrollo Social-Instituto Nacional de Desarrollo Social [SEDESOL-INDESOL] 2014). All of this gives this region a strong capacity for project implementation and for testing methodologies aimed at developing an adaptation strategy that is comprehensive, self-replicating and that can be monitored.

- 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.

The state of Guanajuato has a regulatory framework that protects the conservation and sustainable use of biodiversity; large part of its regulations is shared with the rest of the country, that could be international conventions that the nation has subscribe or regulations at the federal level; Examples of these are the Convention on Biological Diversity and the General Law of Ecological Balance and Environmental Protection.

Additionally, the state of Guanajuato has legal instruments aimed at its biodiversity such as the Law for the Protection and Preservation of the Environment of the State of Guanajuato (LPPAEG), whose vision is to regulate the management of protected areas at state level; Sustainable Forest Development Act for the State and the Municipalities of Guanajuato, which objective is to regulate and promote the conservation, protection, restoration, production, management, cultivation, management and sustainable use of forest ecosystems; Water Law for the state of Guanajuato, whose purpose is to regulate the planning, management, conservation and preservation of waters under state jurisdiction; Law for Waste Management and the municipalities of the state of Guanajuato.

Although the state has important regulations the dynamics of ecosystem decline, reflects a need for strengthening legislation, since many of the issues relating to biodiversity and the environment are a reflection of public policy and often can be linked to the living conditions of the population and how to appropriate and use natural resources.

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

In this project, the Adaptation Fund is the only external funding source. However, both, IMTA and the Executing Entity (INECC), will pay the salaries of part of the staff in charge of the coordination and evaluation of the project.

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

The dissemination of information related to the implemented climate change adaptation measures is an essential part of this project and aims at ensuring that actions are replicated both within and between communities. This aspect will be developed mainly in Component I on Local Capacity Strengthening. Experience sharing through face-to-face meetings of farmers, field technicians and government officials will be strongly promoted via the Regional Centers for Environmental Competitiveness (CERCA), which we plan to reactivate. Through community radio, climate change information (such as heavy rains, temperature increases, ...) can be disseminated and serve as an early warning system. Also, it will be a tool to increase sensibility towards climate change and to share and discuss different experiences about adaptation measures. Young people from communities will be the protagonists of the radio programmes. We will also plan to develop a web site to share activities taking place in different communities as well as evaluation of

adaptation measures and adaptation process efficiency. This website will be linked to the one INECC has focused on adaptation (www.adaptacion.inecc.gob.mx).

In addition, the project will encourage the participation of all stakeholders involved in the implementation of actions, from members of the public to decision makers, in national meetings organized by both federal entities and universities. It is already planned that those who will have gained experience working on this project will participate in the annual events organized by the National Forestry Commission (*Comisión Nacional Forestal*) to keep its field technicians up to date, as well as in the annual congress of the Mexican Association of Rural Studies (*Asociación Mexicana de Estudios Rurales*, AMER).

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations.

The consultative process to develop this project proposal was undertaken in April 2012 with a call for project or program proposals launched by the National Implementing Entity (NIE) for Mexico, in order for it to evaluate them and select the project/program(s) with the highest possibility of being accepted for funding by the Adaptation Fund. Forty-two (42) proposals of small projects—of less than a million dollars—were received in response to the invitation. After analyzing all proposals, it was concluded that only 4 of these had a small chance of making it to the final selection stage. However, on the recommendation of staff members of other United Nations programs acting as regional NIE advisors, it was decided not to go ahead with the small projects presented, but rather to find an executing entity capable of developing a larger project. With this aim in mind, INECC was asked to take responsibility for preparing a more comprehensive proposal, presented here.

Of the four projects originally selected, the two that were to take place in the State of Guanajuato were retained. This State was chosen as the project area because it is located in the Lerma-Chapala basin, a region that, in addition to being key to the development of Mexico, as it supplies water to the country's main industrial development poles, has been the subject of considerable diagnostic analysis by the executing entity (INECC).

Once the project area was defined, the executing entity made a field visit in order to know more about the experience and commitment of the units that proposed the two retained projects. With a view to upgrade these pre-selected projects, other stakeholders from universities and CSOs were invited to present concrete issues specific to the region and to suggest measures for reducing the vulnerability of people and ecosystems to these problems. The stakeholders invited to participate had to meet the requirement of having previously worked with the local population. Special attention was given to groups with experience working with highly marginalized communities and vulnerable populations, such as indigenous groups, women, youth, and the elderly.

We believe “Adaptation occurs through public policymaking and decisions made by stakeholders *i.e.* individuals, groups, organisations (governmental agencies or NGOs) and their networks” (Conde C. and

Lonsdale K., 2003:2). That is the reason to summon stakeholders involved in the needs of adaptation to climatic change and to analyze and increase their capacities to cope with and adapt to climatic events.

Following four working sessions with over 20 local stakeholders and three INECC experts in matters of conservation, infrastructure, and capacity building, the projects that created the greatest confidence in their chance of being successfully implemented were chosen. These projects stood out because of their sound approach and thorough understanding of the issues at hand.

The funds to be received by INECC for the execution of the different measures of adaptation to climate change will be channeled to five institutions: one government agency of the State of Guanajuato, one university of the same State, a local NGO, and two countrywide NGO's (Figure 12.) In turn, these institutions will subcontract and supervise other organizations for the actual execution of actions.



Figure 12. Flow of resources to the first level after INECC

In particular, the Ecology Institute of the Government of the State of Guanajuato (IEG) proved to have an important network of relations with both the organized civil society and with municipal committees and councils working directly with participative activities in the communities and their social enhancement mainly by approaching the women who are heads of household in the localities with the highest degree of marginalization in the State. Moreover, the NGO Salvemos al Río Laja has a long-standing experience in community work. This is why these two entities will mainly be the ones to determine the location of the different actions to be carried out for adaptation to climate change.

Furthermore, Salvemos al Río Laja has experts in soil conservation and riparian ecosystem rehabilitation actions. Therefore, regarding these two measures, this NGO will be the one promoting the practices related to soil conservation and riparian ecosystem rehabilitation in the communities within its area of influence and will offer advice in the communities the IEG is working.

The ecotechnologies proposed will be implemented by Gente como Nosotros, A.C., an NGO with ample experience in communitarian work for implementing wood-saving , energy production, and biocarbon technologies. The implementations sites will be determined by Salvemos al Río Laja, who have identified the localities that best comply with the criteria for using these technologies successfully. Also under the

guidance of Salvemos al Río Laja, the Las Yervas Regional Water Harvesting Center (CERCALY), will carry out communication efforts for disseminating climate change issues and the adaptation measures that will be implemented in the area. The way this ONG works is by involving children and youth in developing informative capsules aired on community radio stations throughout the different municipalities of the State.

All infrastructure building activities will be supervised by Ingenieros sin Fronteras, A.C. Regarding the construction of wetlands for the treatment of domestic and industrial wastewater, the CONACyT center, known as CIATEC (Center of Applied Innovation in Competitive Technologies) will collaborate with Ingenieros sin Fronteras, A.C., both in the design and the implementation of said infrastructure. However, the sites where these plants will be built will be defined by the IEG. For their part, the works related to rainwater harvesting will be implemented by the groundwater councils and the Río Turbio Watershed Council.

PRONATURA México, A.C. is a countrywide NGO with vast experience on the rehabilitation of riparian and woodland environments, as well as on the monitoring of bird behavior and distribution patterns as climate change indicators. Therefore, this ONG will supervise reforestation, rehabilitation, and bird monitoring activities that will be carried out by the different local organizations. In turn, the University of Guanajuato, given its experience in the monitoring amphibians, will develop and coordinate this study.

The consultation with people from the communities will take place through a participatory action which will identify their needs, interests and values. Those needs, interests and values have to distinguish between men and women, old and young people. Basically, level of marginalization will be homogenous between people, since workshops will occur in communities with similar characteristics.

Once these aspects are identified, the selection and then, the implementation of adaptation measures can be developed. Evaluation will be present in all the process.

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

Funding from the Adaptation Fund will support the implementation of a project that is comprehensive. The different units and CSOs, indeed, are generally more familiar with one or the other sector. Forming a multidisciplinary team will make it possible to visualize the land's climate change issues in a systemic manner. Aquifer overexploitation and pollution of surface water bodies, the region's main problems related to water resources, have multiple causes and consequences; approaching them from different fields is thus an advantage this project would have over any other Fund's project of sectorial interest. In addition, the multi-year nature of the requested funding will allow the development of an adaptation strategy that both civil society and the authorities will be able to internalize as a learning and adjustment process in the face of the different experiences it will bring.

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

One of the main challenges of this project is the replication of the climate change adaptation measures, both within the communities served by the project and by other communities within or outside the state of Guanajuato. To achieve this, a major investment is planned for local capacity building, from improving inter-institutional coordination and creating community networks up to training and raising awareness of government officials, technicians and the general public.

Each one of the climate change adaptation measures to be implemented will have to be discussed with the local population; it will also have to be flexible enough for the population of each locality to be able to adapt it to their values, needs and interests.

It is really hoped that the Regional Centers for Environmental Competitiveness (CERCA), once strengthened, will be able to continue and replicate the adaptation actions that will prove to be the most effective. These spaces will have to commit not only to organizing meetings with the different sectors of the society, but also to create community networks that understand climate change effects and work together to implement, monitor and seek financing for the adopted measures.

It will be critical, to gain evidence of the climate change adaptation measures' impact on the land, to undertake a study that will provide a baseline for indicators capable of capturing the health status of the sub-basins of interest to the project. The communities' involvement in the tasks linked to monitoring and evaluation will also be decisive in building ownership of the adaptation measures.

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

This project intends to mitigate the impacts that climate change may have on the quality of life of the population living in two sub-basins of the state of Guanajuato. As predicted by climate change scenarios for the region, temperature will increase by up to 1.4 °C and precipitation will be concentrated into a few weeks of the year, resulting in reduced precipitation during most of the year.

The area of interest to the project already shows an obvious degradation of soils and natural vegetation cover, an overexploitation of aquifers, and severely polluted surface water. Among other consequences are frequent shortages of water for human consumption, recurrent gastrointestinal diseases, siltation problems affecting both natural and artificial water bodies, and flooding. Most of the people living on this land are from highly marginalized communities, but in spite of this, very few speak an indigenous language.

The proposed climate change adaptation measures are embedded in a process that requires a genuine involvement of the different local stakeholders as well as measures that are reversible, that is, adjustable according to their effectiveness. These measures are aimed primarily at strengthening the communities' organizational capacities as well as the institutional capacity of the units involved in climate change issues, at improving natural ecosystems' functionality, at modifying domestic and farming practices to make better

use of water and soil resources, and at developing production alternatives better suited to the changing climate of the sub-basins of interest to this project.

Based on the problems and demographic characteristics of the region, the table below lists the Adaptation Fund’s principles that will need (or not) follow-up in order to evaluate the type of impacts the implemented climate change adaptation measures have.

The Fund’s environmental and social principles that are checked off in the third column are those tentatively considered as good indicators to monitor and evaluate the impact of the different adaptation measures proposed in this project. The principles checked off in the second column are those that are not considered to be concerned by the proposed adaptation measures, and thus that will not need follow-up.

Checklist of Environmental and Social Principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	✓	
<i>Access and Equity</i>		✓
<i>Marginalized and Vulnerable Groups</i>		✓
<i>Human Rights</i>	✓	
<i>Gender Equity and Women’s Empowerment</i>		✓
<i>Core Labour Rights</i>	✓	
<i>Indigenous Peoples</i>	✓	
<i>Involuntary Resettlement</i>	✓	
<i>Protection of Natural Habitats</i>		✓
<i>Conservation of Biological Diversity</i>		✓
<i>Climate Change</i>		✓
<i>Pollution Prevention and Resource Efficiency</i>		✓
<i>Public Health</i>		✓
<i>Physical and Cultural Heritage</i>	✓	
<i>Lands and Soil Conservation</i>		✓

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project/programme implementation.

The executing entity will appoint a project coordinator to hire and supervise implementers of the climate change adaptation measures. Among other requirements, this project coordinator will have to meet the following: know the project area's local stakeholders, have the ability to form working groups, have a general understanding of the adaptation measures to be implemented, know specialists who will supervise their implementation, and have the ability to manage financial resources.

Among the possible project partners currently working in the region, the following are judged to be particularly strong:

- the Universidad Autónoma de Querétaro, involved in integrated watershed management;
- the state of Guanajuato's National Institute of Ecology, shown to have an extensive network of relations, both with CSOs and with municipal committees and councils working directly with local communities;
- the NGO Salvemos al Río Laja (Save the Laja), with experience in community work and especially in actions of soil conservation and riparian ecosystem restoration;
- the NGO Ingenieros Sin Fronteras, A.C. (Engineers Without Borders) and a center of the National Science and Technology Council (*Consejo Nacional de Ciencia y Tecnología*, CONACyT) known as the Center of Applied Innovation in Competitive Technologies (*Centro de Innovación Aplicada en Tecnologías Competitivas*, CIATEC), having previously designed and implemented rainwater harvesting systems and artificial wetlands for wastewater treatment; and
- Pronatura México, A.C., with extensive experience in the restoration of riparian zones and forests, as well as in the monitoring of birds as indicators of climate change.

The following table shows a more complete list of the partners that, given their knowledge of the region and experience in community work, could participate in this project:

Stakeholder	Fonction
Adaptation Fund	<ul style="list-style-type: none"> • A fund established to finance concrete adaptation projects and programs in developing countries that are parties to the Kyoto Protocol and are particularly vulnerable to climate change. It will provide funding for the project.
Mexican Institute of Water Technology (IMTA)	<ul style="list-style-type: none"> • An autonomous public organization coordinated by the SEMARNAT (<i>Secretaría de Medio Ambiente y Recursos Naturales</i>), dedicated to research and technological development related to water resources. It will act as the project's National Implementing Entity.
National Institute of Ecology	<ul style="list-style-type: none"> • An autonomous public organization coordinated by the SEMARNAT,

and Climate Change (INECC)	dedicated to coordinating, promoting and developing scientific and technological research relating to national policy on biosecurity, sustainable development, environmental protection, the preservation and restoration of ecological balance, ecosystem conservation and climate change. It will act as the project's executing entity.
State of Guanajuato's National Institute of Ecology	<ul style="list-style-type: none"> An autonomous public organization of the government of the state of Guanajuato, serving environmental sector organizations. This government body is responsible for managing funds to support and implement actions in the field of climate change and for promoting concurrency and coordination of these actions between the different levels of government and between the social and private sectors, <i>ejidos</i> and indigenous communities. The National Institute of Ecology promotes and supports the implementation of local-scale projects by involving various organizations such as CIATEC, the Technical Groundwater Councils (COTAS) and the Municipal Councils for Sustainable Rural Development (CMDRS). It will give direct support to reforestation actions in protected natural areas in the State. It will also provide equipment and staff to the five Regional Centers for Environmental Competitiveness (CERCA) located in the Sierra de Lobos, the Siete Luminarias volcanic region, the Silva Reservoir and surrounding areas, the Megaparque of the city of Dolores Hidalgo and the upper basin of the Temascalatío River.
Universidad Autónoma de Querétaro	<ul style="list-style-type: none"> The main public institution of higher education in the state of Querétaro, one of Guanajuato's neighboring states. Through its Master's degree program in integrated watershed management, this university will provide its experience and prior research findings on the whole Laja River basin, participate in farmer-to-farmer training with emphasis on climate change adaptation through the Regional Training Center on Watersheds (<i>Centro Regional de Capacitación en Cuencas</i>: http://www.crcc-uag.org), and provide its experience in water, soil and biodiversity monitoring at the micro-basin scale.
Universidad de Guanajuato	<ul style="list-style-type: none"> The main public institution of higher education in the state of Guanajuato, offering college (<i>bachillerato</i>), undergraduate and graduate programs in the university campuses of Guanajuato, León, Celaya-Salvatierra and Irapuato-Salamanca. Through the Division of Life Sciences, Irapuato-Salamanca campus, this university will conduct amphibian and bird monitoring and will also support the implementation of water quality monitoring by Global Water Watch México.
Ingenieros Sin Fronteras, A.C. (Engineers Without Borders)	<ul style="list-style-type: none"> An association working in impoverished communities in both rural and urban areas with a view to improve their living standards by developing basic and environmental services that promote their sustainable development. Its actions include the provision of safe

	<p>drinking water, water treatment solutions, solid waste management services, housing and electricity. This organization will perform hydrological modeling in the area and provide technical support for the water treatment actions proposed by CIATEC.</p>
<p>State Climate Change Council</p>	<ul style="list-style-type: none"> • Governing body of the Climate Change State System, it will serve as a permanent gathering, communication, involvement and coordination mechanism regarding the state policy on climate change. It is responsible for approving the state climate change strategy, coordinating its implementation and assessing compliance with it. This council also seeks to promote coordination with the other states sharing the same watersheds, with a view to developing joint projects of climate change mitigation and adaptation. It is composed of the Governor and members of the State's Interministerial Commission on Climate Change, as well as of representatives of the municipal councils, the Observatorio Ciudadano, the legislative body and the State's public and private universities.
<p>State of Guanajuato's Interministerial Commission on Climate Change</p>	<ul style="list-style-type: none"> • The body responsible for ensuring that state administration units and bodies champion, promote, plan and execute coordinated and cross-cutting actions of climate change mitigation and adaptation, in order to achieve sustainable regional development in the State. It is composed of 15 units of the state government.
<p>Observatorio Ciudadano (Citizen Observatory)</p>	<ul style="list-style-type: none"> • A consultative organization of citizens responsible of evaluating the state climate change strategy. It includes members of CSOs, private, academic and research bodies, NGOs, professional corporations and experienced production sectors.
<p>Salvemos al Río Laja, A.C. (Save the Laja)</p>	<ul style="list-style-type: none"> • A CSO that promotes training projects for rural communities and supports projects for the conservation of the Laja river basin's natural resources. This organization will promote actions to conserve and restore riparian ecosystems in the area and support the "Las Yervas" Regional Training Center (CERECALY) in its training and broadcasting initiatives.
<p>Global Water Watch México</p>	<ul style="list-style-type: none"> • An organization that promotes citizen participation in water monitoring. It provides equipment and training to communities to enable them to obtain current and reliable information on water quality and to sustainably manage their water resources. This group will be in charge of training the communities in water quality data collection in the area.
<p>Center of Applied Innovation in Competitive Technologies (<i>Centro de Innovación Aplicada en</i></p>	<ul style="list-style-type: none"> • A center member of the CONACyT that creates innovation and advanced technology in the areas of materials, manufacturing processes, sustainability and health. It will implement water treatment solutions for rural areas, such as artificial wetlands for domestic and

<i>Tecnologías Competitivas, A.C., CIATEC</i>	industrial wastewater treatment, and ensure monitoring of the information platform.
Technical Groundwater Councils (<i>Comités Técnicos de Aguas Subterráneas, COTAS</i>)	<ul style="list-style-type: none"> Subsidiary bodies of the Lerma-Chapala basin Council, composed mainly of national groundwater users of a specific aquifer. These organizations will encourage rainwater harvesting initiatives as well as the implementation of backyards orchards.
Municipal Councils for Sustainable Rural Development (<i>Consejos Municipales de Desarrollo Rural Sustentable, CMDRS</i>)	<ul style="list-style-type: none"> Participative municipal bodies that work at identifying the need of convergence between public programs for sustainable rural development. They will promote soil conservation actions in the area.
Fundación Apoyo Infantil, A.C. (Child Support Foundation) through the Centro Regional de Capacitación del Agua "Las Yervas", CERECALY	<ul style="list-style-type: none"> A CSO dedicated to environmental education, notably the culture of water. It conducts training and knowledge sharing on practices and techniques of water and soil conservation and watershed management. In this project, this foundation will help strengthen capacities through the implementation of radio broadcasts.
Gente como Nosotros, A.C. (People like Us)	<ul style="list-style-type: none"> An organization promoting environmental protection through social responsibility projects that deliver financial benefits to the population via the conservation and sustainable use of natural resources. It will help implement environmentally sound technologies, like wood-saving stoves, that allow resulting biocarbon to be used in soil restoration projects.

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

The main institutional and financial risks identified are as follows:

Institutional – actions committed in this project are not fulfilled due to a lack of capacities in the collaborating entities. The best way to reduce this risk is to appoint a project coordinator who will work in partnership with the collaborating entities and in agreement with the objectives and achievements of each climate change adaptation measure. The project coordinator will also have to direct resources to promoting active participation of the population, because a population genuinely interested in these adaptation measures is precisely what will ensure the success of these actions.

Financial – budget is not available in time. To minimize this risk, we plan to prepare a fund release schedule together with the implementing entity (IMTA).

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

With regard to the environment, this project is aimed at improving the natural environment of two sub-basins in order for its population to be able to adapt to climate change. Some of its specific objectives are to step up efforts in protecting natural habitats, conserving biodiversity, preventing and reducing water pollution, and conserving soils. In this respect, a risk that this project may face is that conservation practices result in changes in the natural ecosystems' functionality that are not visible to the population or, even worse, that adaptation measures have negative effects on ecosystems' functionality. To minimize this risk, we will use adaptation measures that have already proved to be effective in an ecological and social system similar to that of this project. We will also monitor agricultural yields, the impacts of torrential rains and the most common gastrointestinal diseases in the population of interest, among other indicators (see Section E below).

In social terms, there might be the risk of the population showing reticence towards the project. Proof of the low likelihood of this risk in the region is the fact that there is a lot of communitarian work in the area. There are reports of work being done by 10 NGO's as well as by state universities and government agencies. These organizations are present in 67 communities of the region. (Figure 10).

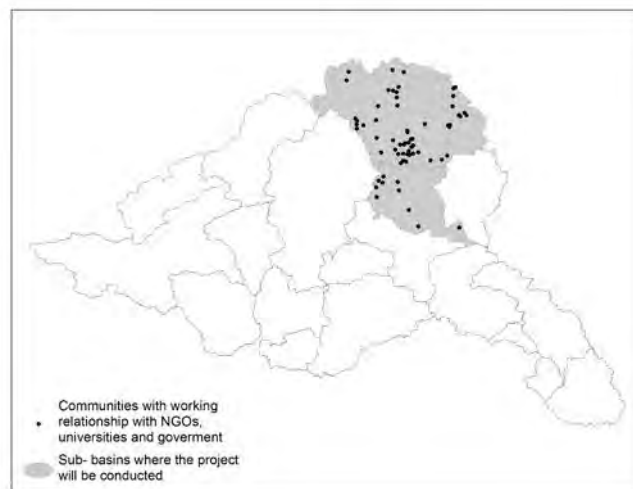


Figure 10. Communities with a working relationship with an NGO, university or government agency.

In social terms, this project will pay special attention to including the region's most vulnerable and marginalized people on an equal basis. To achieve this, the proposed indicators take into account not only the number of project beneficiaries and participants, but also their socio-economic condition and gender. It will thus be mandatory that the several groups of women active in the region be empowered on climate change issues.

Whenever projects that provide discriminatory benefits to particular groups within a community are implemented, there is always a possibility that conflicts will arise. Being aware of this and to prevent any kind of social fragmentation, we will make sure that data on community social capital are recorded both before and after working with a community.

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

The monitoring and evaluation (M&E) framework is part of one of the components of this project. The budget to be allocated to M&E is 1.5 million dollars in order to cover the following general activities: training, the building of a data recording platform, the setting up of meteorological stations and the purchase of monitoring equipment.

Training in areas such as data collection and interpretation of information will be conducted for the authorities and civil society, in line with one of the key activities of Component I on Local Capacity Strengthening: ensure that by the end of this project, there will be sufficient financial and human resources to continue monitoring the indicators capturing the efficiency and effectiveness of the climate change adaptation process.

Some monitoring activities—for example, the monitoring of the quality and amount of water available—will be conducted with the active participation of the local population. This will allow not only to obtain information, but also the taking of ownership and follow-up of the problem and solutions by the population

To remedy the lack of meteorological stations in the region, part of the project funds will have to be allocated to the purchase of equipment and establishment of such stations.

The M&E plan is as follows:

M&E of the project will be in accordance with the procedures established by the NIE for Mexico, the IMTA, whose staff will always be ready to support the project team in achieving the goals and objectives of this project. The indicators included in the results framework will enable the follow-up of whether each of the expected goals is achieved and allow to make the adjustments necessary to optimize the resources devoted to the project.

A kick-off meeting will be held within the first two months after the beginning of the project with the participating bodies, representatives of the local government, the executing entity (INECC) and the NIE (IMTA). This meeting will lay well-established foundations for running the M&E system, and clearly state the support that will be provided to project executants in order to achieve the project goals and objectives. It will also serve to present the M&E plan for the first year and to evaluate whether it would be appropriate to establish agreements, both between the participating bodies and the government and among the participating bodies.

The M&E plan establishes meetings at the middle of each semester in INECC offices to verify the progress made and detect possible deviations from the project goals, with a view to propose appropriate corrective measures, if necessary.

The M&E plan also establishes semi-annual field visits in order to verify the implementation and outcomes of the climate change adaptation measures directly on site. The field visits conducted at the end of each year will also allow to measure the indicators that will be used for the annual project evaluation.

A mid-term external evaluation will be carried out to verify the progress made toward the project outcomes. The result of this evaluation will serve to improve the execution of the project in the second half of the year and to apply corrective measures, if needed. Within one semester after project completion, a final external evaluation will be carried out, with the same purpose of verifying the progress made, in which the impact and sustainability of the applied adaptation measures will be analyzed and a decision will be made as to whether or not to recommend their use in other regions of the country.

At the end of all quarterly, semi-annual and annual meetings, as well as after the mid-term and final evaluations, the IMTA will prepare minutes highlighting the most important points and distribute them to the participants in order to consider the recommendations and comments they contain and make adjustments to the execution of the project, if relevant at this stage.

Activity	Responsible Body	Cost (USD)	Frequency
Kick-off meeting	NIE Project team	10 000	1 time only (during the first month of the project's execution)
Minutes of the kick-off meeting	NIE	None	1 time only (one month after the kick-off meeting)
Quarterly meetings	NIE Project team	15 000 (1500 x 10)	10 times (at the middle of each semester)
Field visits and measure of the indicators that will be used to evaluate the project's effectiveness and efficiency	NIE Project team Consultants	125 000 (5000 x 10)	Semi-annual
Technical annual reports	NIE Project team	10 000 (2500 x 4)	4 times (at the end of each year)
Financial audits	External auditors	75 000 (10 000 x 5)	5 times (at the end of each fiscal year)
Mid-term external evaluation	NIE Project team External consultant	40 000	1 time only (halfway through the beginning of the project's implementation)
Final external evaluation	NIE Project team External consultant	50 000	1 time only (at the end of the project's implementation)
Final report	NIE Project team External consultant	25 000	1 time only (at the end of the project's implementation)
Publications	NIE Project team	50 000	To be defined
Total budget		400 000	

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

Targets	Milestones	Indicators
Strengthen local capacities	Generate knowledge and information for decision making on climate change programs and actions	<ul style="list-style-type: none"> • Number of meetings organized per quarter with the authorities and civil society • Use of the acquired knowledge and follow-up of the issues discussed • Perception of the climate change issue • Use of scientific information in decision making
	Promote institutional development and inter-institutional coordination to improve the efficiency of climate change policies, programs and actions	<ul style="list-style-type: none"> • Creation of a network of organizations involved in climate change mitigation and adaptation • Number of members of the network per year • Creation of the executing committee for climate change adaptation • Number of meetings held by the executing committee per year • Concurrent funding received per year • Creation of the technical committee for climate change adaptation • Number of meetings held by the technical committee per year • Nature of the agreements made during inter-institutional meetings (categories of agreements to be defined) • Number of inter-institutional agreements on targets and guidelines
	Build ownership of climate change issues and the adaptation measures by authorities and civil society	<ul style="list-style-type: none"> • Number of training workshops, attendance and characteristics of attendees • Number of community workshops per quarter, attendance and characteristics of attendees • Number of participants in experience sharing sessions per quarter, and characteristics of participants • Number of radio news bulletins broadcasted per month • Number of schools and people involved in volunteer monitoring per year, and characteristics of these • Number of people or households who adopt spontaneous adaptation measures per year (baseline to be defined)
Increase access to good quality water for human consumption and domestic use	Implement infrastructure for rainwater harvesting, household gray water recycling, water purification, and black water treatment	<ul style="list-style-type: none"> • Number and type of built infrastructures • Community social cohesion • Number of households benefiting from rainwater harvesting infrastructure, and characteristics of these households • Perception of the project by the beneficiaries • Perception of the project by the non-beneficiaries • Reduced volume of extracted water per dry season • Savings from reduced purchase of bottled water per household and year • Savings from consuming fruits and vegetables grown in backyards orchards • Incidence of dengue and other water-borne diseases • Number of communities benefiting from community infrastructure (e.g. rainwater harvesting systems, water treatment plants, artificial wetlands)

		<ul style="list-style-type: none"> • Reduced incidence of gastrointestinal diseases (baseline to be defined) • Reduced biochemical (BOD) and chemical (COD) oxygen demands of effluent discharge (baseline to be defined) • Lower concentration of coliforms (baseline to be defined)
Improve functionality of the region's biophysical environment	Prevent soil erosion and increase vegetation cover and the water-holding and infiltration capacity of soils	<ul style="list-style-type: none"> • Area served by the project • Number and type of conservation practices • Number of people participating in conservation practices, and characteristics of these participants • Higher yields (baseline to be defined) • Increase in organic matter content over 5 years (baseline to be defined) • Germination and survival rates of plantlets in the nursery • Survival rate in the field • Increased area of natural vegetation cover (baseline to be defined) • Reduced impacts from heavy precipitation (baseline to be defined)
Implement adaptive management of the climate change adaptation process	Ensure the continuous evaluation of actions and foster inclusive participation of the civil society and authorities	<ul style="list-style-type: none"> • Number of meteorological stations • Number of people trained, and their characteristics • Number of trained people involved in monitoring, and their characteristics • Number of community-based monitoring teams • Online monitoring platform • Number of users of, or visits to, the online monitoring platform

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

Project Objective(s)²	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Strengthen local capacities	Number of meetings organized per quarter with the authorities and civil society Number and nature of agreements made during inter-institutional meetings	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks 2.2. Number of people with reduced risk to extreme weather events	688 000
Increase access to good quality water for human consumption and domestic use	Number and type of built infrastructures	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	2 220 000
Implement environmentally sound technologies to increase the households' adaptive capacity to climate change without creating conflicts in communities	Level of community social cohesion Number of households benefiting from rainwater harvesting and water treatment infrastructure, and characteristics of these households Perception of the project by the non-beneficiaries	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 6.2. Percentage of targeted population with sustained climate-resilient livelihoods	900 000
Improve functionality of the region's biophysical environment	Implemented conservation practices (e.g. soil conservation; revegetation and rehabilitation of forests, wetlands and riparian ecosystems; sustainable farming practices)	Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	3 330 000

NOTE: This proposal considers that by involving the population in the monitoring and evaluation of the adaptation process, the appropriation of the process can be achieved. That is why monitoring and evaluation are considered as part of the proposal components, and budget is allocated specifically for their execution. The difference between the total amount shown in this table and the total amount requested by the project corresponds precisely to this concept of monitoring and evaluation.

² The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply.

Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
The different sectors of the society are aware of the climate change issue and show interest in adopting mitigation and adaptation measures.	Number of schools and people involved in volunteer monitoring per year, and characteristics of these people Number of people or households who adopt spontaneous adaptation measures per year	Output 2.1: Strengthened capacity of national and regional 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 2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	
The population has a better access to good quality water for domestic consumption and use.	Number of households benefiting from rainwater harvesting or water treatment infrastructure, and characteristics of these households	Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.2. Number of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	
The communities and households served by the project have a better quality of life.	Savings from reduced purchase of bottled water and from consuming fruits and vegetables grown in backyards orchards, per household and year Reduced incidence of gastrointestinal diseases	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 (physical as well as knowledge) created in support of individual- or community-livelihood strategies	
The biophysical environment maintains or regains its capacity to provide ecosystem services.	Increased area of natural vegetation cover Germination and survival rates of plantlets in the nursery Reduced impacts from heavy precipitation Higher yields Increase in organic matter content over 5 years	Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. Number and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	

G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

Project/Programme Components	Expected Concrete Outputs	Amount (US\$)	Notes
I. Local Capacity Strengthening	✓ Promotion of meetings with civil society and the government	12 000	Reimbursement of travel expenses, coffee breaks, office supplies (for 5 years)
	✓ Training of authorities, CSOs and the general public	32 000	Trainers' salaries and materials (for 5 years)
	✓ Carrying out of studies to establish a baseline	230 000	Studies of hydrological modeling and to provide a baseline for indicators (2 years)
	✓ Creation of a network of organizations involved in climate change mitigation and adaptation	40 000	Technician's salary (for 5 years)
	✓ Strengthening of the State Climate Change Council (e.g. training in administration, promotion of committee meetings, search for concurrent funding)	80 000	Coordinator's salary (for 5 years)
	✓ Analysis and coordination of policies, programs and actions	16 000	Two studies, one at the beginning and the other at the end of the project
	✓ Dissemination of information through participatory radio programs	32 000	Coordinator salary, events and materials (for 5 years)
	✓ Intercommunity experience sharing	40 000	Subsistence allowance for 30 people per year (for 4 years in total)
	✓ Community-based monitoring	160 000	Includes training and chemical reagents (for 4 years)
	✓ Outreach materials	46 000	Preparation and design of visual materials (5 years)
II. Infrastructure and Ecological Conservation	✓ Rainwater harvesting at the domestic and community level	1 500 000	Installation of 2000 harvesting devices at homes, schools and health centers (over 4 years)
	✓ Backyards orchards	900 000	Implementation of 2000 backyards orchards at homes, schools and health centers (over 4 years)

	✓ Water purification systems	20 000	Pilot project in 10 communities
	✓ Artificial wetlands	540 000	10 wetlands in key communities that contribute the most to the pollution of natural water bodies (3 years)
	✓ Consulting services for the implementation and operation of infrastructure	160 000	Salary of two field technical advisors (for 5 years)
	✓ Soil conservation	1 200 000	Wages and materials for approximately 3000 ha
	✓ Revegetation and rehabilitation of forests, wetlands and riparian ecosystems	1 200 000	Wages and materials for approximately 3000 ha
	✓ Construction of nurseries and promotion of sustainable production practices	770 000	Building of 10 nurseries, enclosure of springs, beekeeping materials, etc.
	✓ Technical services for conservation activities	160 000	Salary of two field technical advisors (for 5 years)
III. Monitoring and Evaluation	✓ Development of indicators	20 000	Consulting services
	✓ Monitoring implementation	100 000	Data collection fees for non-community-based monitoring (for 4 years)
	✓ Transparency	55 000	Online platform

The Implementing Entity fees will be utilized by the IMTA to cover part of its overhead costs, provide support in managing the project and get specialized technical consulting services. An estimated budget for these services is presented in the table below. Should additional funds be required to complete the project, they would be managed by local stakeholders.

Category of services	Services provided by the IMTA	Cost of services (USD)
Identification and analysis of alternative projects	<ul style="list-style-type: none"> • Present the Adaptation Fund's features and benefits • Verify eligibility of the draft project • Provide technical consulting services in areas relevant to the project 	\$20 000
Goal-management consulting services	<ul style="list-style-type: none"> • Analyze the climate change scenarios considered • Define the project area's vulnerability to climate change • Advise the project executants on how to turn the general ideas into a comprehensive project • Provide advice on defining the implementation capacity of the project's executing entity and other involved parties • Validate the main participants' technical capacity • Assist in the identification of possible project partners • Provide advice on submissions for permits and authorizations 	\$80 000
Development and preparation	<ul style="list-style-type: none"> • Provide advice on aligning the project's objectives with the goals established in national legislation • Review the technical reports • Negotiate funding authorization from the Fund • Respond to requests for information, organize reviews, etc. 	\$100 000
Provision of external specialized consulting services	<ul style="list-style-type: none"> • Do a technical review of the different parts of the project • Assess the adaptation measures' impact • Analyze the staff's technical capacity • Advise the project team on both technical and financial matters • Provide all the technical information necessary to carry out the various actions • Monitor work to ensure quality results • Evaluate participants' performance in the different stages of the project 	\$222 000
Evaluation and reports	<ul style="list-style-type: none"> • Review the financial aspects of the project • Evaluate the techniques used and the presentation of results 	\$200 000

	<ul style="list-style-type: none"> • Adapt the reports to the Fund’s guidelines • Actively participate in meetings on the different aspects of the project • Organize and participate in the quarterly, semi-annual, annual, mid-term and final meetings • Disseminate the project’s conclusions in order for it to be replicated if successful 	
Total		\$622 000

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

	From the signing of the financing agreement	First year	Second year	Third year	Fourth year	Total
Target date	August 2014	August 2015	August 2016	August 2017	August 2018	
Projected funds	\$424 400	\$2 505 312	\$2 365 312	\$2 382 812	\$329 900	\$8 007 736
Payment to NIE	\$133 327	\$119 382	\$119 382	\$130 529	\$119 380	\$622 000
Total	\$557 727	\$2 624 694	\$2 484 694	\$2 513 341	\$449 280	\$8 629 736

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