



ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

Country/Region: Ecuador

Project Title: Integrated and Integrated Management of Water Resources in the watersheds prioritized by the National Adaptation Plan of Ecuador

Thematic Focal Area: Water Management, Food Security, Ecosystem based Adaptation

Implementing Entity: World Food Programme (WFP-Ecuador)

Executing Entities: Local NGOs and UN Agencies

AF Project ID: AF00000413

IE Project ID:

Reviewer and contact person: Camila Florez

IE Contact Person:

Requested Financing from Adaptation Fund (US Dollars): 10,000,000

Co-reviewer(s): Estefanía Jiménez

Technical Summary

The project “Integrated and Integrated Management of Water Resources in the watersheds prioritized by the National Adaptation Plan of Ecuador” aims to strengthen the resilience and adaptive capacity of the three intervention zones (Machangara and Gualaceo basins; San Lorenzo; Bolívar) and populations vulnerable to climate change through the integration of climate adaptation approaches into local management policies and plans, the implementation of innovative and sustainable measures focused on Water Management, Food Security, Ecosystem based Adaptation, the development of effective hydrometeorological monitoring systems, and the creation of coordination spaces with an inclusive and culturally relevant approach, promoting the participation of all sectors and decision-making based on robust climate data. This will be done through the three components below:

Component 1: Planning and management instruments with a focus on climate change and comprehensive, multisectoral and effective adaptation measures for water, food and conservation security (USD 5,002,049);

Component 2: Local and national hydrometeorological monitoring systems that transmit information in real time (USD 1,793,682);

	<p><u>Component 3: Strengthening of capacities and spaces for articulation and coordination as an adaptive capacity to climate threats such as rains and floods. (USD 1,621,245).</u></p> <p><u>Requested financing overview:</u> Project/Programme Execution Cost: USD 799,614 Total Project/Programme Cost: USD 9,216,590 Implementing Fee: USD 783,410 Financing Requested: USD 10,000,000</p> <p>The first technical review raises several issues, such as compliance with the ESP and GP, the unjustified use of USPs, and the lack of concrete, specific adaptation actions, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.</p>
Date:	December 17, 2024

Review Criteria	Questions	Comments December 13, 2024	WFP Comments June, 5 2025
Country Eligibility	1. Is the country party to the Kyoto Protocol, and/or the Paris Agreement?	Yes.	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes. Ecuador is particularly vulnerable to changes in precipitation and temperature leading to droughts and floods, which affect water and food security.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	<p>Yes. As per endorsement record signed on September 2nd, 2024.</p> <p>CAR1: Kindly indicate the specific executing entities on the first page of the concept note.</p>	CAR1: Comment is addressed. The project will be implemented through Field Level Agreements (FLA) with local partners with territorial impact. The standardised WFP process for working with field partners will begin with the mapping of actors with management and implementation capacity, a selection process based on procedures endorsed by a selection committee, and after the selection, the definition of lines of action, planning, amounts

			<p>and agreements for implementation, including the delivery of bank guarantees for the correct use of resources. The Bi-national Project has learned that this process is viable because it contributes to the strengthening of local organisations in the territory, generating strong leadership groups around local problems and developing capacities for resource management and advocacy in territorial agendas.</p> <p>Within this framework, the project linked organisations with a strong territorial presence such as the Federation of Awá Centres of Ecuador (FCAE) and the Confederation of Afro-Ecuadorian Regions of Northern Esmeraldas (CANE), with whom field agreements (FLA) were established between the WFP and the implementing partners. These alliances reflect the viability of the approach, as evidenced by the Binational Project, by strengthening local organisational capacities, promoting community leadership in the face of territorial problems, and fostering efficient and transparent resource management.</p>
	2. Does the length of the proposal amount to no more than Fifty pages for the project/programme concept, including its annexes?	Yes. The proposal is 45 pages.	
	3. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate	<p>Unclear.</p> <p>The relevance of the project activities to climate change adaptation depends, to a large extent, on Component 1, constituting the bulk of the funding requested. Component 1 is extremely broad, and only</p>	<p>CAR2: Comment is addressed. The components have been reformulated. Three components are proposed that respond to a chain of management and handling of climate information (Component 1), the development of climate risk studies to define a portfolio of adaptation measures and an</p>

	<p>change and build in climate resilience?</p>	<p>provides high-level, general information of what will be done with the funding requested. Component 1 aims to establish a multi-sectorial process to mainstream climate change in management and planning instruments; however, how this will be carried out is unclear. At the same time, adaptation measures would be implemented under this component; however, the concept note provides only ideas for project measures (e.g., green and blue infrastructure, agroforestry practices) that could be implemented. Component 1 requires USD\$5 million, a significant amount of funds to finance activities that have not been sufficiently identified nor have a specific location where they can be implemented (USPs). Please be advised that fully unidentified activities are not allowed, and there is no justification for why it would not be possible to identify these activities at the time of project formulation. Similarly, Components 2 and 3 are too general and do not provide specifics of the proposed interventions.</p> <p>CAR2: Please revise section II.A thoroughly, identifying all the activities of Components 1-3 and based on the observation above and</p>	<p>implementation strategy (Component 2) and a strategy of sustainability of climate investment that is visible in the strengthening of spaces for territorial articulation and capacity building (Component 3). In addition, the measures have been reformulated and the potential areas of intervention have been defined. The use of USP has been reduced</p> <p>CR1: Comment is addressed. A Theory of Change flowchart has been developed, where barriers, outputs, outcomes, and goal have been defined.</p> <p>CR2: Comment is addressed. For this new version of the project. It has been clarified in the wording how climate resilience will be improved through this climate information monitoring system. It can be reviewed from paragraphs 117 - 123.</p> <p>For question a: Data will be processed by sub-national governments (provincial government) to be managed in climate monitoring rooms. An agro-climatic bulletin will be developed and disseminated to local farmers.</p> <p>Question b: The project will strengthen the local hydrometeorological network, the creation of climate monitoring rooms, development of agro-climatic bulletins, strengthen local capacities for the interpretation of information. The users of the information will be farmers, sub-national government technicians and local decision makers.</p> <p>Question c: 5 stations have been identified but only 4 are transmitting information.</p>
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		<p>in particular address USPs within the project. Kindly refer to the Fund's revised guidance on USP available here: https://www.adaptation-fund.org/wp-content/uploads/2021/05/Updated-guidance-on-USPs-.pdf</p> <p>CR1: Please provide a theory of change for the proposed project.</p> <p>CR2: Regarding Component 2;</p> <ol style="list-style-type: none"> 1. please clarify how the hydro-meteorological monitoring system will improve the climate resilience of the most vulnerable. 2. Please address the following questions; <ol style="list-style-type: none"> a. Who will receive the data and take effective actions that translate into local resilience? b. How will the project support the use of the data and improve decision-making? Which local and national actors will be targeted? c. How many stations are there now? 	<p>Question d: It is proposed to acquire 25 stations and repower 10 stations in the intervention areas. Consultations have been carried out with sub-national governments and universities that could pay for their maintenance once the project ends its operation.</p> <p>CR3: Comment is addressed. Component 3 (new proposal) will enhance adaptive capacity in Azuay and Manabí through a comprehensive in-person and virtual training program with a gender, generational, and intercultural approach. It will include modules on water management, ecological restoration, agrobiodiversity, and adaptive governance, ensuring the participation of at least 50% women and youth.</p> <p>Two Watershed Committees/Councils will be strengthened, and six regulatory proposals (four municipal and two provincial) will be developed through technical assistance and participatory processes. Additionally, at least four community dialogue spaces and one institutional sustainability strategy will be implemented to foster coordination between local governments and communities.</p> <p>The component will apply tools developed and validated by WFP, including Social Norms Exploration Tools (SNET), a Social and Behavior Change Communication (SBCC) strategy, the Protection against Sexual Exploitation and Abuse (PSEA) policy, and a Community Feedback Mechanism (CFM). These tools will ensure social inclusion, rights protection, and community ownership. Overall, the actions will support institutionalizing local capacities, strengthen water</p>
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		<p>d. How many do you want to buy?</p> <p>CR3: Regarding Component 3:</p> <ol style="list-style-type: none"> 1. please explain the specific mechanisms and outputs that will ensure that the training and coordination mechanisms will lead to increased adaptive capacity. It is unclear from the proposal how likely it is that its objectives will be achieved. 2. The budget for Component 3 is over USD\$1 million, a high budget for unknown coordination and training mechanisms for unclear, intangible results. Please revise. <p>CR4: Please review Figure 2, 3, 4, 7, 8, 9, 10, 11, 12 as they are not clear. They should include the units (mm, °C, etc.), variables (max temperature, min temperature, etc.), periods (annually, monthly, etc.). The figures should be self-explanatory.</p>	<p>governance, and ensuring the sustainability of adaptive measures beyond the project's duration.</p> <p>CR4: Comment is addressed. Figures have been fully redesigned as climate-information maps built with official datasets requested by the Ministry. Each map now displays the corresponding categories (low, high, very high, etc.), clearly labels the climatic variables portrayed (e.g., maximum temperature, drought, etc.) and specifies the temporal resolution (e.g. RCP 8.5 scenario), making the figures self-explanatory. In addition, all nomenclature, data sources and spatial dimensions are discussed in detail within the "Climate Rationale" paragraphs, where they are explicitly referenced to authoritative national and international documents to ensure transparency and traceability.</p> <p>CR5: Comment is addressed. Figure no longer used.</p> <p>CAR 4. Comment addressed. Figures have been fully redesigned as climate-information maps built with official datasets requested by the Ministry. Each map now displays the corresponding</p>
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	<p>4. 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 and Gender Policy of the Fund?</p>	<p>Unclear.</p> <p>The project will be implemented in three prioritized areas: 1) the upper basin of the Carrizal River in the canton of Bolívar - Manabí; 2) the Pacoche River in San Lorenzo - Manabí; and 3) and the Machangara and Gualaceo rivers in the main basin of the Paute River, in the province of Azuay. The project will be implemented in areas covering 36,071 people.</p> <p>The concept note lacks specificity regarding how the project components lead to the indicated environmental, social, and economic benefits. The current description of benefits is generic. The benefits</p>	<p>CAR3. Comment is addressed. The proposal has been updated to consistently reflect three priority intervention areas. Disaggregated data on direct and indirect beneficiaries by gender and age have been included for each area, along with the socio-economic and demographic context. A map and clarification of the geographical boundaries of the selected sites has also been provided. In addition, in the intervention areas the population self-identified as mestizo, however, based on national population surveys it could be identified that there is a minimal percentage of indigenous, Afro and montubia population (approximately 1.5%).</p> <p>CAR4: Comment is addressed. The proposal contains a methodological, technical and comprehensive explanation of the expected social, environmental and economic benefits, including quantified indicators. It also highlights how these benefits will be equitably distributed among vulnerable communities, households and</p>

		<p>claimed are not directly linked to the project's activities and outputs.</p> <p>The concept note indicates that the proponents will identify whether indigenous populations exist in the target areas during the preparation of the fully developed proposal. The proponent did not identify any significant indigenous population during the consultation process.</p> <p>The concept note states that 36,071 people will directly benefit from the project. However, the extent to which these are direct beneficiaries of project outputs and activities (also see CR1) is unclear.</p> <p>CAR3: Please clarify and indicate the number of direct and indirect beneficiaries, disaggregating by gender and age. Additionally, Kindly provide more information on the districts and populations living in the selected intervention areas, including a map, if possible. Also, please clarify the boundaries of the selected intervention sites. While the first half of the concept note refers to three prioritized areas, the second half refers to four watersheds.</p>	<p>individuals. Measures to ensure equity and inclusion have been integrated into all 3 components of the proposal.</p> <p>CAR5: Comment is addressed. The proposal has been strengthened with a more detailed initial gender analysis presented in Annex 2, based on data disaggregated by sex and territory. This analysis identifies specific gender inequalities in access to climate information, productive resources and decision-making spaces. For example, more than 70% of female-headed households in areas such as Quiroga and San Lorenzo have no income of their own, which limits their participation in adaptation measures. Finally, every proposed measure, process of access to climate information and capacity building contains a gender and inequality approach. To address these disparities, the project will apply affirmative actions across all three components: tailored methodologies to enhance access to agroclimatic information (Component 1), priority inclusion in adaptation measures such as irrigation and green infrastructure (Component 2), and gender-balanced participation in community governance structures (Component 3).</p> <p>In addition, the project will integrate WFP tools with a gender-sensitive approach, including Social Norms Exploration Tools (SNET), a Social and Behavior Change Communication (SBCC) strategy, sessions on the Protection against Sexual</p>
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		<p>CAR4: Please;</p> <ol style="list-style-type: none"> 1. provide a nuanced explanation of how the project components will lead to social, environmental, and economic benefits, and please quantify these benefits as much as possible. Please clarify how the project will ensure the equitable distribution of benefits to vulnerable communities, households, and individuals. <p>CAR5: The concept note includes an initial gender assessment; however, the information provided is rather general about gender conditions in two provinces. The initial gender analysis should highlight the different needs, capabilities, roles, and knowledge resources of women and men in relation to the project components. Please revise.</p>	<p>Exploitation and Abuse (PSEA) policy, and the Community Feedback Mechanism (CFM).</p> <p>This transformative approach will be consolidated in the Fully Developed Proposal through a dedicated Gender Action Plan, with a specific budget, gender-disaggregated indicators, and the active participation of women's organizations, ensuring sustainable impacts and effective reduction of structural gender gaps.</p>
	5. Is the project / programme cost effective?	<p>Unclear. The project, as it stands, is too broad and general, without clarity on the selected scope and approach. The combination of USPs, unclear project outputs and benefits makes it impossible to appreciate the project's cost-effectiveness at this stage.</p> <p>CAR6: Kindly revise section II.C as the section should explain the</p>	<p>CAR6: Comment is addressed. Section II.C has been revised and reworded to include information and data demonstrating the cost-effectiveness of the proposed measures, based on ECLAC and Ministry of Environment publications, as well as information from previous projects that applied similar methodologies. This section includes a methodological and technical explanation of the scope and objectives of the proposal. Finally, the proposal has included sections demonstrating a</p>

		project's cost-effectiveness in comparison to alternative options to the proposed measures. Please also explain the project's scope and approach.	holistic approach that is evident in each of the 3 components
	6. 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?	Yes. The concept note has outlined the project's alignment with Ecuador's NDC, National Adaptation Plan, Climate Finance strategy, and Gender and Climate Change Action Plan. However, this should be further reviewed once the project scope, components, and activities are defined.	This section has been reformulated and analysed in depth with the national climate change adaptation management instruments.
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	<p>Partially. The concept note has indicated a number of regulations and standards relevant to each project component.</p> <p>CR6: Given the current USPs, once the project activities are defined, the pertinence of the selected technical standards can be accurately assessed. Furthermore, please include specific standards needed for the project activities, such as building codes, water quality regulations, and any other sector-specific regulations.</p>	<p>CR6: Comment is addressed. This section has been reformulated and new technical standards have been included for each of the components. As mentioned in the previous CARs, the number of USPs has been reduced, as adaptation measures have been defined and intervention areas have been identified.</p> <p>CR7: Comment is addressed. This section has been reworded, and duplicate instruments have been removed.</p>

		CR7: In Table E of Part II, there is no need to include the same instruments included in Table D of Part II. Please review.	
	8. Is there duplication of project / programme with other funding sources?	<p>Partially.</p> <p>CR8: Kindly include a comprehensive list of projects that are or have been implemented in Ecuador and are related to the proposed project. For example, GEF project “Promoting the mainstreaming of biodiversity and protection of ecosystem services through regenerative and deforestation-free livestock in provinces of Manabí, Pichincha and Morona-Santiago”, GEF project “Integrated landscape management in the Napo River Basin for sustainable land management and biodiversity conservation.”, and GEF project “Integrated management and ecological connectivity of a priority landscape in the Ecuadorian Amazon headwaters”. Moreover, please also check GCF projects: FP173, FP128, FP019, FP212.</p> <p>CR9: For the identified projects, kindly provide more details, including the main project interventions, timeline, and location. Please also fully address the potential synergies</p>	<p>CR8: Comment is addressed. A detailed mapping of projects in the session PART II.F, implemented or in execution in Ecuador financed by the GCF and GEF, has been carried out, identifying key synergies with this proposal, especially in climate resilience, agro-climatic information monitoring, territorial water governance and gender approach. These include: GEF-11369 on regenerative livestock farming in Manabí, which shares the focus on productive ecological restoration and revaluation of local knowledge; GEF-11333 in the Napo River basin and GEF-11202 in the Ecuadorian Amazon, which strengthen community capacities in sustainable land management and ecosystem conservation; GCF FP173 on urban resilience, and FP019 focused on technified irrigation for climate change adaptation, both with contributions in early warning systems and access to water; FP128 and FP212, which promote resilient territorial planning and climate risk management in rural areas. The proposal takes up technical and methodological lessons learned from these projects, avoiding territorial duplications, and reinforcing innovative elements such as the institutionalization of the Climate Information Monitoring System (SMIC), the effective participation of women and youth in community water governance, and the participatory design of local public policies. These synergies increase the probability of success, sustainability and scalability of the proposal in the 3 prioritized areas.</p>

		and lack of geographic and thematic overlap with the identified projects, including lessons from the earlier initiatives.	CR9: Comment is addressed. The requested recommendations have been included in this section. The matrix details the interventions, location, timeline, synergies, intervention areas and possible lessons for this proposal.
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	<p>Unclear. The concept note includes a list of communication strategies and WFP channels that could be used for the capacity-building component of water resource management. It is unclear why the KM management would only focus on water management, not the whole project. Even for this sector, the description of the knowledge management component is limited and does not offer information on what lessons the project intends to generate, what the unknowns are, and how it will determine what is 'best practice'.</p> <p>CAR7: Please explain the specific activities that will take place to gather and disseminate lessons from the project itself, including knowledge about what adaptation actions work and how this knowledge will enrich the global, national, and local knowledge on climate change adaptation as this is a critical element to all AF projects and programmes (also see CR1).</p>	<p>CAR7: Comment is addressed. This section was reformulated and includes the phases for the management of the information and knowledge that will be generated with this proposal. In addition, a monitoring and evaluation system has been included to measure participation and the use of information, to adjust methodologies and ensure sustainability. It is also proposed to develop a communication and visibility strategy for the results of this proposal in government platforms and in international spaces such as the COP on climate change, biodiversity and desertification. A table was included detailing the different channels for sharing information and lessons learned.</p>

	<p>10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Yes, but further information is needed.</p> <p>Initial consultations took place in three phases from January to June 2024. The consultative process involved several government departments and stakeholders, including representatives of water committees. Four validation workshops have been carried out in the intervention areas. In total, 110 local actors have been consulted.</p> <p>CR10: Please include the date of each meeting (e.g., virtual meeting, validation workshop) and indicate the participants and main findings.</p> <p>CR11: Please indicate whether marginalized and vulnerable groups have been consulted and how their interests and concerns have been integrated into the project design.</p>	<p>CR10 and CR11: Comment is addressed. This section has been reformulated and information on the convening of meetings with communities and local governments has been included. In April and July 2024, 10 technical meetings, 4 field visits and 4 participatory workshops were held in Cuenca, Gualaceo, Manta and Bolivar. A total of 110 stakeholders (29 women) participated, including municipal technicians, water boards, local governments, MAATE, MAG, community, women and youth organizations. The attached matrix in PART II.H details the dates, participants and main findings. In consultation workshops, vulnerable groups such as rural women, youth, indigenous peoples, afro-descendants and montubios were included, identifying their main gaps: limited access to safe water, limited participation in governance spaces, limited availability of agro-climatic information and barriers to sustainable livelihoods. These findings guided the design of the three project components and their adaptive measures. In the Fully Developed Proposal phase, an expanded Free, Prior and Informed Consent (FPIC) process will be implemented, with an intercultural, territorial, gender and generational approach. This process will allow effective validation of the location and design of the Unidentified Subprojects (USP), ensuring that the interests, knowledge and collective rights of ancestral peoples and local communities are respected and fully incorporated into the final proposal</p>
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	<p>11. Is the requested financing justified on the basis of full cost of adaptation reasoning?</p>	<p>Partially. The concept note explains the funding requested by comparing the baseline scenario to the additionality of the AF project. However, given that the project design does not clearly indicate investments in concrete adaptation options, it is unclear whether the funding is justified.</p> <p>CR13: Please revise the justification of the requested financing according to the changes made to CR1.</p>	<p>CR13: comment is addressed. This section has been reformulated and each investment to be made in the 3 proposed components is justified. In addition, the table comparing the project with and without AF investment has been reformulated. Thus it can be justified that the PA investment would increase the adaptive capacity of the vulnerable population identified in the section on barriers.</p> <p>The budget has been revised in alignment with the updated theory of change, with the majority of funding now allocated to concrete nature-based adaptation measures such as landscape conservation and restoration. It also supports capacity-building for climate-informed decision-making and equitable water management. These investments are geographically targeted to benefit the most vulnerable populations, thereby justifying the requested financing under the full cost of adaptation reasoning</p>
	<p>12. Is the project / program aligned with AF's results framework?</p>	<p>Yes. However, some amendments are needed.</p> <p>The concept note has indicated the project's alignment with several AF outcomes, including 1, 2, 5, and 7.</p> <p>CR14: At Part III A, alignment with results framework, under the column grant amount, please separate the figure \$ 5,002,049 from outcome 7 and outcome 5 and relatedly from output 7.2 and 5.1 in the table. The</p>	<p>CR14: Comment is addressed. The outcomes and outputs have been realigned with the revised theory of change, and the budget has been adjusted accordingly. This ensures clearer alignment with the Adaptation Fund's results framework.</p>

		figure for each outcome should stand on its own.	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	<p>Unclear. The concept note indicates that its approach to coordinated and concerted agendas will ensure commitments are fulfilled. However, the overall explanation of the project's sustainability is rather general and does not address how its adaptation benefits can be sustained after its end.</p> <p>CR15: The concept note needs to explain in detail the arrangements that would ensure the sustainability of any infrastructure or installations made, knowledge generated, capacity improved, and policies developed. Please cover all key areas of sustainability: economic, social, environmental, institutional, and financial.</p>	CR15: Comment is addressed. This section has been reformulated and explains the sustainability strategy of the climate investment that the AF would make in the intervention areas. This section explains the sustainability of the proposal's actions from an economic, social and environmental approach. This enhances the processes for institutional and financial sustainability, as actions have been defined in component 3 to enable the institutionalization of actions through public policies and local regulations. Similarly, component 3 proposes empowerment strategies and participatory processes with communities and local governments, thus achieving ownership of the actions to be implemented.
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	<p>Unclear. The concept note indicates that the project is category B. The proponent has assessed the possible risks against the 15 AF principles, taking into account the project's compliance with national regulations and its goals, the concept note fails to recognize potential risks. In general, the identification of risks is overly broad and does not focus on the specific local context. There is no justification for the use of USPs. The</p>	CR16 and CAR8: These comments are addressed. The proposal is classified as Category B, presenting reversible and manageable social and environmental risks, according to the Fund's Environmental and Social Safeguards Policy (ESP). An initial assessment of the 15 principles has been made, linking the risks to specific components as described in PART II.K: Component 1 (agro-climatic information): potential access barriers for women and vulnerable groups. Component 2 (green infrastructure and restoration): risks associated with the physical implementation of adaptive measures.

		<p>risk assessment needs to be supported with more detailed information.</p> <p>CR16: Please identify the project activities to the point where adequate environmental and social risk identification is possible and update the proposal accordingly. Please see also CR1.</p> <p>CAR8: Kindly indicate which project components or activities would lead to the identified risks. Please revise Section K following the AF's ESP guidance: https://www.adaptation-fund.org/wp-content/uploads/2016/07/ESP-Guidance_Revised-in-June-2016_Guidance-document-for-Implementing-Entities-on-compliance-with-the-Adaptation-Fund-Environmental-and-Social-Policy.pdf . Note that Principle 1, Principle 4 and Principle 6 always apply.</p> <p>CR17: Section K states that '100% of the population in the 3 areas of intervention self-identifies as a mestizo population', however, this differs from the information in Appendix 3. Please explain.</p>	<p>Component 3 (governance and regulatory frameworks): risk of exclusion if effective participation is not ensured.</p> <p>Medium risk principles (2, 5, 7, 7, 9, 10 and 12) require additional environmental and social assessment in the Fully Developed Proposal, where an Environmental and Social Management Plan (ESMP) and Environmental and Social Management Plan (ESMP) will be prepared for each Unidentified Subproject (USP). These actions will ensure adequate risk management and compliance with the Fund's policies.</p> <p>CR17: Comment is addressed. Free and informed consultation with an intercultural and gender approach will be implemented in territories with indigenous (1.77%), Afro-descendant (0.67%) and Montubia (1.45%) populations, according to INEC 2022. The self-identification information has been corrected and included in the evaluation matrix included in Section K to ensure consistency with the participatory process in Section H. Appendix 3, in this new version of the Concept Note, corresponds to a preliminary environmental and social risk management plan.</p> <p>CR18: Comment is addressed. USPs have been reduced and a strategy to address ESMPs is in place in the APPENDIX 3. Environmental and Social Risk Management Plan.</p>
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		CR18: Given that the project has USPs, please explain how the ESMP would address that.	
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes.	
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes.	
	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	1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes. Accreditation Expiration Date: 20 May 2025	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management, in compliance with the	n/a at concept stage	

	Gender Policy of the Fund?		
	2. Are there measures for financial and project/programme risk management?	n/a at concept stage	
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?	n/a at concept stage	
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a at concept stage	
	5. Is an explanation and a breakdown of the execution costs included?	n/a at concept stage	
	6. Is a detailed budget including budget notes included?	n/a at concept stage	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a at concept stage	

	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a at concept stage	
	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?	n/a at concept stage	
	10. Is a disbursement schedule with time-bound milestones included?	n/a at concept stage	



ADAPTATION FUND

CONCEPT NOTE PROPOSAL

PART I: PROJECT INFORMATION

Name of the Project/Programme: Integrated ~~and Integrated~~ Management of Water Resources in the watersheds prioritized by the National Adaptation Plan of Ecuador.

Country: Ecuador

Thematic Focal Area: Water Management, Food Security, Ecosystem based Adaptation.

Type of Implementing Entity: Multilateral Implementing Entity

Implementing Entity: World Food Programme (~~WFP-Ecuador~~)

Executing Entities: Local NGOs ~~and UN Agencies~~

Designated Authority: Ministry of the Environment, Water and Ecological Transition (MAATE)

Financing Requested: \$ 10,000,000.00 United States dollars

Project Formulation Grant Request: ☒ Yes ☐ No ☒

Amount of Requested financing for PFG: ~~120,000.00~~ 10,000,000.00 (in U.S. Dollars Equivalent)

Letters of Endorsement (LOE) signed for all countries: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page:

Stage of Submission:

☐ This proposal has been submitted before including at a different stage (pre-concept, concept)

☒ This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: December 17, 2024 ~~Click or tap to enter a date.~~

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A. PART I: PROJECT / PROGRAMME BACKGROUND AND CONTEXT

NATIONAL CONTEXT

1. Ecuador is an Andean country, located in the northwest of South America, whose 256,370 km² of territory include the continental region, which is divided into Coast, Highlands and Amazon, and the Insular region, composed mainly of the Galapagos Islands. It is organized into 24 provinces, 221 municipalities, and 1,499 rural local governments-parishes, which correspond to the different levels of territorial organization (MAATE NDC, 2022).
2. The country's orography is complex and the influence of oceanic phenomena such as El Niño-Southern Oscillation (ENSO) and the Humboldt Current have given rise to great climatic diversity. Unlike temperate regions with their four well-defined seasons, the Ecuadorian territory presents an alternation between dry and rainy periods.
3. The Andes Mountains, which cross the country from north to south, exert a determining influence on the distribution of rainfall. The western slopes, exposed to humid winds from the Pacific Ocean, receive abundant rainfall, while the eastern slopes, in the rain shade, have a drier climate.
4. According to the 2022 population census, Ecuador has 17.7 million inhabitants and a population density of 52 people per square kilometer. Culturally, it is a country recognized as an intercultural and plurinational state, where Mestizo, Afro-descendant, Montubia and 14 nationalities and 18 indigenous peoples coexist and whose ancestral languages are interculturally related. The country's Constitution guarantees collective rights to these communities, promoting the strengthening of their identity, and the protection of ancestral knowledge and respect for their territorial and customary rights.
- 2-5. Between 2020 and 2050 there could be years with temperatures higher by up to 2 °C, which could generate several changes in people, living organisms, and natural resources. Likewise, there is evidence of precipitation changes of up to 9mm of precipitation per day in certain areas of the country, which would potentially generate a greater number of floods and landslides. On the other hand, the information shows that, in Ecuador, areas prone to drought and that already have low levels of precipitation may experience a reduction of 4.5 mm of precipitation per day lower than the observed average.
- 2-1. Ecuador is one of the countries with the highest biodiversity and water resources, with an annual average total water resources of 276 km³ or 1,514 mm of contribution to the runoff sheet. They are located on two main watersheds: the Pacific Ocean with 72 watersheds and the Eastern or Amazonian watershed with 7 watersheds. However, the water potential between the watersheds is very heterogeneous, since the Eastern Slope has 3/4 of the country's water resources, while the highest concentration of the population is in the Pacific Ocean Slope with 87% of the 17.7 million inhabitants, which leads to greater pressures and demands on the natural resources of region.
4. The soils in the coastal region are generally alluvial, fertile, and suitable for agriculture. In the Andean region, soils vary from volcanic (highly fertile and mineral rich) to clay. In higher areas, soils may be shallower and more erodible. Amazonian soils are mainly lateritic, acidic and with low levels of nutrients due to the intense leaching caused by high annual rainfall on average of 3,000 mm of rainfall (Calvache, 2017).
- 5-1. Agricultural practices in Ecuador are adapted to the characteristics of the soil. On the coast, products such as rice, bananas and cocoa are grown, taking advantage of the alluvial fertility. In the highlands, agriculture includes crops such as corn, potatoes, and quinoa, taking advantage of volcanic soils. In the Amazon, products such as cassava and plantain are grown, although intensive agriculture can be challenging due to soil conditions (Espinoza, 2024).

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Water Management

Ecuador is one of the countries with the highest biodiversity and water resources, with an annual average total water resources of 376 km³ or 1,514 mm of contribution to the runoff sheet. They are located on two main watersheds: the Pacific Ocean with 72 watersheds and the Eastern or Amazonian watershed with 7 watersheds. However, the water potential between the watersheds is very heterogeneous, since the Eastern Slope has 3/4 of the country's water resources, while the highest concentration of the population is in the Pacific Ocean Slope with 87% of the 17.7 million inhabitants, which leads to greater pressures and demands on the natural resources of region.

6. —

6-7. The sustainable management of water assets in the country is key for water security, environmental sustainability, and the well-being of communities. The largest tributaries of this vital resource are glaciers and moorlands that encompass rivers, lakes, wetlands, and aquifers, and benefit rural and urban populations. In the last 50 years, glaciers have decreased by 33%, and the surface of the Paramos, which act as natural flow regulators, has decreased by at least 25% (MAATE-RAS, 2024).

7. — Rising temperatures and intense rainfall over short periods will lead to an increase in the frequency and duration of extreme events, such as heavy rainfall and droughts. This, in turn, will accentuate inequity in access to water, generating drastic changes in the distribution of water resources (MAATE-RAS, 2024).

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Food Security

Agricultural practices in Ecuador are adapted to the characteristics of the soil. On the coast, products such as rice, bananas and cocoa are grown, taking advantage of the alluvial fertility. In the highlands, agriculture includes crops such as corn, potatoes, and quinoa, taking advantage of volcanic soils. In the Amazon, products such as cassava and plantain are grown, although intensive agriculture can be challenging due to soil conditions (Espinosa, 2024).

8. —

8-9. In 2022, the agricultural sector was responsible for 40% of the foreign currency that entered the country from exports of goods, excluding oil. This is equivalent to a total of USD 27,235.9 million in exports, of which USD 18,085.9 million correspond to non-oil exports and USD 7,438 million to agricultural exports not including aquaculture and fisheries. This significant contribution highlights the importance of the agricultural sector in the country's trade balance and job creation (ECB, 2023).

9. — In the last two decades, at the national level, the average percentage of agricultural area lost due to changes in temperatures and rainfall regimes was 5.4% of the national planted area. Permanent crops have a percentage of lost area of 5.4% and transitory crops a percentage of 5.9% (INEC, 2022).

10. — As for the area lost due to different causes, due to climatic events it represents 60% of the national total in the period 2002-2021, with drought being the event that causes the greatest impact on agricultural crops with a percentage of 37%, followed by floods with 15% and frost with 8% (MAATE-RAS, 2024). The adverse effects of climate change will significantly affect crop and livestock production, which, in turn, will have an impact on food security.

14-10. — Labor indicators in the agricultural sector reveal a complex panorama. In rural areas, the unemployment rate was 1.8% and the underemployment rate was 28.5%, while in urban areas, unemployment reached 5.2% and underemployment 20.4%. The agricultural sector employs 32% of the country's working population. This means that three out of ten employed people work in this sector, which highlights its importance as a source of employment and livelihood for a large part of the Ecuadorian population (INEC, 2022).

Ecosystem conservation

- 12.11. One of the threats currently faced by megadiverse countries such as Ecuador is the loss of biodiversity in terms of flora, fauna and ecosystems caused by the effects of climate change. This in turn affects the well-being of vulnerable populations for whom access is limited: (a) supplies (meat, skins, and natural medicines); (b) regulation and support (water purification, soil fertility, decomposition, ~~pollination~~pollination, and biological control), and (c) cultural services (aesthetic value and recreational activities) (MAE, 2015b).
- 13.12. In Ecuador, the rich diversity of ecosystems not only provides habitats for a wide range of ~~species~~, ~~but species but~~ also plays a crucial role in the hydrological cycle. Forests and wetlands act as natural water regulators, facilitating the infiltration and recharge of aquifers, as well as the regulation of flows in rivers and streams (MAATE-RAS, 2024-~~in process of publication~~). Therefore, the conservation and sustainable use of biodiversity are essential to guarantee the quality of life of present and future generations (MAE, 2015b).

Impacts of climate change on other economic sectors

- 14.13. Energy security in Ecuador faces major challenges, mainly due to its high dependence on hydroelectric generation. Currently, 92% of the country's energy generation comes from hydroelectric power plants, 7% from thermal plants, and 1% from non-conventional sources (photovoltaic, wind, biomass, biogas, geothermal, among others) (Ministry of Energy and Mines, 2023).
- 15.14. This dependence on water resources makes it vulnerable to severe droughts, such as the one that has affected the country since 2023, with notable impacts on electricity production. During the dry season, reservoirs drop in level, which limits the operation of hydroelectric power plants, directly affecting energy supply.
- 16.15. However, significant challenges remain to diversify the energy matrix and expand non-hydro renewable sources. As of 2023, wind and solar energy account for less than 1% of total electricity generation in Ecuador, despite the country's high potential in both areas due to its geographical location.

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SUBNATIONAL CONTEXT IN THE AREAS OF INTERVENTION

16. The areas of intervention were defined through a prioritization process led by the National Environmental Authority of Ecuador. The areas are affected by reduced rainfall (prolonged droughts), which results in reduced food production, imbalances in natural ecosystems and sedimentation problems in hydroelectric power plant reservoirs.
17. In the Fifth National Communication, the Ministry of the Environment, Water and Ecological Transition (MAATE) calculated an index for a detailed analysis of Ecuador's socioeconomic vulnerability to climate change. This index was constructed with 31 indicators and six dimensions. Demography and social groups to calculate the sensitivity and dimensions of physical infrastructure, economic capacity, human capital, and institutional capacity to calculate Adaptive Capacity.
18. Based on the results of the calculation of this composite index, the country's municipalities were classified into different levels of socioeconomic vulnerability to climate change. This index was represented on a national map, where the territories are grouped into categories ranging from "highly vulnerable" to "least vulnerable". The ranking was based on the combination of factors such as poverty, access to basic services, employment, education, health, and local governance.

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19. The three areas prioritized for the intervention were selected precisely because they are classified as highly vulnerable or moderately vulnerable according to this index. These areas have a combination of high exposure to climatic events such as drought, low institutional and economic capacity, and a population with high levels of poverty and unmet basic needs, which makes them priority territories for climate action and investment in adaptation measures.

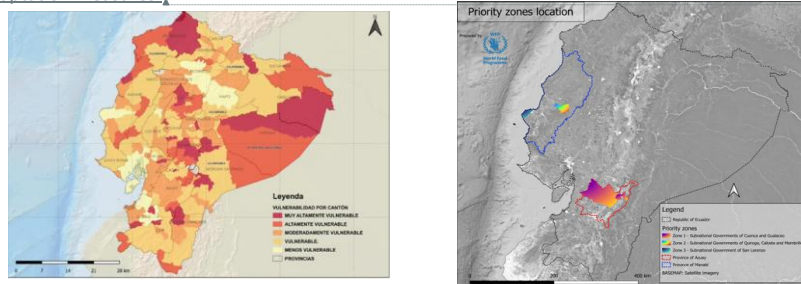


Figure 1. Map of socio-economic vulnerability of Ecuador (5CN/BTR) / Figure 2. Priority areas for intervention (MAATE - RAS, 2024).
Source: MAATE, 2023.
Prepared by: 5CN/BTR

47-20. The population of these areas is mainly dedicated to agriculture and livestock, activities that are seriously affected by water scarcity. The lack of seeds adapted to water stress, the inefficient distribution of irrigation, and increasing climate variability have reduced productivity and increased the vulnerability of rural livelihoods, conditions that limit farmers ability to adapt, especially in territories where water infrastructure is insufficient or inefficient (MAATE, 2024).

~~19.~~ For the development of this proposal, the Ministry of the Environment, Water and Ecological Transition (MAATE) in its capacity as focal point of the Adaptation Fund, has selected three key areas for its intervention:

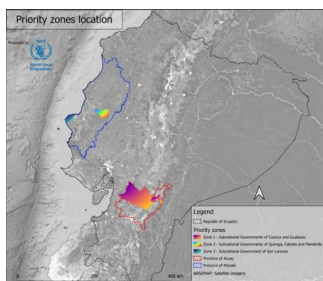


Figure 1. Priority areas for intervention (MAATE - RAS, 2024)

~~Note: Priority areas.~~

Source: NAF 2023; Own calculations based on climate information from the Ministry of the Environment, Water and Ecological Transition

~~Prepared by: WFP, 2023~~

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Priority ~~area~~zone 1: Azuay Province, Cuenca and Gualaceo municipalities (Paute River Basin, Machangara River Sub-basins and San Francisco and Santa Bárbara Rivers)

~~19-22.~~ The province of Azuay province is in southern Ecuador, in the inter-Andean region, mainly on the Paute basin in the northeast and the Jubones basin in the southwest. Its climate varies from tropical to glacial due to the presence of the Andes Mountain range. Azuay is made up of 15 municipalities, including Cuenca, located in the center of the province, and Gualaceo, located in the northeast. The total population of the province is approximately 801,609 inhabitants, most of which are concentrated in the urban area, mainly in the city of Cuenca, the third most populous city in Ecuador.

~~20-23.~~ The northeastern area of the Cuenca has a mountainous geomorphology with elevations that vary between 2,500 and 4,000 meters above sea level. Land use focuses on agriculture and livestock. The region is linked to the Machangara River basin and has the Machangara-Tomebamba Protected Forest, which is crucial for the conservation of biodiversity and water sources used for human consumption, agricultural irrigation, and hydroelectric power generation.

~~24-24.~~ The eastern area of the Gualaceo municipality is located between 2,200 and 3,000 meters above sea level. In this area, the main use of the land is agriculture and livestock. The region is home to the Colay Protective Forest, crucial for the conservation of biodiversity and water sources, especially the Santa Barbara and San Francisco rivers that are used for irrigation and human consumption.

~~25.~~ Gualaceo borders Cuenca, the country's third most populous city, whose rapid urban sprawl (with a density of 187 inhabitants/km²) increases pressure on water and other services. In both municipalities, 3 out of 10 inhabitants are under 20 years of age, which increases the demand for basic services. In rural areas, between 30% and 40% of the population lives in poverty due to unmet basic needs. Only half are employed, mainly in agriculture in difficult and unproductive conditions, which has led to high youth migration.

~~22-26.~~ In this context, the drought deepens the existing structural inequalities in the territory and its population, who depend mainly on agriculture and livestock in conditions of low productivity. The scarcity of irrigation water due to prolonged periods of drought, coupled with its poor distribution, severely limits agricultural activities, while the increasing pressure on water sources for human consumption – especially due to the urban expansion of Cuenca – generates conflicts and social tensions. Lack of information on climate variability and change prevents communities from understanding and anticipating threats. This reality has led to a high level of emigration, especially of young people, and has contributed to the feminization of poverty, since many women are left in charge of households without sufficient access to productive resources or adequate basic services, which leaves them in a situation of high vulnerability.

Prioritized ~~Zone~~Area 2: Manabí Province, Bolívar municipality, where the La Esperanza dam is located (Upper hydrographic basin of the Carrizal River)

~~23-27.~~ The province of Manabí province is in western Ecuador, in the coastal region, with an approximate population of 1,592,840 inhabitants. The main economic activity of the province is agriculture and fishing, with a focus on the production of cocoa, bananas, and fishery products. Water scarcity, due to its dependence on the coastal mountain range and the unpredictability of the rainy season, is a serious problem that affects agriculture and quality of life.

~~24-28.~~ Bolívar municipality is in the northeast of the province of Manabí province, it has a mountainous relief with slopes greater than 30%, with altitudes that vary between 100 and 400 meters above sea level. The average annual rainfall is about 1,200 mm. With a population density of 80 people per km², the main environmental problem is water erosion and the silting up of the La Esperanza reservoir, located in the Quiroga city, approximately 12 kilometers from the Calceta city. The dam has a storage capacity of around 450 million cubic meters of water, its main objective is to control the flow of the Carrizal River to prevent floods and provide water for agricultural irrigation, benefiting the local population by improving agricultural production and guaranteeing water supply, during times of drought. the dry season.

~~25-29.~~ The main economic activity in the area is agriculture, with crops mainly of corn, rice, and cocoa, as well as livestock. Most families in the area depend almost exclusively on the production of hard corn, who face the

lack of diversified economic opportunities. The lack of adequate infrastructure and modern agricultural techniques limits productivity and efficiency; therefore, the implementation of smart irrigation technologies and sustainable agricultural practices could improve productivity.

30. ~~In the rural area of Bolívar~~ rural area, 9 out of 10 people live in poverty and only 40.6% are employed, with only 24.6% of those who work being women. 72.7% of women have no income and are not looking for work, as they are dedicated to caring for the home without remuneration. This reality reflects a strong inequality that aggravates their situation. Although the province has a low rate of gender-based violence, it is key that adaptation actions include young women and promote their economic autonomy.

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26-31. In this context, erratic rainfall and dependence on an increasingly unpredictable water regime severely affect agricultural production, the economic basis of most households, and drought intensifies food insecurity and further limits access to sustainable livelihoods. Gender inequality is also deepening, as most women have no income of their own or access to paid employment, leaving them in a situation of economic dependence and exclusion from decision-making processes related to water management and production. The lack of climate information and technical capacities to anticipate and adapt to these changes leaves this population exposed to increasingly severe impacts.

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Priority area 3: Province of Manabí, Manta Municipality, San Lorenzo city, where the Pacoche forest is located.

27-32. San Lorenzo city is in the south of the Manta municipality, on the coastal profile of the province of Manabí and is characterized by housing in its territory the Pacoche Forest, a Coastal Marine Wildlife Refuge that preserves endemic species of flora and fauna, with a total of 4,152 hectares, which represents 25.3% of the total territory of the San Lorenzo ~~Parish~~.

28-33. The Pacoche forest acts as a climate regulator and source of drinking water, is a habitat for endemic and endangered species such as howler and capuchin monkeys, and helps maintain the balance of the hydrological cycle, which is crucial for agriculture and water supply. In addition, the forest contributes to the conservation of biodiversity and offers opportunities for ecotourism as a possible source of income for the community, which has an awareness of care and conservation, with the participation of young people ~~from the community~~ in the protection of the forest, as volunteer community guards.

29. The population of San Lorenzo is young, more than 60% are under 40 years old, which projects an increase in the demand for water for human consumption, which currently comes mainly from the La Esperanza dam, located more than 135 kilometers away. Even though, aquifers exist in the Pacoche forest, they have not been quantified and there is no adequate water distribution and redistribution system, which is aggravated by the intervention and deforestation of the forest and prolonged droughts, which have contributed to the reduction of the flow of the adjacent estuaries and rivers ~~—~~ affecting productive activities and putting the water supply at risk.

34.

35. The main economic activity in the area is artisanal fishing, followed by agricultural production of corn, coffee, and cocoa, as well as short-cycle products ~~—~~ 45.6% of the economically active population is employed in paid jobs, 73.5% are men and 26.5% are women. They make up 73.8% of the economically inactive population, that is, they are not working for an income and are not looking for work. Since fishing is an activity that keeps men away from home for several days, women are exclusively in charge of unpaid care work in the home, with limited possibilities of carrying out economic activities for an income to achieve their economic autonomy.

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36. Faced with the problem of drought, the lack of studies on its water capacity and the absence of an adequate distribution system aggravates water insecurity in the area. The prolongation of dry periods, together with deforestation and intervention in the forest, has reduced the flow of estuaries and rivers, affected agriculture and putting the population's drinking water supply at risk. Drought, in this context, not only compromises natural resources, but also deepens social and gender inequalities, limiting development opportunities for a young population with high dependence on local ecosystems.

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Climate Rationale

30-37. According to the Fifth National Communication on Climate Change and the Fifth Biennial Transparency Report (SCN/BTR), Ecuador Based on the review of the records of disasters associated with hydroclimatic events and landslides, it was found that the threats that have had the greatest impact or could have in Ecuador, are those related to extreme precipitation and temperature events, which are (MAE, 2019):

Droughts: Prolonged periods without rain, or with very low volumes of precipitation. This scarcity affects crop production and affects the supply of water for its different uses.

High temperatures: Very high temperature values that can occur in one or several days, and that produce effects on human populations, crops, goods, and services.

38. Drought risk is quantified through precipitation deficits, whereas extreme-heat risk is evaluated by anomalously high temperature values. These indices provide a consistent basis for monitoring and analyzing the evolution of both hazardsFor this proposal, the threats in relation to droughts and high temperatures will be analyzed. For each of the climatic hazards, the associated climate index, and the behavior that it must present to produce the threat were identified. Drought is mainly related to precipitation, to the deficit (for droughts). As for high temperatures, they are associated with the behavior of temperature, and represent a threat when very high values are present (for high temperatures). These behaviors are analyzed based on the daily data of these variables and standardized climate indices with which their evaluation and monitoring are carried out.

21-39.

Climate Threat	Associated Index	Description
Drought	CDD	Number of consecutive dry days per year
High Temperatures	TX95p	Number of days per year with extreme maximum temperatures

Table No. 1: Description of climatic hazards and associated indices
Source: SCN/BTR 2024

Threat: Drought

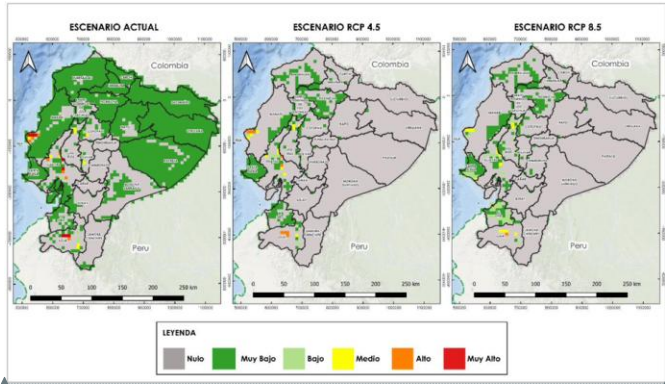


Figure 32. Climate threat of drought: present (1981-2015) and future (2016-2040) period
Source: MAE, 2019.

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Prepared by: MAATE/Project 5CN1RBT.

Trend (#días/year)	Threat Level	Interpretation
$x \leq 0$	0 – Null	The trend is towards a reduction in the number of consecutive dry days per year (i.e. there will be more rainy days and droughts would be shorter. Therefore, the threat level is zero)
$0 < x \leq 0.1$	1 – Very Low	The trend is towards an increase of 1 day every 10 or more years (the strongest droughts would extend by a day and a half more by 2030, and would extend by 3 more days by 2040)
$0.1 < x \leq 0.2$	2 – Low	The trend is towards an increase of 1 day every 5 or 10 years (the strongest droughts would extend by 3 more days by 2030, and would extend by 6 more days by 2040)
$0.2 < x \leq 0.5$	3 – Moderate	The trend is towards an increase of 1 day every 2 or 5 years (the strongest droughts would extend by 6 more days by 2030, and would extend by 15 more days by 2040)
$0.5 < x \leq 1$	4 – High	The trend is towards an increase of 1 day every 1 or 2 years (the strongest droughts would extend by 15 more days by 2030, and would extend by 30 more days by 2040)
$x > 1$	5 – Very High	The trend is towards an increase of more than 1 day each year (the strongest droughts would extend by 20 more days by 2030, and extend by more than 30 days by 2040)

Table No. 2: Interpretation of drought-related threat levels.
Source: 5CN/BTR 2024

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~~32-40~~ Ecuador is increasingly exposed to prolonged drought conditions, intensified by climate change and its interaction with natural phenomena such as El Niño-Southern Oscillation (ENSO). According to the Fifth National Communication on Climate Change (2024), under the catastrophic scenario RCP 8.5, an increase in the average annual temperature of between 2.5 °C and 4.3 °C is projected by the end of the twenty-first century, which will profoundly alter the country's hydrological cycle. An increase in the number of consecutive dry days (CDD index) of up to 100 days per year is expected in critical areas such as Manabí, Loja, and parts of the southern Amazon, classified as having a "high" or "very high" drought threat (~~as shown in Figure 32~~).

~~33-41~~ These projections coincide with trends observed between 1961 and 2016, where regions such as the southwestern coast and the southern highlands already show a decrease of up to 20% in annual rainfall, severely affecting aquifer recharge and the availability of water for human consumption, irrigation, and ecosystems.

~~34-42~~ The Second Nationally Determined Contribution (2025) underlines that drought is not only an isolated climate threat, but a systemic risk, as it directly affects key sectors such as agriculture, water, energy, and health. In this sense, the adaptation component recognizes that more than 65% of the country has some level of water vulnerability, with rural communities and small-scale production systems being the most exposed. This vulnerability is aggravated by structural limitations such as poor coverage of irrigation, soil degradation and low local institutional capacity to manage water resources in advance. Likewise, it is expected that these prolonged droughts would affect the resilience of strategic ecosystems such as moorlands, dry forests, and mangroves, which are losing their capacity to regulate climate and provide ecosystem services due to the combined pressure of climate and intensive land use.

~~35-43~~ The projections under RCP 8.5 not only warn about a future scenario, but also show an already ongoing trajectory of desertification, ~~and its effects, as well as its effects, and~~ water stress for Ecuador. The convergence between observed trends, climate projections, and territorial exposure reflects a high national vulnerability to drought events, the management of which requires a multisectoral response that includes investment in green infrastructure, watershed restoration, community strengthening, and territorial climate planning. The urgency of these measures is reinforced by the already tangible impacts on food security, urban

supply systems and public health, particularly in rural areas where access to safe water sources is increasingly uncertain.

ZoneArea 1: AZUAY

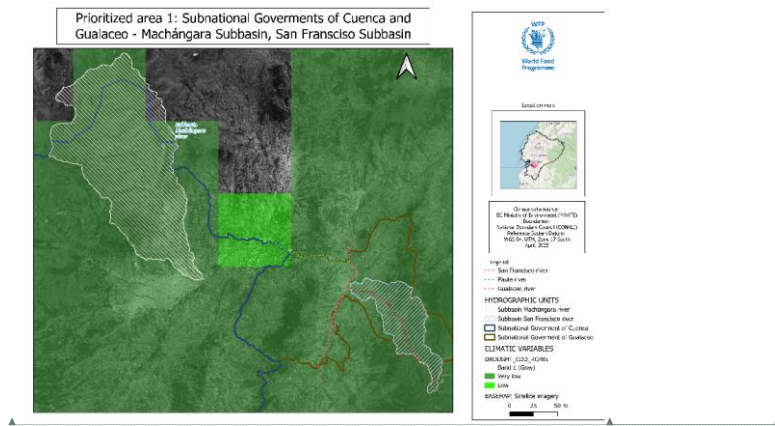


Figure 43. Climate threat of drought: present (1981-2015) and future (2016-2040) period
Source: MAE, 2019.
Prepared by: MAATE/Project 5CN1RBT.

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44. Although the Fifth National Communication on Climate Change (5CN, 2024) ranks Azuay's meteorological drought hazard as medium-lower than the coastal hotspots that guided the project's initial screening-the province remains a priority site because of two compounding factors:

a. Chronic mass-movement pressure. The National Risk Management Service (SNGRE) placed Azuay under an Orange Alert for landslides on 24 February 2025, after inventories identified more than 250 km of road corridor intersecting zones of "high" or "very high" slope instability (SNGR, 2024). Field reports such as the 30 March 2025 Nabon rotational slide illustrate how a single event can sever access to multiple rural communities and critical infrastructure. Prolonged dry spells (projected to lengthen by up to two weeks under RCP 8.5) desiccate clay-rich Andean soil, increasing the likelihood of catastrophic failures once intense rains return.

b. National-scale energy security. Azuay hosts the Paute-Mazar-Sopladora hydro-electric complex, which generated about 55 % of Ecuador's hydro-electric output in 2024 and, at full capacity, covers roughly 38 % of total national demand. Damage to channels, access roads or transmission lines caused by drought-related landslides would therefore jeopardies electricity supply country-wide (5CN, 2025). In general, in the province of Azuay, the direct threat of drought is not predominant according to the analysis of climate scenarios. However, it should be noted that this Andean region experiences strong pressure from mass movements (landslides), with more than 256 km exposed, of which 86.67 km are at high threat, which could be aggravated if combined with prolonged dry periods that weaken soil structure (5CN, 2025).

Additionally, official climate-scenario modelling shows that parts of Ecuador can experience precipitation deficits of up to 100 consecutive dry days per year. Under both the Fifth National Communication on Climate Change (MAATE, 2024) and the National Drought Plan (MAATE, 2021), the Consecutive Dry Days (CDD) index surpasses this threshold in drought placing rain-fed agriculture and high-Andean paramo ecosystems at severe risk. Additionally, it has been documented

45.

ZoneArea 2: CALCETA



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Source: MAE, 2019.

48. The drought scenario projects up to 100 consecutive rain-free days per year in southern Manabí, sharply reducing aquifer recharge, irrigation supply and the active storage of La Esperanza reservoir. Low inflows concentrate nutrients while the +2.5 – 4.3 °C rise in mean air temperature expected under RCP 8.5 warms surface waters, creating ideal conditions for floating macrophytes such as water lettuce (*Pistia stratiotes*) and water hyacinth (*Eichhornia crassipes*). Field monitoring has already classified La Esperanza as hypertrophic, with lechuguín mats covering ~95 ha and obstructing water transfer and navigation2 (Reasearch Gate, 2012)

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days a year without significant precipitation, especially in areas south of Manabí, affecting the water recharge of aquifers, agriculture, and reservoirs (La Esperanza). This reservoir, key to the supply of raw water in the region, faces additional problems such as accelerated sedimentation and eutrophication due to the growth of aquatic lettuce, which can absorb more than 200,000 liters of water per hectare per year, reducing the useful capacity of the reservoir. (SCN, 2024).

ZoneArea 3: SAN LORENZO

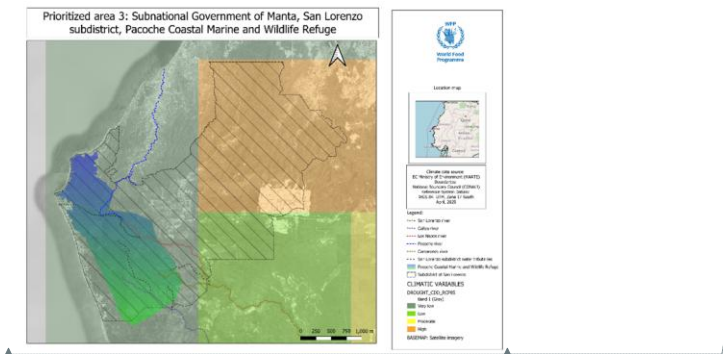


Figure 65. Climate threat of drought: present (1981-2015) and future (2016-2040) period
Source: MAE, 2019.
Prepared by: MAATE/Project 5CN1RBT.

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50. The Pacoche Rainforest thrives in an otherwise semi-arid strip that receives fewer than 200 mm of rain per year thanks to a fine-tuned local hydrological cycle and the cooling onshore winds that generate persistent garua fog (CI, 2017). Over the last five years, however, official drought monitors, and field observations indicate that this balance is breaking down:
- a. Longer dry spells. Climate-scenario runs in the Fifth National Communication on Climate Change project up to 70-100 consecutive dry days (CDD index) along the central Manabi coast, including Pacoche, under RCP 8.5.
- b. Formal drought alerts. Ecuador's National Drought Plan already classifies coastal Manabi as a "severely dry" zone in present-day conditions; the plan warns that aridity will intensify as temperatures rise. (MAATE, 2021)
51. Ecological stress signals. Park rangers documented the drying of the Pacoche waterfall and the early leaf-shedding of fog-forest species during the 2024 dry season, phenomena not seen since the strong 1997-98 El Niño. Local stations also registered rainfall totals more than 45 % below the 1991-2020 average, shortening the fog season by roughly three weeks. (MAATE, 2025)
- 40-52. Together, these indicators show that Pacoche's garua forest is already experiencing climate-driven drought stress-manifested in longer rain-free periods, reduced fog frequency and escalating wildfire risk-making immediate adaptation measures essential for the refuge and the communities that depend on its micro-climate. The Pacoche Rainforest, a unique ecosystem that develops in a semi-arid area with annual rainfall of less than 200 mm, is maintained thanks to a delicate balance of the hydrological cycle and the circulation of local winds that generate a constant garúa, allowing the existence of flora and fauna adapted to these unique conditions. However, in recent years, the Pacoche Forest has shown obvious signs of drought.
- 44-53. Although the climate projection of drought under the RCP8.5 catastrophic scenario suggests a slight decrease in vegetation and possible alterations in the hydrological cycle due to the increase in rainless days, being an

ecosystem classified as very sensitive to these changes, the recharge and availability of these vital water resources are compromised.

42-54. March, April, and December emerge as the most climate-sensitive months, with high-resolution RCP 8.5 simulations projecting a decline of at least 80 % in mean monthly rainfall across coastal Manabí (including the San Lorenzo influence zone). Historical station normal put the present-day daily maximum temperature near San Lorenzo at 27.4 °C; the same model suite foresees a ≈ 9 % rise (≈ +2.5 °C) by mid-century. Long-term INAMHI records show a baseline rainfall of ≈ 1 mm per day for the zone, a figure expected to fall by almost 40 % under future conditions, jeopardizing water availability for agriculture, ecosystems and human consumption⁷. The most affected months will be March, April, and December, with a seasonal decline rate of at least 80%. As for the daily maximum temperature, which averages 27.4 degrees Celsius, an increase of 9% is expected. In the municipalities surrounding the influence of San Lorenzo, the historical average of daily rainfall has been 1 millimeter. However, a reduction of almost 40% is expected in a future projection.

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Threat: High temperatures

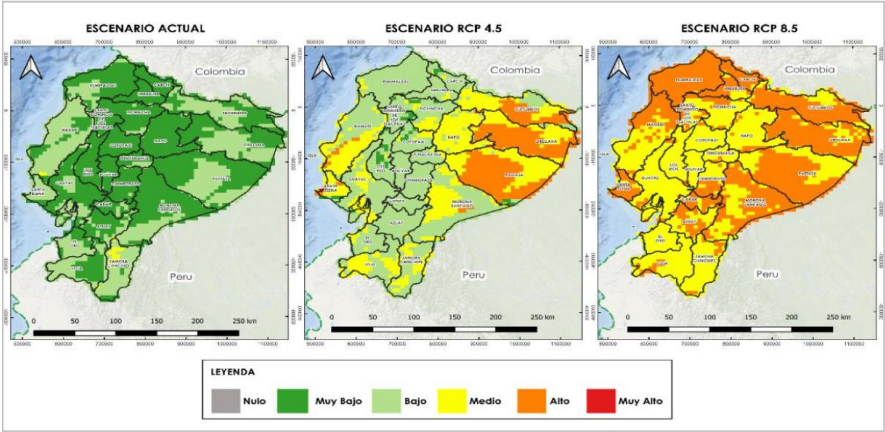


Figure 76. Climate threat of high temperatures present period (1981-2015) and future (2016-2040)
Source: MAE, 2019.
Prepared by: MAATE/Project 5CN1RBT

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Trend (#días/year)	Threat Level	Interpretation
$x \leq 0$	0 – Null	The trend is towards a reduction in the number of days per year with very high temperatures (i.e. each year there will be fewer days with extreme temperatures. Therefore, the threat level is zero)
$0 < x \leq 0.1$	1 – Very Low	The trend is towards an increase of 1 day every 10 or more years (there would be one and a half more day with very high temperatures around the year 2030, and 3 more days with very high temperatures around the year 2040)
$0.1 < x \leq 0.2$	2 – Low	The trend is towards an increase of 1 day every 5 or 10 years (there would be 3 more days with very high temperatures around 2030, and 6 more days with very high temperatures around 2040)

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0.2 < x ≤ 0.5	3 – Moderate	The trend is towards an increase of 1 day every 2 or 5 years (there would be 6 more days with very high temperatures around 2030, and 15 more days with very high temperatures around 2040)
0.5 < x ≤ 1	4 – High	The trend is towards an increase of 1 day every 1 or 2 years (there would be 15 more days with very high temperatures around 2030, and 30 more days with very high temperatures around 2040)
x > 1	5 – Very High	The trend is towards an increase of more than 1 day each year (there would be 20 more days with very high temperatures by 2030, and more than 30 more days with very high temperatures by 2040)

Table No. 2: Interpretation of threat levels related to high temperatures.

Source: SCN/BTR 2024

43-55. Ecuador faces increasing exposure to extreme temperatures, with alarming projections under the RCP 8.5 scenario. According to the Fifth National Communication on Climate Change (2024), for the period 2016–2040, an increase of up to 30 additional days per year with extreme maximum temperatures (TX95p index) is expected in regions such as the Coast, Amazon, and foothills of the southern Sierra. This increase especially affects areas such as Manabí, Guayas, Esmeraldas, and El Oro, where the heat threat is already classified as "high" or "very high".

44. The National Adaptation Plan to Climate Change (NAP) identifies extreme heat as an emerging threat with multiple cross-cutting impacts. In the health component, the NAP warns that heat waves would increase the incidence of diseases such as heat stroke, dehydration, and respiratory problems, especially affecting older adults, children, and people with chronic diseases. At the production level, according to information from the NAP, a reduction in the yield of sensitive crops such as rice, cocoa and vegetables is expected, altering phenological cycles, and increasing pressure on irrigation systems.

56. The sustained rise in temperature is already translating into psychosocial stress for coastal communities. A 2024 occupational-health study in Quevedo (Los Rios) found that 40.7 % of the surveyed workforce presented clinically relevant heat-stress symptoms (fatigue, irritability and productivity loss) under Wet-Bulb Globe Temperature (WBGT) readings above the national safety threshold⁸.

57. Operational bulletins from INAMHI's Guayaquil-Duran network have repeatedly logged maximum air temperatures above 31 °C with trace-to-zero rainfall, triggering municipal advisories to curtail outdoor work between 10:00 and 16:00 h and to shift school hours.

45-58. National policy echoes these field observations: the 2023-2027 National Adaptation Plan warns that longer, hotter dry seasons along the coast will "increase the frequency of heat waves and heighten water-supply insecurity," making extreme heat a structural driver of social vulnerability. Extreme heat in Ecuador is therefore no longer an episodic anomaly; it has become a determinant of daily routines, labour patterns and perceived water security that must be addressed through territorial planning, public-health action and climate-justice frameworks. On the other hand, the sustained increase in temperatures is having notable psychosocial effects on vulnerable communities. Local studies and field observations in coastal provinces of Ecuador indicate that thermal changes are affecting daily life patterns: reduction of working hours, due to heat stress; alteration of traditional cultural and agricultural practices; and the increase in the perception of water insecurity and discomfort in daily life. In this context, extreme heat for Ecuador is no longer a simple climatic anomaly and becomes a structuring factor of social vulnerability, which needs to be addressed from territorial planning, public health, and climate justice.

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ZoneArea 1: AZUAY

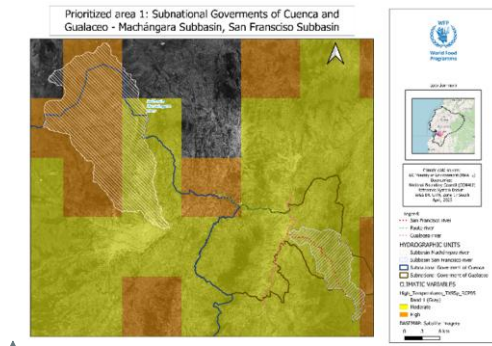


Figure 86. Climate threat of high temperatures present period (1981-2015) and future (2016-2040)
Source: MAE, 2019.
Prepared by: MAATE/Project 5CN1RBT

46-59. The southern ~~zonearea~~ of Ecuador presents a moderate but worrying upward trend, particularly under the RCP8.5 catastrophic climate scenario, according to the analyses presented in the Fifth National Communication on Climate Change. Although in the base period (1981–2015) Azuay shows a threat category between "moderate" and "low", projections for the period 2016–2040 point to a significant increase in the number of days with extreme maximum temperatures (TX95p index), with increases of between 10 and 20 additional days per year towards 2030, and even more than 30 additional days towards 2040, depending on the behavior of climate models.

47-60. This increase in the frequency and intensity of heat waves represents a direct risk to sensitive sectors such as public health, mountain water resources, energy infrastructure (especially hydropower) and high-altitude crops. In urban areas such as Cuenca, the combined effect of heat and urbanization is generating "thermal islands" that aggravate the conditions of thermal comfort for the population. On the other hand, studies in the Andean region show that high temperatures cause heat stress in older adults and children, reduce labor productivity in outdoor work and generate psychological effects on vulnerable populations.

48-61. In addition, the increase in temperature alters the functioning of key high Andean ecosystems such as the páramos, affecting water retention and putting the water supply for cities at risk. This phenomenon is especially critical in the Machángara River basin, where it is necessary to implement adaptation measures such as efficient irrigation systems and ecological restoration precisely to counteract the effects of regional warming.

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ZoneArea 2: CALCETA

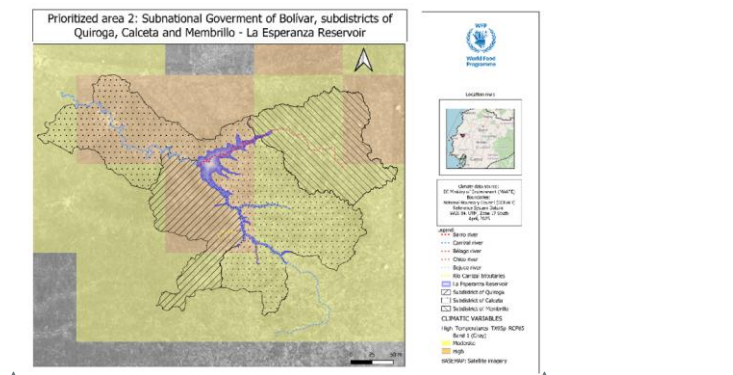


Figure 97. Climate threat of high temperatures present period (1981-2015) and future (2016-2040)

Source: MAE, 2019.

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49-62. According to the Fifth National Communication on Climate Change, for the period 2016–2040 it is expected that much of this territory, including the southern rural districts such as Calceta, will transition to a "high" climate threat due to extreme temperatures, which means an increase of 15 to 20 days per year with maximum temperatures above the 95th percentile (TX95p index) compared to the base period 1981–2015.

50-63. This climatic projection, due to high temperatures, will alter the phenological cycles of key crops such as corn, ~~peanuts~~peanuts, and bananas, causing losses of up to 40% in yields in particularly hot years (SCN, 2024). On the other hand, the lack of water has a direct impact on the supply for human and animal consumption, leading to restrictions and conflicts between users of the resource, as evidenced by the history of tensions in times of drought between agricultural and urban sectors. Added to this is the impact on public health: the combination of extreme heat and water scarcity favors the spread of gastrointestinal, dermatological, and heat stress-related diseases, especially in children and older adults.

54-64. Finally, the environmental deterioration of micro-basins such as the Membrillo River – due to deforestation and overuse of the soil – reduces the ecological resilience of the area to climate change, limiting the soil's infiltration capacity and increasing runoff, which puts at risk the stability of communities downstream of the dam. The combination of high temperatures, prolonged droughts and ecosystem degradation represents a composite threat that requires urgent adaptation actions, including watershed reforestation, reservoir structural maintenance, early warning systems and participatory governance of water resources.

ZoneArea 3: SAN LORENZO

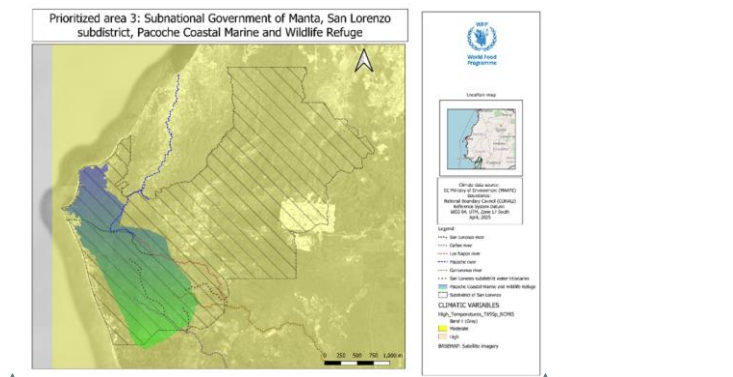


Figure 108. Climate threat of high temperatures present period (1981-2015) and future (2016-2040)

Source: MAE, 2019.

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52-65. The Pacoche Protected Forest, located in the San Lorenzo city of the subnational government of Manta (Manabi), is a relict ecosystem of tropical humid forest in a semi-arid ~~zone~~^{area}, whose biodiversity depends on a delicate climatic and micro hydrological balance. Under the RCP8.5 catastrophic climate scenario, projections indicate an increase of up to 30 additional days per year with extreme maximum temperatures (TX95p index) by 2040 in areas of the Manabi coast, including areas near San Lorenzo. This thermal increase is accelerating evapotranspiration processes and altering the microclimate that sustains the forest, especially the coastal ~~garu~~^{garu} that maintains its humidity.

53-66. The effects are visible: cases of temporary disappearance of ferns and water sources such as the main waterfall of the forest have been reported, indicating a change in the local water regime. This puts sensitive species such as howler monkeys and endemic birds at risk, as well as affecting rural communities that depend on the forest for water, food, and tourism. As temperatures rise, the pressure on coastal aquifers, essential for human supply in San Lorenzo, also increases.

54-67. In addition, the San Lorenzo area is very highly socioeconomically vulnerable, which further complicates adaptation to climate change. This implies that the local population has fewer resources and infrastructure to cope with heat waves, water scarcity and the loss of forest ecosystem services. In this context, it is urgent to implement active conservation measures for the Pacoche forest, strengthen local climate monitoring, and ensure adaptation plans based on traditional knowledge and the restoration of micro-watersheds, to guarantee the sustainability of this fragile coastal ecosystem and the resilience of its communities.

Vulnerability

ZoneArea 1: AZUAY

55-68. The Machangara River basin, which supplies drinking water to cities such as Cuenca, faces growing vulnerabilities to climate change, especially due to the increase in extreme temperatures under the RCP8.5 scenario. Up to 20 additional days per year with extreme heat are projected by 2040, affecting water availability in paramo ecosystems that regulate the water cycle. The element exposed is the urban supply system, whose sources are at risk due to the decline in high Andean vegetation cover, the decrease in infiltration and the greater competition for the resource between urban and agricultural uses.

[56-69.](#) Water vulnerability in this basin is manifested in the high dependence on sources regulated by paramo ecosystems, which are being altered by progressive warming, reducing their natural storage capacity, and affecting the stability of the flow during the dry season. In the agricultural sector, traditional irrigation systems are inefficient in the face of changes in the distribution of rainfall and increases in temperature, which aggravates the exposure of small producers to losses and low yields of their crops. Finally, the pressure on the high Andean ecosystems is intensified by the advance of the agricultural frontier, reducing their ecological resilience and adaptive capacity.

[57-70.](#) Thus, the flow of the Paute River can reach up to 161 m³/s (excess rainfall), which allows an adequate supply for the hydroelectric plants it feeds, such as Sopladora, Paute-Molino and Mazar, which together generate approximately 1,756 megawatts, which makes it the largest energy generator in the country.

[58-71.](#) However, during periods of drought, for example, at the end of 2024, the flow has decreased due to lack of rainfall, reaching critical levels of 25.21 m³/s to 11.40 m³/s, which caused blackouts of up to 14 hours per day, affecting the productive, commercial, and residential sectors (MAATE-RAS, 2024).

ZoneArea 2: CALCETA

[59-72.](#) La Esperanza reservoir, key to irrigation and water supply in Manabí, is exposed to combined climatic threats increases in the number of consecutive dry days (up to 100 days/year) and greater frequency of high temperatures (more than 30 days of extreme heat per year projected). These conditions intensify evapotranspiration, lettuce proliferation, and sedimentation, reducing their capacity. The exposed element is the water and agricultural infrastructure dependent on the reservoir, whose functionality and security are compromised by extreme weather events (prolonged periods of drought) and insufficient maintenance.

[60-73.](#) The reservoir's water system is markedly structurally vulnerable, aggravated by its limited capacity to adapt to prolonged droughts and accelerated evaporation. Dependence on agricultural activities sensitive to climatic variations. In addition to hard corn, livestock and other agricultural activities would be affected by the increase in the number of rainless days, i.e. an increase in the dry period. This reduces the planting periods of the population (2 to 3 plantings/year and with prolonged droughts to 1 planting/year).

ZoneArea 3: SAN LORENZO

[61-74.](#) The Pacoche Forest, located in San Lorenzo, is highly vulnerable to the increase in extreme temperatures on the coast of Manabí, with projections of up to 30 more days per year, with severe heat. This threat alters the coastal fog microclimate that sustains the rainforest, affecting its biodiversity and capacity to recharge coastal aquifers. The exposed element is the ecosystem, which acts as a climate regulator, and the local communities that depend on it, such as water supply, tourism, and subsistence agriculture.

[62-75.](#) San Lorenzo faces critical water vulnerability due to the limited natural storage capacity of the soil and the fragility of the coastal aquifers that depend on the forest cover of the Pacoche forest. The lack of capture and storage infrastructure aggravates this situation. At the agricultural level, changing thermal patterns and water scarcity have limited the development of sustainable crops, accentuating food insecurity in rural communities. As for ecosystems, the Pacoche forest suffers a progressive loss of ecological functionality, due to the alteration of its microclimate, which reduces its capacity to sustain biodiversity and provide environmental services.

Climate Risk

[63-76.](#) According to the 5CN/BTR, Biophysical Climate Risk Analysis is the interaction between the parameters of a biophysical model, which represent the sensitivity and adaptive capacity (vulnerability) of the exposed elements, and the climate threats they face. In the agricultural field, models were used to evaluate crop yields, while for water resources and hydroelectric generation, flow variations in the basins are analyzed. In the case of natural ecosystem, the suitability of species is assessed based on changing climatic conditions.

ZoneArea 1: AZUAY

64-77. As more (degraded) tracts of land are overexploited, the amount of sediment reaching reservoirs increases, which has a direct impact on hydroelectric power plants. This can lead to problems such as increased sedimentation, which reduces the storage capacity of reservoirs, loss of power generation, increased water treatment costs, and increased operation and maintenance costs of hydroelectric power plants (MAATE-RAS, 2024).

65-78. In addition, there are non-climatic exacerbating factors such as the expansion of the agricultural frontier in the hydrographic sub-basins of the upper ~~zonearea~~, in the high scrub and the paramo. The inappropriate use of land in the Andean landscape, which translates into a severe overexploitation of soil resources, with an increase in erosion rates, runoff, and decreased infiltration, are processes that affect the destabilization of slopes, sedimentation in river channels (downstream) and low crop production and degradation of pastures. Changes in rainfall and the temperature of the environment and soils will directly affect water recharge, irrigation, and human consumption, among other uses (MAATE-RAS, 2024).

66-79. Under this same analysis, soft corn cultivation is expected to experience a decrease in yield of 40% per hectare in the future. For the historical scenario, soft maize cultivation areas have a yield of 4 tons per hectare per year (MAATE-NAP, 2023).

67-80. According to the climate risk for the water sector in the Machangara river sub-basin as part of the Paute river basin, the maximum flow values according to the RCP 4.5 climate change scenario for the 2031–2035-time window is 63.99m³/s and for 2036-2040 it is 67.49 m³/s (MAATE/AICCA, 2021).

68-81. While for the RCP 8.5 scenario for the 2024-time window of 2031-2035 it is 101.38m³/s and for 2036-2040 it is 61.98 m³/s. The variation in the maximum flow in the basin is the direct impact of climate change, indicating a reduction in flows due to future climatic conditions represented in the modeled values (MAATE/AICCA, 2021).

69-82. The National Adaptation Plan (NAP) has modeled 602 endemic species. Those found in the Paute River basin are *Burmeistera sodiroana* (hemepiphytic grass or subshrub) and *Bouteloua disticha* (herbaceous plant), revealing possible high to very high-risk effects for these species in these territories (MAATE-NAP, 2023).

ZoneArea 2: CALCETA

70-83. According to data from the NAP 2023, historical yields of tons of hard corn are 7 Tm/ha. Under the climate change scenario, yields per ton would drop to 5 Tm/ha. Yields of ~~crops-hard-maize~~, the main source of income for the population and livelihood for livestock, could be reduced, which would directly affect food security in the region.

71-84. In this area, the water deficit exceeds 700 mm of annual rainfall, which means that the amount of water naturally available is insufficient to sustain crops throughout the year (INAMHI, 2024). In climate change scenarios, the importance of irrigation in areas with water deficit becomes even more evident and crucial. In areas where annual rainfall is not sufficient to meet the water needs of ~~corn-crops~~, irrigation becomes an indispensable element to maintain agricultural production and guarantee food security for the population.

ZoneArea 3: SAN LORENZO

72-85. The Pacoche River, the main watercourse of the basin, has an approximate length of 48 km and an average flow of 35 m³/s. Its flow varies throughout the year, from a maximum of 70 m³/s in the rainy season to a minimum of 20 m³/s in the dry season. Although the presence of underground aquifers is estimated, their potential has not yet been fully evaluated. Water quality faces threats from pollution, such as agrochemicals and solid waste.

73-86. During the critical months of July to December, the need for irrigation peaks, significantly exposing the agricultural population to water shortages for their crops. This situation highlights the urgent need to implement effective measures to ensure an adequate supply of water throughout the year, not only to ensure food security, but also to protect the livelihoods of vulnerable farming communities in the region.

BENEFICIARY POPULATION

74-87. The direct beneficiary population is 36,071 and 54,559 are indirect beneficiaries. The direct beneficiaries represent 40% of the total population, distributed equally between men and women and in age groups under 40 years of age, located in 14 rural parishes in four municipalities of the provinces of Azuay and Manabí.

Province	Municipality	Poverty	Population Density	Population	Men	Women	% Men	% Women
Azuay	Cuenca	35,2%	187	234,577	110,139	124,44	47,0%	53,0%
	Gualaceo	39,2%	125	29,345	13,114	16,231	44,7%	55,3%
Manabí	Bolívar	91,4%	80	21,816	11,014	10,802	50,5%	49,5%
	Manta	83,4%	935	12,448	6,239	6,209	50,1%	49,9%

Table No. 3. Population of the rural area of the municipalities of the prioritized areas.
Source: INEC-CPV 2022

BARRIERS

88. In the areas of intervention, social, economic and environmental barriers and needs have been identified that have been exacerbated by climatic threats, mainly due to drought in recent years. This influences biophysical dynamics such as environmental degradation, food scarcity and reduced river flows.
89. This is how the following barriers have been developed and described, which have synergies between them and their continuity would increase vulnerability in the population most affected by drought in the intervention areas. For this proposal, the barriers have a chain of effects that arise from the generation of climate information, development of climate risk studies, implementation mechanisms and sustainability strategies of climate investment.
75. Populations settling in the three intervention zones face barriers and gaps that have been exacerbated by the climatic threats of drought in recent years. This influences biophysical dynamics such as environmental degradation, food scarcity and reduced river flows.
76. In this proposal, barriers are proposed that have synergies between them and increase the vulnerability of the three areas of intervention. This is how the problem will be addressed from the generation of climate information, development of climate risk studies, implementation mechanisms and sustainability strategies for climate investment.

Barrier 1: Absence of subnational/community weather stations and minimal investment to manage and disseminate climate information on the effects of drought for decision-making. Low investment to establish a technological solution at the subnational and community levels to manage and disseminate climate information in the face of the effects of drought for decision-making.

77-90. Ecuador has a deficit of meteorological stations (of 85% deficit), which is why it has a minimum network of 56 automatic stations between water and meteorological and of which only 34 are operational at the national level. Currently, in the Project Intervention Area-intervention area, there are 4 operational weather stations and 5 installed stations that for various reasons are not transmitting data to the central

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system. There are no stations in important monitoring places, such as the water recharge spaces of the basins that are part of the prioritized areas. This prevents the generation of trend curves and other climate analyses useful to communities, which are vulnerable to these effects.

~~78-91. Lack of awareness of the importance of climate information on the part of local and community decision-makers leads to a reduction in budget allocations aimed at developing appropriate technology and interoperable protocols for the generation, tracking, monitoring, transmission and interpretation of meteorological information and hydrological, which prevents an effective evaluation to make assertive decisions that allow increasing adaptive capacities in the face of the effects of prolonged droughts. In the three intervention zones, there is no investment to develop adequate technology and interoperable protocols for the generation, follow-up, monitoring, transmission and interpretation of climate and hydrological information, which prevents effective evaluation for assertive decision making that allows increase adaptive capacities to the effects of prolonged droughts.~~

~~79-92. There is still a lack of coordination and articulation between national government institutions and local governments, to rehabilitate and install agroclimatic stations, which contribute to the national hydrometeorological network, reducing the loss of information from climatic and hydrological stations.~~

~~93. Local communities and local government technical teams do not have the tools and adequate knowledge for the management and interpretation of climate information. Therefore, they cannot generate and interpret the agroclimatic bulletins¹, which are issued by the national hydrometeorological services (National Institute of Hydrology and Meteorology – INAMHI).~~

~~80. In the areas of intervention, climatic stations have been identified that due to lack of maintenance have stopped transmitting information, there is political will of local governments to assume responsibility for their maintenance, since they consider that the information could help them make informed decisions.~~

~~81. Local communities and local government technical teams do not have the tools and adequate knowledge for the management and interpretation of climate information. Therefore, they cannot interpret the bulletins issued by the national hydrometeorological services (National Institute of Hydrology and Meteorology – INAMHI).~~

Barrier 2: Limit knowledge to manage and interpret climate information, reducing the ability to make effective decisions in the face of the effects of prolonged droughts ~~Limited management of climate information and lack of knowledge of climate risk that do not allow prioritizing areas and sectors affected by drought.~~

~~82-94. Local communities and subnational governments do not have detailed climate information to design measures and actions that allow them to increase their adaptive capacity in the face of the effects of drought.~~

~~83-95. Local governments do not have detailed studies to make decisions when implementing adaptation actions and/or measures. Many of these studies are general and at the national and regional levels.~~

~~84-96. The lack of knowledge and management of information for climate risk management has caused inefficient measures to be implemented that do not reduce the vulnerability (maladaptation) of the population most affected by the drought.~~

Barrier 3: Lack information and technical knowledge for the implementation of effective and efficient adaptation measures. ~~Absence of strategies for the effective implementation of adaptation measures~~

~~85-97. The adaptation measures implemented have not been based on technical studies, nor have they followed a participatory design process and do not have implementation strategies and cooperation with local~~

¹ An agro-climatic bulletin for Ecuador is a short, periodic report that presents the current state of the climate and weather projections in the short or medium term. It includes information on temperatures, rainfall, extreme events (such as droughts or heavy rainfall) and their possible impacts on key sectors such as agriculture, health or water management. It is prepared by INAMHI and other specialized institutions.

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partners. This has led to a low level of credibility and legitimacy of local authorities, international cooperation agencies and climate donors.

~~86.~~ There are inefficient measures such as irrigation canals that are not suitable for ~~the areas of intervention areas~~, causing poor water distribution that puts productivity and food security at risk. Another example, agricultural techniques do not respond to the biophysical and climatic conditions of the area, altering the balance of the ecosystem and degrading soil conditions.

~~87-98.~~ ~~The absence of intervention mechanisms and strategies has meant that communities and subnational governments do not have a management plan for adaptation to the effects of drought. In many cases they have portfolios of measures that respond to their territorial reality.~~

~~88-99.~~ Local actors empirically identify the effects of drought on natural ecosystems and its impact on the provision of water for human consumption and for agri-food systems. But they cannot evidence the synergies and co-benefits between these sectors (water management, food security, ecosystem-based adaptation).

Barrier 4: ~~Limited~~ investment in subnational and community technical training to deal with the effects of drought.

~~89-100.~~ Technical capacities in local communities and local governments are minimal, as there is insufficient funding for regular training and access to knowledge and information is limited.

~~90-101.~~ Local governments do not have the necessary capacities to incorporate climate change criteria into their planning and local development instruments, which limits the design of adaptation measures and actions.

~~91-102.~~ The absence of local capacities limits the efficient implementation of adaptation measures, which is why citizen participation is low and there is no local empowerment to make climate investment sustainable.

Barrier 5: Low investment in the creation of spaces for territorial articulation and coordination for decision-making in the face of the effects of drought

~~92-103.~~ ~~The few local technical capacities, the absence of incentives to ensure the participation of local decision-makers, and the low investment to create spaces for coordination and articulation (committees, councils, and others) limit the capacity for articulation and coordination for an adequate strategy for the implementation of adaptation measures and the creation of public policies and local regulatory frameworks. The lack of local technical capacities, the lack of interest in participation of some local decision makers, and the weakness of spaces for coordination and articulation (committees, councils, and others) limit the capacity for articulation and coordination for an adequate strategy for the implementation of adaptation measures and creation of public policies and local regulatory frameworks.~~

~~93-104.~~ The lack of coordination between local and national actors hinders effective decision-making processes to increase the resilience of the most vulnerable territories to climate threats such as droughts and floods.

~~94-105.~~ The diversity of criteria without technical support, disorganization of local authorities, lack of knowledge of competencies for the governance of the territories and the absence of local regulatory frameworks, do not guarantee the effective implementation of measures and do not guarantee the sustainability of climate investment.

Barrier 6: Insufficient ~~actions~~ strategies to ensure the technical and financial sustainability of investments made in drought-affected areas.

~~95-106.~~ Local governments and communities do not have ownership strategies and lack strategies to sustainable projects or investments made in their territories.

96-107. The investments identified in the territory of intervention do not have sustainability mechanisms, which has caused adaptation measures to remain inconclusive, strengthened capacities have been lost, the process of developing policies and regulatory frameworks has not been concluded, they have only technical studies, but there has been no investment for the implementation of measures.

97-108. Absence of a financing strategy to ensure the sustainability of climate investments already implemented.

98-109. Finally, this proposal has identified six barriers that address territorial and sectoral problems resulting from territorial workshops and broad participation of communities and local governments.

B. OBJECTIVES OF THE PROJECT / PROGRAM

99-110. The objective of this proposal is "to increase the adaptive capacities of communities vulnerable to droughts through access to local climate information, strengthening local technical capacities, implementation of effective adaptation measures, generation of spaces for articulation and coordination that allow promoting sustainable policies and ensure the continuity of climate investment, driving a paradigm shift towards inclusive and sustainable climate planning in the long term". "to contribute to the increase of people's resilience, livelihoods and productive systems in vulnerable communities through the access and effective use of climate information generated by the local hydrometeorological network. This will strengthen the adaptive capacity of the most vulnerable population in the face of severe droughts in the prioritized areas, reducing their exposure to climate risks. Likewise, local capacities will be strengthened and spaces for articulation will be established for the development of policies and regulatory frameworks that promote the sustainability and continuity of climate investment in the intervened territories. This contributes to a paradigm shift, particularly in the resilience of people and livelihoods, and the strengthening of decision-making and climate planning spaces for long-term sustainable climate action."

111. Outcome 1: Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems.

112. Outcome 2: Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies.

100- Outcome 3: Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning. Outcome 1: Local communities and governments have used and interpreted climate information generated by the local hydrometeorological network to make decisions for their food systems.

113. 401. Outcome 2: The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas. 402. Outcome 3: Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.

C. PROJECT/PROGRAMME COMPONENTS AND FUNDING

COMPONENTS	OUTCOME	OUTPUT	VALUE (USD \$)
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COMPONENT 1: Climate information for effective decision-making	OC1. <u>Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems. Local communities and governments have used and interpreted the agro-climatic information generated by the local hydrometeorological network to make decisions for their food systems.</u>	OP1.1. <u>Local hydrometeorological monitoring networks and climate information platforms enhanced to generate and disseminate timely and locally relevant climate data and bulletins, enabling informed decision-making and community-level risk reduction in response to drought.</u> Strengthening of subnational agroclimatic information networks and platforms for local and national decision-making in the face of the effects of drought. OP1.2. <u>Strengthened technical capacities of subnational teams in climate data analysis, interpretation, and information management for the delivery of early warning systems and community awareness actions.</u> Strengthening local and community capacities for the management, management and interpretation of climate information.	<u>1,295,000.08</u> 00,000.00
COMPONENT 2: Local climate risk and adaptation measures	OC2. <u>Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies. The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas</u>	OP2.1. <u>Development of climate risk assessments and cost-benefit analyses for drought adaptation at watershed level, supporting evidence-based planning and enhancing local ownership of climate risk reduction strategies.</u> Development of climate risk studies and assessments to focus and prioritize the areas and sectors most vulnerable to drought OP2.2. <u>Design and implementation of an integrated portfolio of nature-based and community-driven adaptation interventions to enhance the resilience of vulnerable natural assets and strengthen climate-adaptive livelihood strategies at the local level.</u> Design and implementation of a portfolio of adaptation measures to long periods of drought that ensure the conservation of natural resources to supply water and food for the population most vulnerable to drought	<u>5,950,085.00</u> 0.00
COMPONENT 3: Strengthening capacities and spaces for articulation as a sustainability strategy.	OC3. <u>Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning.</u> Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.	OP3.1. <u>Strengthen national and subnational technical capacities to integrate climate resilience measures into sectoral policies and development strategies, enhancing adaptive responses to prolonged droughts.</u> Enhancing national and local technical capacities, such as effective adaptive capacity to the effects of prolonged droughts OP3.2. <u>Support the establishment and reinforcement of decision-making platforms at national and local levels to formulate and implement policies and regulatory frameworks that mainstream climate change priorities and ensure the sustainability of climate-resilient development.</u> Strengthening decision-making spaces at the local and national levels to develop policies and regulatory frameworks that ensure the sustainability of climate investment.	<u>1,096,523,640</u> 054,0043
Project Execution Cost (9.5%)			875,000.00
Total Project Cost			9,216,600.00
Project/program cycle management fee charged by the executing entity (if applicable) (8.5%)			783,400.00
Amount of funding requested			10,000,000

PROJECTED CALENDAR

D.

Milestones	Expected Dates
Start of Project/Programme Implementation	December 2026
Mid-Project Review	June 2029
Project/Programme Closure	December 2031
End-of-Project Evaluation	September 2031

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Goal	IF local hydrometeorological networks, climate information platforms are repowered, climate risk studies and assessments are developed and local capacities are strengthened in the upper basin of the Paute, Calceta and San Lorenzo rivers; THEN the local communities of Ecuador would increase their adaptive capacity in the face of drought; BECAUSE they would use and interpret agroclimatic information, implement effective adaptati on measures focused on water, food security and conservation, and strengthen the spaces for articulation for decision-making in public policy and regulatory frameworks in the areas and population most vulnerable to the effects of drought.						Formatted: Font: 10 pt
Outcome	R1: Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems. A1: Local communities and governments have		R2: Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategiesThe		R3: Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planningLocal capacities		Formatted: Font: 10 pt
Outputs	O1.1: Local hydrometeorological monitoring networks and climate information platforms enhanced to generate and disseminate timely and locally relevant climate data and bulletins, enabling informed decision-making and community-level risk reduction in response to droughtStrengthen		O1.2: Strengthened technical capacities of subnational teams in climate data analysis, interpretation, and information management for the delivery of early warning systems and community awareness actions. Strengthen local and community capacities for the management, management		O2.1: Development of climate risk assessments and cost-benefit analyses for drought adaptation at watershed level, supporting evidence-based planning and enhancing local ownership of climate risk reduction strategiesDevelop		Formatted: Font: 7.5 pt
			O2.2: Design and implementation of an integrated portfolio of nature-based and community-driven adaptation interventions to enhance the resilience of vulnerable natural assets and strengthen climate-adaptive livelihood strategies at the local level. Design and implement a portfolio of adaptation		O3.2: Strengthen national and subnational technical capacities to integrate climate resilience measures into sectoral policies and development strategies, enhancing adaptive responses to prolonged droughts. Increase national and local technical capacities, such as effective adaptive capacity to the effects of prolonged droughts		Formatted: Font: 8 pt
					O3.3: Support the establishment and reinforcement of decision-making platforms at national and local levels to formulate and implement policy regulatory frameworks that ma climate change priorities and ensure the sustainability of climate-resilient developmentStrengthen decision-making spaces at the local and national levels to develop policies and regulatory frameworks that ensure the sustainability of climate		Formatted: Font: 7.5 pt
Barriers	B1: Absence of subnational community monitoring systems and minimal investment to manage and disseminate climate information on the effects of drought for decision-makingLow investment to establish a technological solution at		B2: Limited knowledge to manage and interpret climate information, reducing the ability to make effective decisions in the face of the effects of prolonged droughtsAd: Limited management of climate information and lack of knowledge of climate risk that do not allow prioritizing affected areas and sectors		B3: Limited subnational and community technical training to deal with the effects of droughtAd: Lack of information and technical knowledge for the implementation of effective and efficient adaptation measures		Formatted: Font: 10 pt
					B4: Low investment for the creation of spaces for technical articulation and coordination for decision-making in the face of the effects of droughtAd: Limited investment for the		Formatted: Font: 10 pt
					B5: Insufficient actions to ensure the technical and financial sustainability of investments made in areas affected by droughtsAd:		
Assumptions	S1: Technical and political empowerment of the importance of strengthening technical and administrative capacities for the management and implementation of projects financed by climate funds by national and subnational institutions, accredited entities, potential executing entities and local entities. S2: Current and operational spaces for institutional coordination and articulation that seek technical support for the manage ment and interpretation of climate information.						
Inputs	Policies, Regulation and Normative Instruments: Organic Environmental Code and its regulations; National Climate Change Strategy; Nationally Determined Contribution and Implementation Plan; National Climate Finance Strategy; Organic Law on Water Resources; National Water Plan; National Irrigaton Plan; National Water Quality Strategy; Agricultural Public Policy. Technical documents: Technical guide for the inclusion of the climate change variable in local development plans; Manual for the establishment of water protection zoneareas; Water Protection ZoneArea Guidelines; Good Agricultural Practices - to address Climate Change; Parcel Irrigation Manual; Safe Water Guidelines; Citizen response to climate change. Technical Committee: Inter-Agency Committee on Climate Change; Inter-Agency Committee on Water Quality; Technical Committee of the Machángara and Gualaceo Basin						

PART II: JUSTIFICATION OF THE PROJECT

A. PROJECT COMPONENTS

~~114.~~ Ecuador, with the assistance of the World Food Programme, has developed this project proposal, which has identified local needs in the face of prolonged droughts, which have been developed and respond to local realities, which have been characterized through participatory workshops. with local community and subnational government partners.

~~103.~~ Ecuador, with the assistance of the World Food Programme—WFP, has developed a project proposal that responds to local needs, which have been identified through participatory workshops with local community and subnational government partners.

~~104-115.~~ This proposal proposes three components, the first is the generation of agro-climatic information through climate networks and platforms, the second is the management of climate risk information and implementation of adaptation measures and the third component is the process of strengthening capacities and spaces for articulation for the development of climate risk and climate change policy development and regulatory frameworks as a sustainability strategy for climate investment. Which ~~respond~~responds to the barriers identified in the previous section.

~~105-116.~~ Similarly, this proposal aligns with the Adaptation Fund's Results Framework; this is how component 1 of the proposal aligns with Outcome 1 "Reducing national-level exposure to climate risks and threats. Indicator 1: Relevant threat and hazard information generated and disseminated to stakeholders in a timely manner", component 2 with Outcome6 "Diversification and strengthening of livelihoods and income sources of vulnerable people in targeted areas" and Outcome 5 "Increased resilience of ecosystems in response to climate change and variability-induced stress", finally, component 3 with Outcome 7 "Improved policies and regulations that promote and implement resilience measures".

Component 1.- Climate information for effective decision-making

Outcome 1: ~~Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems. Local communities and government have used and interpreted climate information generated by the local hydrometeorological network to make decisions.~~

~~106-117.~~ The strengthening of the monitoring system will allow to generate a better level of detail in the country's meteorological information and in turn in the preparation of forecasts that are fed by two sources of satellite data and ground-level data from the stations, so that a greater number of stations reduces errors in forecasts and improves the national network led by the National Institute of Meteorology and Hydrology (INAMHI).

~~107-118.~~ The monitoring system of local hydrometeorological stations will be strengthened through the application of new technologies and the optimization of data collection and analysis procedures, improving the capacity to respond to prolonged droughts and facilitating informed decision-making for the implementation of effective adaptation measures. The use of these tools is aimed at local communities and subnational governments.

~~108-119.~~ This proposal will repower at least ~~105~~ stations identified in the intervention area, which are not transmitting data, and install at least ~~250~~ stations at strategic points, selected based on scientific and technical criteria to maximize the relevance and usefulness of the data collected, as well as the adoption of advanced remote monitoring technologies, ensuring wider coverage and high-quality data.

~~109-120.~~ Standardized protocols will be established for the collection, analysis, and reporting of data, thus facilitating greater coherence and reliability in the information obtained. This strengthening will allow for more exhaustive and continuous monitoring of water ~~bodies~~, providing essential data for the conservation and sustainable management of water resources.

~~110-121.~~ The technological interface of the systems of each station will directly send the data of the captured climatic variables to the governing institution INAMHI. This data will immediately feed into the WRF platform, based on analysis algorithms, which, together with satellite information, will develop and refine the forecasts in instruments that, in turn, will be sent to mobile devices of vulnerable producer groups or communities, for informed decision-making and adaptive actions.

~~111-122.~~ The generation of climate data will strengthen the role of the responsible institute at the national level, generating forecasts with greater accuracy, which will be sent to the communities, who after a process of training and strengthening, will be able to understand, use and interpret the information to take actions aimed at reducing their vulnerability and improving their resilience.

~~112-123.~~ In addition, local capacities in the management of climate information and in mechanisms for interpreting agroclimatic newsletters will be strengthened. These trainings will be aimed at local communities and technical teams of local governments.

Output 1.1: Local hydrometeorological monitoring networks and climate information platforms enhanced to generate and disseminate timely and locally relevant climate data and bulletins, enabling informed decision-making and community-level risk reduction in response to drought ~~Subnational climate information networks and platforms strengthened for local and national decision-making in the face of drought effects.~~

Action 1.1.1: Acquire and install at least ~~250~~ weather stations that facilitate the prediction of extreme events, improve the monitoring and management capacity of water resources, optimize water planning and distribution, and contribute to the improvement of weather forecasts for informed decision-making in Manabí and Azuay provinces.

Action 1.1.2: Rehabilitate at least ~~105~~ hydrological and meteorological stations that are out of service, as well as update the software of the entire network of stations in Manabí province (Bolívar municipality and Manta municipality), and Azuay province (Cuenca and Gualaceo municipalities).

Output 1.2: Strengthened technical capacities of subnational teams in climate data analysis, interpretation, and information management for the delivery of early warning systems and community awareness actions ~~Strengthening local and community capacities for the management, management, and interpretation of climate information.~~

Action 1.2.1: ~~Acquire form and equip~~ at least 2 situational climate monitoring rooms with teams of subnational specialists in the prefectures of Manabí and Azuay provinces for the analysis of meteorological and hydrological data collected by the weather stations, for the preparation of accurate, continuous, and updated climate bulletins aimed at citizens or vulnerable communities, about possible extreme weather events.

Action 1.2.2: Develop at least ~~63~~ training modules for subnational teams from the 3 intervention ~~zones~~ areas of Manabí ~~and~~ Azuay provinces ~~and local communities~~, with the following minimum topics: i) Introduction to climate and hydrological monitoring, ii) Analysis of climate data and generation of agroclimatic newsletters, and iii) Risk communication and climate crisis management (SMIC).

~~113-124.~~ **Component 2: Local climate risk and implementation of adaptation measures**

~~114-125.~~ **Outcome 2: Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies** ~~The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas.~~

~~126.~~ This component aims to generate and retrieve information for the efficient management of local climate risk. The information and methodologies developed by the Ministry of Environment, Water and Ecological Transition (central government) will serve as a guide to analyze in detail in the areas of intervention. The purpose is to develop a ~~pipeline~~ portfolio of adaptation measures that have a technically verified basis on their efficiency in increasing resilience in drought-affected areas.

127. The weather and climate information generated in component 1 (bulletins) will enable methodological and conceptual decisions to be made for the development of adaptation measures such as nature-based solutions, which will increase the adaptive capacity of the population most vulnerable to drought.

115.

116. Based on the information consulted in participatory workshops, it was possible to identify adaptation measures that respond to problems of water supply, food security and conservation of natural resources.

117-128. Despite, a participatory strategy will be developed for the implementation of adaptation measures, which respond to local needs and allow the design of efficient adaptation measures, ensuring the appropriation and sustainability of the operation of the different actions to increase the resilience of populations in the face of drought.

129. Based on the information consulted in participatory workshops, it was possible to preliminarily identify some adaptation actions that would respond to the deficit of water supply, food security and conservation of natural resources. Adaptation measures could be reconfirmed with a technical assistance process to accompany the development of local management and planning tools to identify their efficiency and effectiveness.

118-130. Finally, technical assistance will be provided, and technical processes will be developed to incorporate climate change variables, the gender approach and cultural considerations into the territorial management and planning instruments of subnational governments. This would ensure more resilient territorial planning with climate considerations and a focus on gender, interculturality and intergenerationally.

Output 2.1: Development of climate risk assessments and cost-benefit analyses for drought adaptation at watershed level, supporting evidence-based planning and enhancing local ownership of climate risk reduction strategies. ~~Development of climate risk studies and assessments to target and prioritize the areas and sectors most vulnerable to drought.~~

Action 2.1.1: Develop at least 2 climate risk studies in the face of the threat of drought, which contain in their structure the analysis of gaps and needs, at the level of the 2 hydrographic basins, located in Manabí province, Bolívar and Manta municipalities, Carrizal-Chone water basin, and Azuay province, Cuenca and Gualaceo municipalities, Paute water basin.

Action 2.1.2: Develop at least one strategy for the implementation of green infrastructure measures (management of riverbanks, infiltration terraces, drainage ditches, others); and cooperation with local partners, at the level of the 2 watersheds, in Manabí province, Bolívar municipality and Manta municipality, and Azuay province, Cuenca and Gualaceo municipalities.

Action 2.1.3: Develop a strategy and cooperation with local partners -to design conservation measures for paramos in Azuay province, Cuenca municipality and Gualaceo municipality; and restoration and reforestation Manabí province Bolívar municipality and Manta municipality.

Output 2.2: Design and implementation of an integrated portfolio of nature-based and community-driven adaptation interventions to enhance the resilience of vulnerable natural assets and strengthen climate-adaptive livelihood strategies at the local level. ~~Design and implementation of a portfolio of adaptation measures to long periods of drought that ensure the conservation of natural resources to supply water and food for the population most vulnerable to drought.~~

Action 2.2.1: Implement at least 4 sustainable water storage (micro-reservoirs) and redistribution systems (albarradas) that maximize the resource and minimize losses for the supply of the areas most affected by the drought in Manabí province, Manta municipality, San Lorenzo rural local government.

Action 2.2.2: Install at least 2 systems of fog trap nets for the collection, storage, and redistribution of water, in times of drought in Manabí province, Manta municipality, San Lorenzo rural local government.

Action 2.2.3: Implement technified irrigation systems to irrigate at least 400-490 ha of crops, to counteract the effects caused by prolonged periods of drought, in the upper basins of the Santa Bárbara, San Francisco and Machangara rivers, in Azuay province, Cuenca municipality and Gualaceo municipality.

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Action 2.2.4: Implement at least 6200 ha for agroforestry systems that improve water retention, reduce soil erosion, and diversify livelihoods in Manabí province, Manta municipality, and Bolívar municipality, and Azuay province, Cuenca municipality and Gualaceo municipality.

Action 2.2.5: Implement at least 4250 ha through reforestation in the highlands for productive purposes (coffee or cocoa), and promote agrobiodiversity, with a gender equity approach, to strengthen food security and the resilience of ecosystems to drought; in Manabí province, Bolívar municipality.

Action 2.2.6: Develop a germplasm bank and rescue of native seeds of drought-adapted varieties in Manabí province, Bolívar municipality, guaranteeing their preservation and availability for the adaptation of agricultural systems to climate change, for food security.

Action 2.2.7: Implement seed production centre in Manabí province, Bolívar municipality, Calceta rural local government, for the reproduction and multiplication of plant species for the restoration of soils degraded by prolonged drought, promoting ecological regeneration and sustainability of local ecosystems.

Action 2.2.8: Restore and conserve at least 6400 ha of riverbank in the San Francisco River in Azuay province, Gualaceo municipality, to promote water retention, biodiversity, and the protection of associated ecosystems.

Action 2.2.9: Restore at least 4300 ha of degraded areas with native terrestrial and fluvial species that favor water retention in the soil and reduce erosion in Manabí province, Bolívar municipality.

Component 3: Strengthening capacities and spaces for articulation as a sustainability strategy.

Outcome 3: Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning. Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.

119-131. In this context, technical capacities will be strengthened in local communities and subnational governments for the proper management of adaptation measures to be implemented in the areas of intervention. Modules will be carried out to understand climate risk in the face of climate threats such as droughts in water management systems, agri-food systems, and natural ecosystems.

120-132. Training modules covering the water, food security and ecosystem conservation sectors will be designed for different levels of government and communities, integrating principles of gender equity, respect for cultural diversity and consideration of different generations.

121-133. After a training process, technical assistance will be created and provided to strengthen the spaces (e.g., local committees, basin councils, water, and irrigation boards, among others) where decisions are made in the face of droughts, ensuring that these processes have a climate focus, are inclusive, and consider gender, cultural, and territorial perspectives.

122-134. The strengthening of these local decision-making spaces will facilitate coordination between communities and local and national authorities, for the creation of public policies and regulatory frameworks in the prioritized areas, ensuring that adaptation actions are effective and aligned with local needs.

123-135. Once the spaces for articulation and local capacities have been strengthened, a strategy for sustainability and local empowerment of the climate investments made will be developed, with the purpose that the measures continue to function, transfer knowledge, and institutionalize the project processes through public policies and regulatory frameworks.

124-136. As part of the sustainability process, a communication and visibility strategy for results will be designed with local, national, and international scope, including participation in strategic events to multiply the reach, such as the Conferences of the Parties (COPs) so that the results achieved can be replicated and scaled.

Output 3.1: Strengthen national and subnational technical capacities to integrate climate resilience measures into sectoral policies and development strategies, enhancing adaptive responses to prolonged

droughts. National and local technical capacities enhanced, as an effective adaptive capacity to the effects of prolonged droughts

Action 3.1.1: *Develop at least 1 e-learning and face-to-face capacity building program called "Water Resilience: Comprehensive Training for Adaptation and Sustainable Management in the Face of Drought" for local, national and community technicians with 4 Modules, for Manabí and Azuay provinces: M.1. Sustainable Water Management and Watershed Recovery; M.2. Agrobiodiversity and Resilience to Climate Change; M.3. Ecological Restoration and Ecosystem Conservation for Resilience to Prolonged Droughts; M.4. Local Governance, Community Participation and Adaptive Management in the face of climate risks with the participation of 50% men and 50% women with a generational and intercultural approach.*

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Action 3.1.2: *Strengthen institutional capacities by conducting at least 8 workshops aimed at municipal technicians of Cuenca province, Gualaceo, Manta and Bolívar municipalities, using the andragogical methodology "learning by doing", to integrate the sustainable management of climate risks associated with droughts into the Territorial Planning Plans (PDyOT).*

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Output 3.2: Support the establishment and reinforcement of decision-making platforms at national and local levels to formulate and implement policies and regulatory frameworks that mainstream climate change priorities and ensure the sustainability of climate-resilient development.~~Strengthened decision-making spaces at the local and national levels to develop policies and regulatory frameworks to ensure the sustainability of climate investment.~~

Action 3.2.1: *Provide technical assistance for the development of at least 4 proposals for municipal ordinances and 2 proposals for provincial ordinances aimed at managing adaptation to climate risks, such as prolonged drought, through participatory processes and community dialogues that ensure the participation of at least 50% of women and youth. In Manabí province, Manta municipality and Bolívar municipality, and Azuay province, Cuenca and Gualaceo municipality*

Action 3.2.2: *Provide technical assistance for the strengthening of at least 2 Watershed Committees/Councils, in Azuay province, Cuenca municipality and Gualaceo municipality; and Manabí province, Manta municipality and Bolívar municipality, promoting their articulation with community networks as key structures for the adaptive governance of water resources in the face of prolonged drought and other extreme weather events. This measure will promote participatory and inclusive processes, ensuring the participation of at least 50% of women and young people in decision-making spaces, and will contribute to the design and implementation of public policies and local regulatory frameworks that support the sustainability of climate investments and strengthen the resilience of beneficiary communities.*

Action 3.2.3: *Develop at least 4 spaces for community dialogue and exchange of experiences, in Azuay province, Cuenca municipality and Gualaceo municipality; and Manabí province, Manta municipality and Bolívar municipality, on the role of water and irrigation boards as a key mechanism of community governance, ensuring a 50% participation of women and young people.*

Action 3.2.4: *Develop at least one sustainability strategy that promotes the empowerment and social and institutional ownership of climate investments by the four municipalities, two prefectures and the beneficiary communities, contributing to the continuity of adaptation actions and the strengthening of territorial resilience to climate change. In Azuay province, Cuenca municipality and Gualaceo municipality; and Manabí province, Manta municipality and Bolívar municipality.*

Action 3.4.5: *Design and implement an international visibility strategy that allows the sharing of learnings, innovations, and results of the project in global platforms such as the COP, positioning the beneficiary communities as protagonists of nature-based adaptation solutions.*

B. ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS

125-137. The objective of this proposal is to increase the adaptive capacity to the drought of approximately 36,071 people, including farming families, focusing on 52.28% of the population who are rural women.

~~126-138.~~ This is how the proposal has identified economic benefits to improve income and avoid losses of the families most vulnerable to drought, as shown in component 1, access to agroclimatic information will allow informed decisions to be made about planting periods, thus avoiding the loss of farmers investment in the case of a prolonged drought period. In component 2, the actions will focus on the diversification of production systems, the efficient management of water resources and the management of the environmental services of natural ecosystems, allowing them to improve their production and productivity.

~~127-139.~~ Social benefits have been identified, so that, in component 1, equitable access to agroclimatic information will be equal and without any discrimination. In component 2, the adaptation actions identified will focus on young women ~~and make them the main source of income in the household~~. In component 3, community leaders will be identified and their capacities to make effective decisions in the face of the effects of droughts will be strengthened. The spaces for articulation created will be equitable, giving a gender focus and affirmative action's so that women acquire adequate and relevant technical knowledge that allows them to increase their self-esteem and the recognition of other members of the community, especially men, to be part of the decision-making process to adapt to climate change, for their operation.

~~128-140.~~ Finally, the environmental benefits are evidenced in component 2 in the protection of water recharge areas and in the restoration of forests that allow ensuring quality and quantity water for human consumption and for productive systems in the lower basins. The protection of the banks of the upper basins of the Paute River mitigates the sedimentation process in the reservoirs of the hydroelectric complex located in the lower basin.

Economic benefits

~~129-141.~~ This section details the economic benefits of the actions to be implemented with this proposal. For example, component 2 will implement agroforestry, agrobiodiverse and agrosilvopastoral systems, which will provide new sources of income for farmers, while improving food security in communities, reducing economic dependence on a single type of crop (reducing losses), improving local diets (disease reduction).

~~130-142.~~ Another action is the construction of a germplasm bank, together with the installation of seed production centre, which will guarantee the availability of seeds and plants that adapt to drought, increasing the production and productivity of agricultural systems, reducing losses, and increasing incomes.

~~131-143.~~ Another economic benefit is evidenced in component 1, technical newsletter with agroclimatic information will be generated, which will be disseminated to farmers through mobile phones, which will allow them to make informed decisions about what to plant, when to plant and how to plant, avoiding economic losses for families.

~~132-144.~~ However, by implementing sustainable water storage and redistribution actions, agricultural productivity improves, increasing the monthly income of farmers, in addition, this activity generates local employment, since workers will be needed to install and maintain these reservoir systems and irrigation canals. In these spaces, the participation of women will be prioritized to increase their knowledge and so that they can develop initiatives to increase their income through more efficient productive practices adapted to climate threats.

~~133-145.~~ Finally, the installation of fog trapping mesh systems reduces the operating cost of water redistribution and increases efficiency in use, thus increasing productivity and income of families.

6. According to figures from the Ministry of Agriculture and Livestock (MAG) and the National Institute of Statistics and Census (INEC), the main limitation for corn cultivation in Ecuador is the high dependence on the climate and limited technification, which generates a marked difference between irrigated and non-irrigated areas. The national average yield of hard yellow maize is approximately 4.17 ton/ha in the period 2018-2023, although in areas with technified irrigation it can exceed 6 ton/ha, while in dry areas such as Manabí, without access to irrigation, the yield falls to 2.5 ton/ha or less. In 2023, the harvested area of dry hard corn was 321,229 hectares, presenting a decrease of 11.4% compared to the previous year. Durum corn production in 2023 was 1.4 million tons, registering a decrease of 13.9% compared to the previous year.

7. In 2023, dry soft corn accounted for 5.1% of transient crops in Ecuador, with soft white corn being a key crop in Azuay, especially in family farming. The average yield in the area is 1.85 ton/ha, but it can exceed 2.3 ton/ha with irrigation and fall to 1.5 ton/ha without water. Only 26.5% of crops nationwide are irrigated, which shows the importance of improving access to water and agricultural practices to strengthen climate resilience and productive sustainability.

Social Benefits

136-148. In rural areas of Ecuador, accessing water from surface sources involves a high cost in time and effort, especially for households without basic infrastructure. According to INEC and ESPAC 2023, many families must travel up to 2 hours a day to collect it, which affects productivity, health, and access to education, especially for children and women, who usually take on this task. Although water is free, limited access to water generates a significant hidden social cost. For this reason, this proposal in component 2 proposes water resources management actions such as irrigation canals, reservoirs and fog catchers, as efficient water distribution mechanisms.

137-149. The social benefits of this project proposal are evident in component 3, as community and technical capacities will be strengthened in the spaces to make decisions for water management, ensuring the equitable participation of men and women in local governance.

138-150. A Training Program will be developed in e-learning and face-to-face format, entitled "Water Resilience: Comprehensive Training for Adaptation and Sustainable Management in the Face of Drought". This Programme will address sustainable water management, watershed recovery, agrobiodiversity, ecological restoration, and community governance, with at least 60% participation of young women heads of household, promoting their leadership in territorial planning and management.

139-151. Through the diversification of the population's livelihoods and the incorporation of young women into paid work, their economic autonomy and their families will be promoted, all of which will be accompanied by awareness-raising processes on positive masculinities to overcome the marked sexual division of labor (Manabí province) and advance in the eradication of gender-based violence against women (Azuay province).

140-152. As part of the social benefits, in component 3 of the proposal, the local regulatory framework will be strengthened through the integration of adaptation variables in the Territorial Planning and Development Plans in the 4 subnational governments (4 Municipalities), with a focus on gender, multiculturalism and intergenerationality. In addition, specific public policies will be developed to improve the management and response capacity of municipalities to the impacts of drought, ensuring the inclusion of adaptive water management strategies, resilient production systems and environmental conservation.

141-153. To consolidate these advances, an exit strategy (specific action of component 3) will be developed to ensure the institutionalization of adaptive measures, promoting water security, food security and environmental conservation in the four municipalities and two prefectures. WFP's Social and Behavioral Change Methodology (SBCC) will promote community ownership of resilient practices, ensuring that both men and women play an active role in decision-making and in the implementation of sustainable water solutions.

Environmental benefits

142-154. In component 1, it is proposed to generate agroclimatic newsletter with updated information on climatic conditions and their impacts, farmers will be able to implement agroforestry systems that improve water retention, reduce soil erosion, and diversify their livelihoods. This will allow them to optimize the use of natural resources, such as water and soil, thus reducing overexploitation and environmental degradation in the riverbanks or water recharge areas of the prioritized areas.

143-155. In addition, component 2 of this proposal proposes actions such as riverbank management, the implementation of infiltration terraces, drainage ditches and reforestation in the upper basins of Machangara, Paute, La Esperanza and San Lorenzo, whose environmental benefits will be the increase in soil moisture and

reduction of sediments in the lower basins as in the case of Paute, thus benefiting the reservoir capacity for the operation of hydroelectric power plants.

~~144-156.~~ Similarly, component 3 proposes measures for efficient water management through the implementation of technified irrigation and sustainable water storage and redistribution systems, which will optimize agricultural production and guarantee sustainable access to water for human consumption, reducing vulnerability and creating a more resilient environment to climate change. while the nets trap fog for the collection, storage, and redistribution of water, in times of drought it will improve the use and sustainable use of water in San Lorenzo-Manta.

~~145-157.~~ The implementation of a germplasm bank, a seed production centre, and the recovery of native seeds, in La Esperanza will promote ecological regeneration through the reproduction and multiplication of key plant species for the restoration of soils degraded by drought. This action will contribute to reforestation, improving water retention capacity, soil stability and local biodiversity. By increasing vegetation cover, the vulnerability of ecosystems to desertification will be reduced and the natural cycles of water resources will be strengthened. This measure will strengthen food security by ensuring the genetic diversity necessary for resilient production systems, reducing dependence on commercial varieties vulnerable to climate change. In addition, it will allow the recovery of ancestral knowledge on crop management in scenarios of water stress.

~~146-158.~~ The reforestation of at least 250 ha in the highlands of Manabí province, Bolívar municipality, for productive purposes such as coffee or cocoa, will contribute to the conservation and restoration of ecosystems. This improves ecosystem services by increasing forest cover, which in turn protects water sources and reduces soil degradation.

~~159.~~ The restoration and conservation of at least 400 ha of riverbank on the San Francisco River Azuay province, Gualaceo municipality, can improve water retention and biodiversity. By protecting associated ecosystems, water availability is ensured for local communities and soil erosion is reduced. These actions also contribute to the reduction of soil degradation and the improvement of ecosystem services, creating a more sustainable and resilient environment.

~~147.~~

C. COST-EFFECTIVENESS OF THE PROPOSED PROJECT

~~148.~~ In recent years, drought in Manabí province has been a phenomenon of high environmental and social impact, the effects of which have intensified as a result of ~~because of~~ the climate crisis and the continuous degradation of ecosystems. According to the records obtained on the Desinventar (2025) platform, this event has directly affected 316 people and indirectly more than 5,000, reflecting a high exposure of rural households to prolonged water scarcity. Damage has also been reported to approximately 60,400 ha of crops, seriously compromising food security and rural livelihoods. In terms of social aspects of displacement, at least 316 people are considered to have been relocated and/or evicted, indicating forced displacement caused by agricultural land degradation and critical reduction in access to water. Although there are no episodes of mass evacuation, the drought has driven processes of silent rural migration to urban areas. The economic losses amount to 150 thousand dollars, a figure that could underestimate the real impacts, due to the difficulty of quantifying the damage in rural areas.

~~149.~~ In Azuay province, drought has direct negative effects on the natural environment and social well-being. According to the records, Desinventar (2025), 200,250 people have been indirectly affected, a figure that shows the continuous and massive exposure of the population to water scarcity, especially in rural areas, where families are supported by agriculture. Although no people are reported, deceased, injured, missing, or evacuated, this responds to the progressive and cumulative nature of the drought, a phenomenon that does not usually generate immediate displacements, but does drive gradual migrations and abandonment of land. In terms of economic terms, the losses amount to up to 10 million dollars, making it one of the costliest events for the province in terms of non-structural impact.

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150. The environmental impact is particularly evident in crops, where around 60,400 hectares have been reported affected, as well as 600 linear meters of damaged roads, causing interruptions in the mobilization of rural transport and in the food distribution chain. This loss of agricultural production, coupled with pressure on increasingly scarce water sources, exacerbates food insecurity and increases economic vulnerability.

151. According to ECLAC, if US\$1.8 trillion were invested between 2020 and 2030 in five key areas—early warning systems, climate resilient infrastructure, improved agricultural production in drylands, mangrove protection and water resilience—net benefits of US\$7.1 trillion could be generated.¹ This represents a cost-benefit ratio ranging from 1:2 to 1:10, with some cases even higher, evidencing an extremely high rate of return. The strengthening of early warning (climate information systems) has the highest investment rate, between 1:3 and 1:15, that is, for every dollar invested, the return can be as much as 15 dollars. This is followed by the measures of "Improving agricultural production in drylands" with a return of between 2 and 12 dollars for every dollar invested. And with a positive return, although smaller, is the measure of strengthening the resilience of water resources management, with a return between 3 and 8 dollars for every dollar invested. In summary, the selected measures have a high return on investment.

152-160. For this reason, this proposal focuses on the entire chain of good adaptation management, which ranges from the generation of agroclimatic information, which provides data for climate risk studies and its subsequent development of a portfolio of measures, which respond to the territorial reality and is based on technical information. This pipeline of adaptation measures will be implemented through a participatory and efficient implementation strategy, which will strengthen the process of appropriation and sustainability of climate investment. Finally, a process of strengthening capacities and spaces for articulation for decision-making to design public policies and regulatory frameworks.

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153-161. Profitability is evidenced in component 1, in reference to the generation of agroclimatic newsletter as cost-effective tools for adaptation to drought, since they provide timely, accessible, and contextualized climate information that allows farmers and local authorities to anticipate and make informed decisions. These newsletters integrate weather forecasts and analysis of climate behavior with specific technical recommendations for crops, planting seasons, irrigation management and other agronomic practices, which reduces economic losses and optimizes the use of resources. Its implementation has a low cost compared to physical infrastructures, and its impact is significant by improving productive planning and reducing exposure to climate risks in vulnerable communities.

154-162. In addition, agroclimatic newsletter strengthen local capacities for climate risk management by encouraging the exchange of information between technical institutions, meteorological services, and community actors. Its dissemination, through traditional media, digital or through community networks, allows smallholders to adapt to prolonged drought conditions, adjust their agricultural calendars and adopt resilient practices with greater agility. In terms of cost-effectiveness, these tools generate high social returns by protecting livelihoods, reducing food insecurity, and avoiding more serious impacts in the long term, positioning themselves as a key measure in early warning and information-based adaptation systems.

155-163. Similarly, component 2 proposes adaptation measures focused on Nature-Based Solutions, which stand out for their high cost-effectiveness as climate change adaptation measures, especially in sectors such as water management, food security and ecosystem conservation. These solutions take advantage of natural processes and ecosystem services—such as water infiltration into forest soils, wetland water regulation, and carbon sequestration by native vegetation—to reduce climate risks at a fraction of the cost of traditional infrastructure. For example, ecosystem restoration in upper basins can improve aquifer recharge, reduce runoff, and mitigate the effects of droughts and floods, benefiting both rural communities and water-dependent urban centers.

156-164. In the field of food security, NBS promote sustainable agricultural practices that increase the resilience of production systems to climate change. Strategies such as agroforestry, sustainable soil management, and conservation of water sources ensure crop stability and food supply, even in extreme weather conditions. In addition, by conserving and restoring key ecosystems such as paramo and forests, ecological functions fundamental to biodiversity and the provision of ecosystem services are maintained, generating multiple and lasting benefits. This multifunctionality makes NBS a profitable and sustainable

investment, which in addition to adapting to the climate, contributes to mitigation and inclusive local development.

157-165. This is how actions and/or measures are proposed, such as the implementation of sustainable water storage and redistribution systems in Manabí province, Manta municipality where it is projected to generate a positive economic return. It is estimated that the cost-benefit ratio will reach 2.47 dollars for every dollar invested (1:2.47), evidencing efficiency and profitability. In addition, the reduction of costs associated with extreme weather events, such as droughts, is anticipated, which will result in financial savings.

158-166. The installation of fog-trapping mesh systems and the implementation of technified irrigation systems will contribute to reducing environmental vulnerability in the long term. These actions will improve the conservation of water resources and agricultural productivity. The avoided costs of the loss of ecosystem services are projected to be high, as water sources will be protected, and soil erosion will be reduced. The return indicators will include a 9.53% increase in the basic basket and a rate of return of 1.90 dollars for each dollar invested (1:1.90).

159-167. The implementation of agroforestry systems and reforestation in Manabí and Azuay provinces are expected to generate a remarkable environmental return. Paramos and forest conservation is expected to show a high benefit-cost ratio, with US\$5.57 recovered for every US\$1 invested in environmental and economic benefits (1:5.57). Forest conservation is projected to yield a return of \$1.78 for every dollar invested (1:1.78), highlighting the relevance of these measures for ecological sustainability. The reduction of long-term environmental vulnerability will be achieved through the restoration of degraded soils and the protection of water sources. The avoided costs of the loss of ecosystem services are expected to be high, improving water retention and biodiversity.

160-168. The construction of a germplasm bank and the rescue of native seeds in Bolívar municipality, Manabí province, will guarantee the preservation and availability of drought-adapted varieties, strengthening food security and the resilience of ecosystems. The implementation of seed production centre for the reproduction of plant species aimed at restoring degraded soils will also contribute to the ecological regeneration and sustainability of local ecosystems. The restoration of the riverbank on the San Francisco River, in the Gualaceo canton, Azuay province, will improve water retention and biodiversity, promoting the protection of associated ecosystems and reducing soil erosion. These indicators are projected to reflect an increase in community resilience and the ecological sustainability of the actions implemented.

COMPONENTS / RESULTS / PRODUCTS	JUSTIFICATION
<p>COMPONENT 1: Climate information for effective decision-making</p> <p><u>OC1. Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems.</u></p> <p>Local communities and governments have used and interpreted the agro climatic information generated by the local hydrometeorological network to make decisions for their food systems.</p>	<p>This component will contribute to the generation and management of agro-climatic information by strengthening the local and national climate network and increasing local capacities for interpretation and use of agroclimatic newsletter for informed decision-making, reducing economic losses for farmers.</p> <p>Maintaining an agroclimatic monitoring system is a potential investment for local governments and communities, since they provide technical information when making an investment in productive systems such as planting or access to agricultural credit.</p>
<p>COMPONENT 2: Local climate risk and implementation of adaptation measures</p> <p><u>OC2. Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies.</u></p> <p>The adaptive capacity of the most vulnerable population has</p>	<p>This component will use and enhance the value of agroclimatic information, through climate risk studies it will be possible to prioritize climate investments, which is evidenced in effective adaptation measures that respond to local realities.</p> <p>The cost/effectiveness of implementing measures that respond to local needs is significant, since they ensure ownership and sustainability over time.</p> <p>In this component, measures will be implemented focused on the equitable distribution of water resources through reservoirs, irrigation canals and fog catcher nets, which are cost-effective for farmers, since they are low cost and the results increase crop productivity, thus improving the usefulness of farmers.</p>

<p>increased in periods of severe drought in the prioritized areas.</p>	<p>For this pipeline<u>portfolio</u> and strategy for the implementation of adaptation measures, the concept of Nature-Based Solutions will be used, which are integral and seek balance with the environmental services of ecosystems, this is how resilient production systems low in GHG emissions are proposed, such as agroforestry, agrobiodiversity, germplasm banks and agroecological seed production centre, which ensure drought-resilient seeds, reducing economic losses to farmers. The comprehensive approach in this component, which goes from seed production, securing the means of production and identifying markets to market agricultural products, increases income and economic benefits to farmers. Similarly, cost-effective measures such as restoration and reforestation with native species and rehabilitation of altered ecosystems have been considered, as actions to regularize the hydrological cycle and control erosion of watersheds. This ensures economic benefits for farmers and for the country since sedimentation processes are mitigated in the lower basins where the country's hydroelectric plants are located.</p>
<p>COMPONENT 3. Strengthening capacities and spaces for articulation as a sustainability strategy. <u>OC3. Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning. Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.</u></p>	<p>This component will focus on strengthening local capacities to operationalize adaptation measures and ensure the process of citizen and community participation and empowerment. Investing in local capacities is a future saving for the sustainability of the measures and/or actions implemented. Priority will be given to women heads of household, community leaders and young people. Finally, decision-making spaces at the local level such as committees, water boards, account councils will be strengthened. This investment will allow the development of efficient public policies and regulatory frameworks that respond to specific legal needs, ensuring the institutionalist of the climate investment made in the areas of intervention.</p>

D. ALIGNMENT WITH NATIONAL AND SUBNATIONAL DEVELOPMENT STRATEGIES

PLANS / STRATEGIES	ALIGNMENT	COMPONENT
Political Constitution of Ecuador	Article 414 establishes that the State must take adequate and cross-cutting measures to mitigate climate change and protect the population at risk.	This proposal is aligned with component 2 since it is proposed to carry out climate risk studies and implement climate change adaptation measures to increase the resilience of the population in the face of prolonged drought.
Ecuador's National Climate Change Strategy	The National Climate Change Strategy (ENCC), through Ministerial Agreement 095, promotes the incorporation of climate change and risk management in different economic sectors to improve emergency preparedness, response, and recovery capacities. The Decentralized Autonomous Governments (GADs) submit their climate change plans, programs, and strategies to the National Government for approval, to be incorporated into the National Climate Change Plan.	Component 1 is aligned since it proposes to establish climate stations and repower other stations, in addition to implementing monitoring rooms for agroclimatic information. Component 2 proposes climate change adaptation measures for the sectors prioritized in the ENCC (Water, Food Security, and Conservation). The scope of this measure is to improve the living conditions of the population and increase their economic income. Component 3 prioritizes the strengthening of local capacities, the transfer of knowledge and information, and mechanisms for citizen participation and empowerment, to make climate investment sustainable.
National Plan for Adaptation to Climate Change (PAN)	This Plan is the basis for the progressive strengthening of the technical, environmental, social, economic, and political scenarios for adaptation management in the country, aspects that are fundamental for the updating of the following Plans, and the gradual scaling up of inputs such as climate risk analysis, adaptation measures and financing mechanisms to ensure the sustainability of multiscale and multi-stakeholder interventions.	Component 1 is aligned with Ecuador's NAP by strengthening the local agroclimatic network and increasing capacities for the interpretation and use of information. Component 2 will take the NAP methodology for local climate risk analysis and mechanisms for designing adaptation measures for the water, food security and conservation sectors. Similarly, this proposal has taken the types of measures of the NAP and the monitoring and follow-up process for implementation. Component 3 proposes a strategy for the sustainability of climate investment, which involves strengthening local/community capacities, creating spaces for territorial articulation to design public policies and regulatory frameworks to ensure citizen empowerment and participation.
Gender and Climate Change Action Plan in Ecuador	It allows an opening to understand the impacts associated with and identified from the climate threat, showing a gender perspective approach in the socioeconomic and climate change context.	In the 3 components, processes of equitable participation and gender considerations are proposed in accordance with the guidelines of the Gender Action Plan. In the consultation and capacity-building processes, priority will be given to the segment of young women heads of household. Similarly, in the design of adaptation measures, the gender approach will be considered in the baseline, in accordance with methodologies established by MAATE.-For the spaces of articulation and decision-making, it will focus on being led by women, who stay in the territories, since due to permanent or temporary migration, the absenteeism of men is high.
Second Nationally Determined Contribution	The objective of Ecuador's NDC is to implement policies, actions and efforts to reduce greenhouse gases and increase resilience to climate change in priority sectors, according to the National Climate Change Strategy. These measures will be based on the strategic lines and measures detailed in the document. Ecuador seeks to meet its obligations under the Paris Agreement	This proposal aligns with the priorities of the second NDCs in the processes of adaptation to climate change. The measures of this proposal are aligned with the portfolio proposed in the second NDC of Ecuador. Thus, Ecuador prioritized the following sectors: a) Natural heritage; b) Water heritage; c) Health(d); d) Human settlements; e) Productive and Strategic Sectors; f) Food Sovereignty and Agriculture. For this reason, this proposal is part of the sectors and the measures proposed.-For example, promotion of green infrastructure for the use of and access to water resources. Diversity of efficient and

		effective production systems, promotion of technified irrigation. Ecosystem restoration processes, conservation of native and endemic plant habitats. Finally, the process of inclusion of climate change adaptation variables in development planning and local land use.
The Climate Finance Strategy.	The EFIC presents three strategic lines of action that outline its implementation: Clear and effective governance of climate finance. Consolidation of a financial system that integrates the climate approach in a cross-cutting way. Effective and efficient access, management, allocation, and mobilization of climate finance.	Component 3 focuses on a strategy of technical sustainability and empowerment of decision-makers to invest climate funds in the most vulnerable to drought. Similarly, capacity building and the creation of spaces for articulation will allow decisions to be made to identify climate funds that allow the continuity and replicability of the measures and processes implemented through this proposal.
Fifth National Climate Change Communication and First Biennial Transparency Report	It highlights the country's progress and challenges in the implementation of climate policies, in line with its commitments to the United Nations Framework Convention on Climate Change (UNFCCC). The document presents an updated inventory of greenhouse gases, identifies key sectors of vulnerability (such as agriculture, water, health, and biodiversity), and details mitigation and adaptation measures, including planning instruments such as the NDCs and the National Adaptation Plan.	This proposal has taken the conceptual frameworks, methodologies, tools, and lessons learned from the National Communication, for the development of all the proposed actions. It is important to mention that, for future national communications, the project has a monitoring and reporting process, to contribute to the MRV adaptation module that is part of the National Climate Change Registry (Process contemplated in the Organic Environmental Code).

E. COMPLIANCE WITH RELEVANT NATIONAL TECHNICAL STANDARDS

COMPONENTS / RESULTS / PRODUCTS	RELEVANT REGULATIONS, STANDARDS AND PROCESSES ALIGNED WITH AF PRINCIPLES	COMPLIANCE, AUTHORIZED PROCEDURES
COMPONENT 1: Agroclimatic information for effective decision-making OC1. <u>Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems.</u> Local communities and governments have used and interpreted the agroclimatic information generated by the local hydrometeorological network to	Standards of the National Institute of Meteorology and Hydrology (INAMHI): Regulate the operation and maintenance of the country's meteorological and hydrological stations. Standards of the National Water Information System (SENAGUA): Regulate the collection, management, and dissemination of information on water resources. Law on Water Resources, Water Uses and Exploitation (2014): Regulates the use, conservation, management, and administration of water resources, including the monitoring and control of water resources at the national and subnational levels.	For the installation and potentiation of the agroclimatic stations and monitoring rooms, a strict compliance with current standards will be followed. In addition, the international standards of the World Meteorological Organization will be complied with: OMM_N° 09 Observation standards; WMO-No. 488 Guide to the Global Observing System; WMO-No. 544 Global Observing System Handbook WFP, as the implementing agency, will ensure compliance with environmental and water resources standards in reference to the management of hydrological, climatic and agroclimatic information.

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make decisions for their food systems.		
<p>COMPONENT 2: Local climate risk and implementation of adaptation measures</p> <p>OC2. <u>Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies. The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas</u></p>	<p>Organic Environmental Code (2017); Law on Agricultural Promotion and Development; Law on Water Resources, Water Uses and Exploitation (2014); National Agricultural Strategy for Rural Women (2020); Forest Plantation Regulations. National Reforestation Plan (PNR); National Forest Restoration Policy;</p>	<p>Adaptation studies and measures shall be framed and strictly comply with all national technical regulations.</p> <p><u>Adaptation measures related to water resources will comply with the current legal framework, such as irrigation systems, reservoirs and green infrastructure, and measures related to the conservation of natural resources such as reforestation and restoration. Similarly, with food security measures (agroforestry systems, germplasm banks), they will be oriented towards compliance with public policy and national and local regulatory frameworks, in accordance with the decentralized competencies of the Provincial Governments.</u></p> <p>Adaptation measures related to water resources will comply with the current legal framework and measures related to the conservation of natural resources. Similarly, with food security measures, they will be aimed at complying with public policy and national and local regulatory frameworks, in accordance with the competences devolved to Local Governments.</p>
<p>COMPONENT 3. Strengthening capacities and spaces for articulation as a sustainability strategy .</p> <p>OC3. <u>Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning. Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.</u></p>	<p>Organic Law on Water Resources, Water Uses and Exploitation (2014): Articles 3, 4, 56 and 57: Promote citizen participation and social organization in the management of water resources, including the creation of water boards and user committees. Organic Law on Citizen Participation (2010): Articles 1, 6 and 7: Establish mechanisms for citizen participation in public management, including water management.</p>	<p>For this component, priority will be given to and compliance with current regulations in relation to the processes of consultation and community and citizen participation.</p> <p>Based on current regulations, the design and implementation of adaptation measures must go through a process of socialization and prior consultation. This process is tempered as part of the implementation, cooperation, and sustainability strategy of the project proposal.</p>

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F. DUPLICATION WITH OTHER FUNDING SOURCES

161. According to ECLAC, the countries of Latin America and the Caribbean face a high vulnerability to climate change, which makes significant investment in climate finance essential to achieve their goals. It is estimated that the region needs to allocate between 3.7% and 4.9% of its annual GDP until 2030, which is equivalent to between USD 215 and 284 billion annually, adding up to a total of between USD 2.1 and 2.8 trillion. This challenge is compounded by a context of low economic growth and limited investment, making it even more difficult to achieve these goals. In terms of adaptation, the region needs between 1.4% and 1.8% of annual GDP, aimed at strengthening early warning systems, reducing poverty, improving coastal infrastructure, and ensuring access to water and sanitation. This last item, water, and sanitation is identified as the area with the greatest investment requirements in climate adaptation.

162-169. In this context, Ecuador's NDC Implementation Plan estimates that the total investment needed to implement the sectoral goal s, both conditional and unconditional, is estimated to be USD 102,795,616.20. This investment is distributed among six sectors: Eco system (USD 74,262,070.21), Food Security, Agriculture, Livestock, Aquaculture and Fisheries (USD 18,351,769.60), Water (USD 6,198,400.00), Human Settlements (USD 2,324,847.99), Productive and Strategic Sectors (USD 879,922.00) and Health (USD 778,606.40).

163-170. According to Ecuador's SCN/BTR, during the period from 2021 to 2023, Ecuador has received a total of financial support linked to climate change amounting to USD 746,422,795.46, broken down as follows: 2021 with USD 107,863,84.90; 2022 with USD 253,752,530.10 and 2023 with USD 384,806,419.50.

164-171. As for the analysis of the financing received, broken down by components, it reveals that, during the period evaluated, most of the economic resources were distributed to the mitigation component. This approach accounted for approximately 53.73% of total funding, equivalent to \$401,076,875.47. While the adaptation component received about 34.80% of the total financial support, with an amount of USD 259,735,698.19. Finally, the remaining values are distributed in a transversal area with a participation of 11.47% of the total support, equivalent to USD 85,610,221.80.

Projects	Description	Complementarity and Synergies with the new project
Integrated management and ecological connectivity of a priority landscape in the Ecuadorian Amazonian headwaters (GEF ID 11202) (CI-WWF) Amount: 5,333,333.00 Term: 2024-2028	It conserves, restores and promotes the sustainable management of 1,038,377 ha of tropical montane forests. It improves Andes-Amazon connectivity through protected area management, territorial governance, financial incentives, and inclusive participation. It incorporates SMART technologies for monitoring and knowledge management.	GEF 11202: It will benefit 56,177 people (40% women). It will strengthen the management of 577,289 ha of protected areas, restore 400 ha and promote sustainable practices in 461,088 ha. It integrates SMART technologies, monitoring platforms, local environmental governance, and 5 MtCO ₂ e mitigation. Complementarity: The GEF project will provide expertise in ecological restoration, territorial governance and SMART technologies. The new project will add community water planning, use of the SMIC and strengthening of water boards. They complement each other in territorial approaches and local capacities for climate adaptation. The proposed new project will: Introduce water resource redistribution, community water governance and operational use of the SMIC for local decisions. Synergies: There is methodological complementarity. There is no geographical or thematic duplication.
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Integrated Landscape Management in the Napo River Basin for Sustainable Land Management and Biodiversity Conservation (GEF-ID 11333/UNDP)	It promotes sustainable landscape management in the Napo River basin through territorial governance, adoption of sustainable practices (SLM/SFM), access to	The GEF-11333 project. It will benefit 7,676 people, at least 40% women. It will protect and improve 125,000 ha, with sustainable management of 21,188 ha of forest and restoration of 4,020 ha. It applies models of integrated watershed management,

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Amount 9,835,750.00 Term 2023-2028 (60 months)	finance, and strengthening local capacities with a gender approach. It addresses deforestation, land degradation and climate vulnerability.	biodiversity conservation and access to financing with a gender approach and inclusion of local actors.
-	-	Complementarity: The GEF project provides knowledge on ecological restoration, financial mechanisms and local governance models in the Amazon. The new project adapts these learnings to coastal and Andean contexts, applying community climate planning, SMIC and strengthening of water boards. The new proposed project: Introduces water resource redistribution, territorial scaling of the SMIC and community water governance, components not addressed in the GEF project. There is no direct territorial overlap or thematic overlap, but there is technical complementarity in restoration, territorial planning and community participation.
- Integrated Management of Transboundary Basins between Colombia and Ecuador – Mira, Mataje and Carchi-Guáitara Basins (Term not specified) (GEF-9566) Amount: 3,850,000 Term: 2019-2022	Binational project focused on the joint governance of transboundary watersheds, adaptation to climate change, institutional strengthening and ecosystem conservation in the Mira, Mataje and Carchi-Guáitara basins. Implements sustainable solutions for water access, food security, and community climate monitoring.	Complementarity: The GEF project strengthened community processes for access to safe water, women's participation in water governance, and climate monitoring through the SMIC. These elements constitute a key technical basis that can be used by the new project. The proposed new project: Introduces new approaches not addressed by the GEF, such as community-based redistribution of water resources, the development of local regulations for sustainable community water management, and the operational scaling up of the SMIC in the country's Azuay and Manabí provinces. Synergies: Both projects can generate methodological complementarities. Given that the new project is in the formulation phase with a duration of five years, there is the possibility of resuming, updating and scaling tools that were implemented by the GEF project, in particular those related to climate governance and community agro-climate monitoring. There is no geographical overlap or overlap of activities. The new project builds on previously validated learnings and tools, expanding its scope and focus in 3 areas of high vulnerability to prolonged droughts
Developing an enabling environment for sustainable businesses based on Ecuador's native biodiversity (GEF-FMAM10219) (HEIFER) Amount: 3,119,266 Term: 2021-2023 (missing)	She promoted sustainable bio-entrepreneurship with territorial identity, with an emphasis on rural women and youth. Intervention is being carried out in Santa Ana (Manabí), promoting agroecological production, sustainable use of guadua sugarcane and conservation of ecosystems.	Complementarity: This project promotes regenerative practices in livestock landscapes to conserve biodiversity, which can complement the ecosystem restoration and productive diversification actions planned in San Lorenzo (Manta) by the new project. The proposed new project will: Introduce water resource redistribution, local water governance, use of SMIC, restoration with native species, and strengthening of water committees, components not considered in GEF-11369. Synergies: Methodologies for productive restoration and landscape management may be shared. If there is territorial coincidence, articulation with the GAD of Manta and local actors will be explored. There is no duplication: The GEF focuses on sustainable livestock production; The new project in water management and climate adaptation. There is no territorial or functional overlap, but there is thematic complementarity
Adaptation to Climate Change through Effective Water Governance (GEF-2931)	The project facilitated the implementation of efficient water management practices to withstand the effects of climate change	Complementarity: The GEF project strengthened climate planning in the Machángara basin and developed tools such as the Water Evaluation and Planning (WEAP) model and pilot early warning systems.

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Amount 3,000,000 Term: 2008 - 2012	through: strong water governance arrangements; decentralization of climate-resilient water management; information management and dissemination, and flexible financial mechanisms to promote local innovation in sustainable water management	The new proposed project: It will intervene in the sub-basin of the Machángara and Gualaceo rivers (Zone 1), incorporates the SMIC, water redistribution and community governance, with a focus on gender, territorial and cultural relevance. Synergies: Although the GEF project has already ended, its tools and experiences can be taken up and adapted to reinforce the actions planned in Zone 1. There is no thematic overlap. There are replicable methodological experiences.
Promotion of the integration of biodiversity and the protection of ecosystem services through regenerative and deforestation-free livestock farming in the provinces of Manabí, Pichincha and Morona Santiago. (GEF-11369) Amount: 2,346,481	It seeks to conserve biodiversity and protect ecosystem services through regenerative and deforestation-free livestock practices in Manabí, Pichincha and Morona Santiago, with coordination by MAATE.	Complementarity: The GEF 11369 project promotes regenerative practices to conserve biodiversity in livestock landscapes. This experience can complement the ecosystem restoration and productive diversification planned in the San Lorenzo basin (Manta), within the new project. The proposed new project: Introduces components not addressed by the GEF, such as community-based redistribution of water resources, local water governance, and the use of the GIS for climate decisions. In addition, it includes restoration with native species and strengthening of water boards and/or committees. Synergies: Both projects could exchange methodologies in productive restoration and sustainable landscape management. If they coincide territorially, the articulation through the GAD of Manta and local actors will be explored. There is no duplication: The GEF focuses on sustainable livestock production; the new project on water management and adaptation to climate change. There is no territorial overlap, but there is a potential for thematic complementarity.
Developing financial and land-use planning instruments to reduce emissions from deforestation (GCF-FP019) Amount: 41,172,739 Term: 2016-2023	Project executed by MAATE with financing from the GCF, focused on strengthening land use policies, forest restoration, deforestation-free agricultural production, and territorial governance in six Amazonian provinces and Loja. It is aligned with the National REDD+ Strategy.	Complementarity: The GEF project strengthened territorial planning, deforestation-free production chains and access to green financing, benefiting 199,536 people. The proposed new project will: Introduce nature-based restoration, community water governance, water redistribution, and use of SMIC in the 3 prioritized areas. Synergies: Sustainable planning and production approaches for resilient livelihoods can be adapted in San Lorenzo and Gualaceo. There is no duplication: The GEF-FP019 was national and focused on mitigation. The new project is territorial and adaptive.
The Amazon Bioeconomy Fund: Unlocking Private Capital by Valuing Bioeconomy Products and Services with Climate Mitigation and Adaptation Outcomes in the Amazon (GCF-FP173) Amount: 10,000,000. Term: 2021-2029	Executed by Natura Capital with support from IDB Lab in four Amazonian countries. It mobilizes private investment towards sustainable nature-based models. -	Complementarity: The project promotes community bio-enterprises and climate finance for sustainable value chains açaí, guayusa, camu camu, ungurahui, guaba, chonta, essential and vegetable oils, resins, latex, medicinal/aromatic plants, fine aroma cacao, natural fibers (such as chambira or toquilla straw) and beekeeping in the Amazon, with indigenous participation and ecosystem conservation. The proposed new project will: Strengthen community water governance, ecosystem restoration, access to climate information (SMIC), and resilient livelihoods. Synergies: Bioeconomy methodologies and financial mechanisms can be explored to replicate models in territories such as Bolívar and Manabí, according to viability and local context. There is no territorial or thematic coincidence. The Amazon approach of the GCF is complemented by the territorial adaptive action of the new project.

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<p><u>Arbaro Fund – Sustainable Forestry Fund- Project - Multi-country (GCF-FP128)</u></p> <p>Amount: USD 200 million (approximately 5% of the fund would correspond to Ecuador).</p> <p>Term: 2020-2036</p>	<p><u>. It seeks to close the gap in sustainable wood supply, mitigate climate change through carbon sequestration (up to 20 million tCO₂), and provide adaptation co-benefits such as formal employment, rural economic diversification, and community strengthening. In Ecuador, it contemplates operations in new (greenfield) or existing (brownfield) plantations with FSC certification.</u></p>	<p><u>Complementarity: The Arbaro Fund will implement sustainable teak forest plantations with a productive-commercial focus in Manabí.</u></p> <p><u>The new proposed project: It will prioritize the ecological restoration of conservation areas such as the Pacoche Forest with native species, strengthen community water governance and implement the SMIC for decision-making on preventive actions against climate threats. Its focus will be on nature-based solutions and climate resilience.</u></p> <p><u>Synergies: There are no synergies with the proposed new project due to the nature of each project. Both projects will have different objectives: the Arbaro Fund will focus on commercial forestry; the new project on water adaptation and restoration.</u></p>
<p><u>Green Fund: Investing in Inclusive Agriculture and Protecting Forests (GCF-FP212)</u></p> <p><u>Multi-Country Project: Ecuador, Brazil, Paraguay, Indonesia, and Sub-Saharan African countries</u></p> <p><u>Amount: Green Fund Investment: USD 981.6 million</u></p> <p><u>The Green Climate Fund (GCF) contributes USD 189.35 million. Term: 2023-2039 /16 years</u></p>	<p><u>Multilateral program that transforms tropical agricultural chains towards sustainable, deforestation-free and inclusive models. It provides climate finance and technical assistance to cocoa, cattle ranching, palm companies, among others, under commitments to conservation, restoration and community participation. Ecuador is one of the target countries, given the pressure of agricultural expansion on native forests.</u></p>	<p><u>It seeks to reduce 339 MtCO₂e through regenerative production and deforestation-free value chains. In Ecuador, it addresses the conversion of forests to pastures (64.9% of deforestation) with sustainable practices.</u></p> <p><u>Complementarity: The project will promote regenerative agriculture, traceability and deforestation-free value chains. In Ecuador, specific areas of intervention have not yet been defined. The proposed new project will: Promote ecological restoration, water redistribution, community water governance, and operational use of the SMIC for local climate decision-making. Synergies: If the Green Fund project confirms its presence in Ecuador, methodological synergies can be generated in productive restoration, traceability and landscape management. The new project will be able to adapt these approaches if there is future geographical overlap. There is currently no territorial overlap. The interventions are complementary and are in different phases: the Green Fund in the early implementation stage and the new project in the design phase.</u></p>
<p><u>Project: Multi-country Project Advancing Early Warnings for All (EW4All) – FP258</u></p> <p><u>Total amount: USD 114,586,309 (GCF contribution: USD 103,246,722)</u></p> <p><u>Term: 5 years of implementation (2025–2030)</u></p> <p><u>Accredited Entity: United Nations Development Programme (UNDP)</u></p> <p><u>Countries: Antigua and Barbuda, Cambodia, Chad, Ecuador, Ethiopia, Fiji, Somalia</u></p>	<p><u>Regional project strengthening multi-hazard early warning systems (MHEWS) to increase climate resilience in seven highly vulnerable countries, including Ecuador. It focuses on strengthening governance, technical capacities, hydrometeorological monitoring networks, alert communication systems, anticipation mechanisms and early response to extreme weather events</u></p>	<p><u>Complementarity: The project will strengthen the national multi-risk early warning system, through regulatory frameworks, hydrometeorological monitoring, advance action protocols and community capacities, with a gender and intercultural approach.</u></p> <p><u>The proposed new project will: implement the SMIC, promote community water governance, and develop drought adaptation measures.</u></p> <p><u>Synergies: Methodologies in climate monitoring, risk management and participation of indigenous knowledge can be used to strengthen water planning in the Municipalities of Cuenca, Gualaceo, Manta and Bolívar.</u></p> <p><u>There is no geographical duplication: the GCF project will have a national focus; the new project will be implemented in the provinces of Azuay and Manabí.</u></p>
<p><u>Building Capacity to Adapt to Climate Change – Awá and Afro-descendant Peoples (Binational Ecuador–Colombia)</u></p>	<p><u>The project was implemented by WFP in coordination with the Ministry of Environment, Water and Ecological Transition, Ministry of Agriculture and</u></p>	<p><u>Complementarity: The Binational project strengthened climate resilience through safe water systems, community governance, mangrove restoration, and development of the SMIC with 12 weather stations and agroclimatic bulletins. The proposed new project: it will scale up the SMIC in Azuay and Manabí, install hydrometeorological</u></p>

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<p>Donor: Adaptation Fund</p> <p>Amount: USD 7,000,000 (binational)</p> <p>Term: 2018–2024</p>	<p>Livestock and community organizations in border areas of Ecuador and Colombia. It seeks to increase the resilience of Awá and Afro-descendant communities that are highly vulnerable to climate change, through ecosystem-based adaptation (EbA) measures.</p>	<p>stations, promote reforestation, green infrastructure and sustainable agroforestry systems, strengthening local water governance. Synergies: SMIC methodologies and community water governance will be replicated to improve participatory management in Cuenca, Gualaceo, Manta and Bolívar. There is no geographical or thematic duplication. Tools adapted to new territorial contexts will be applied.</p> <p>-</p>
<p>Participatory and Equal Sustainable Agri-Food Systems – Transformative Gender Approaches</p> <p>Donor: European Union</p> <p>Executing Agencies: WFP, FAO and IFAD</p> <p>Estimated amount: USD 561,988.50</p> <p>Timeframe: 2021–2024</p>	<p>Project executed in the provinces of Imbabura, Manabí and Azuay by WFP, with the aim of promoting sustainable production, agroecology, empowerment of rural women, inclusive marketing and local governance. It focused on leadership, reducing gender gaps, and access to markets.</p>	<p>Complementarity: The Gender Approach project strengthened the capacities of 1,457 people (62% women) in agroecology, marketing, and leadership. She applied the transformative gender approach methodology and the SNET tool to explore social and behavioral norms (SBCC), generating evidence to promote female leadership, co-responsibility and egalitarian decision-making in local agri-food systems.</p> <p>The proposed new project will: Strengthen community water governance, local climate planning, and resilient livelihoods. It will promote the active participation of at least 50% of women and young people in water boards and decision-making spaces in the 3 prioritized areas.</p> <p>Synergies: WFP's SNET and SBCC methodologies will be adapted to understand and transform social norms related to water use, decision-making and community participation, ensuring the effective inclusion of women in water management and the implementation of adaptation measures to strengthen climate resilience.</p> <p>There is no geographical or thematic overlap, the completed project focused its efforts on strengthening inclusive food systems; The new project will focus its intervention at the level of water basins in the face of prolonged droughts.</p>
<p>Sustainable, resilient and nutritious agri-food systems – "Rice-Duck"</p> <p>-</p> <p>Donor: Government of the People's Republic of China</p> <p>Amount: USD 520,000</p> <p>Term: 2019–2023</p> <p>-</p>	<p>Project implemented by WFP with funding from the Government of China. It was carried out in the provinces of Manabí, Guayas, Los Ríos, El Oro and Loja. He promoted an agroecological model that integrates rice and ducks to control pests and fertilize naturally, reducing agrochemicals and CO2 emissions, improving nutrition and increasing incomes and strengthening food security.</p>	<p>The project benefited 2,445 people (41% women) through agroecological practices and clean production systems.</p> <p>Complementarity: Sustainable agroecological practices were implemented, such as the elimination of the use of agrochemicals, productive diversification and improvement of food security through clean and associative production. It strengthened the organizational capacities of peasant family farming associations.</p> <p>The proposed new project will: Promote restoration with native species, sustainable production and community governance of water in rural contexts affected by water scarcity and climate pressure.</p> <p>Synergies: Methodologies from agroecological production practices and experiences in sustainable and nutritional production can be leveraged to strengthen resilient livelihoods and food security in areas such as San Lorenzo (Manta) and Quiroga (Bolívar).</p> <p>There is no duplication: The previous project had a specific agro-productive approach based on the rice and duck system and has already concluded. The new project will prioritize climate and water adaptation, as well as the strengthening of livelihoods in territories affected by prolonged droughts.</p>

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G. KNOWLEDGE MANAGEMENT AND LEARNING TO CAPTURE AND DISSEMINATE LESSONS LEARNED

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172. The project will develop a knowledge management, communication, and visibility strategy as part of the sustainability strategy that is considered in component 3 of the proposal. The communication and knowledge management strategy aims to strengthen local and institutional capacities through access, use and dissemination of relevant climate information, ensuring that all actors involved understand, participate in and take ownership of the adaptation measures implemented in components 1 and 2.

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173. The World Food Programme (WFP) actively promotes South-South and Triangular Cooperation (SSTC) as a key strategy to facilitate the exchange of knowledge, experiences and practical information between countries facing similar development challenges. Through this modality, WFP acts as a technical facilitator and neutral convener, connecting governments, institutions, and communities to share innovations in food security, climate change adaptation, nutrition, and resilient livelihoods. South-South cooperation enables countries in the global South to co-create solutions, scale up successful practices and adapt them to their local contexts.

~~165-174.~~ The information and knowledge management of the proposal will be transferred to the information management platforms of the Ministry of Environment, Water and Ecological Transition (National Climate Change Registry) and the WFP platforms. On the other hand, document management platforms of sub-national governments (Manabi and Azuay Province) have been identified where the information and knowledge generated by the project could be transferred.

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~~166-175.~~ The first phase is knowledge management, which involves the identification, systematization and dissemination of good practices, lessons learned, technological innovations and methodologies applied in this proposal. Products such as case studies, technical manuals, infographics, and practical guides will be developed, which will be used in training workshops, exchanges of experience and dialogue events between the beneficiaries of the 3 intervention areas. This management will be participatory and inclusive and will seek to strengthen the technical empowerment of local governments, community organizations, and key sectoral actors considered in component 3 of the proposal.

~~167-176.~~ The second phase is capacity building through formal and informal climate education strategies. Priority will be given to the training of community promoters and local technical leaders through educational modules, face-to-face and virtual workshops, and field visits, promoting a mutual learning approach, considered in component 3 of the proposal. Likewise, the creation of learning networks between territories that allow the replication and scaling of successful adaptation solutions will be promoted. The training tools will be contextualized and accessible, with a focus on gender, interculturality and linguistic relevance.

~~168-177.~~ The third phase is focused on communication for development and public awareness, using multichannel campaigns that connect emotionally with communities and make visible the impacts of climate change and nature-based solutions. Audiovisual, radio, and digital materials will be developed that combine scientific evidence with life stories and testimonies of local actors that allow communities to give a voice. This line of action seeks to generate collective awareness, modify perceptions and practices around water management, sustainable land use, conservation, and preparation for extreme events such as droughts.

178. Finally, the strategy will incorporate a system of monitoring, evaluation, and feedback of the processes of knowledge management and communication, with clear indicators to measure the level of appropriation, participation, and use of information. This will allow methodologies to be adjusted, the impact of messages to be strengthened, and to ensure the sustainability of processes beyond the project cycle. Overall, the strategy will be consolidated as a cross-cutting axis that articulates the technical with the social, facilitating visible messages to reach national and international conventions such as the COPs on climate change, biodiversity, and desertification.

TYPE	TOOL	DESCRIPTION	LINK
VISIBILITY	Life stories	Stories and testimonies of project beneficiaries and the impact on their livelihoods	https://es.wfp.org/historias/el-manglar-produce-nuestra-comida-es-nuestra-vida
	Informational Videos	Audiovisual material that compiles progress and testimonies of the implementation of the project	https://www.youtube.com/watch?v=OS_b2Buy4dg
COMMUNICATION / Channels	Publications of the IG-WFP Ecuador account	Official Instagram account of the World Food Programme Ecuador	https://www.instagram.com/wfp_ecuador/
	X-WFP Account Publications	Official account in X of the World Food Program Ecuador	https://x.com/WFP_Ecuador
	Audiovisual material on YouTube PMA-Ecuador	WFP Ecuador's official YouTube account	https://www.youtube.com/@wfpecuador2667

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~~170-179.~~ On the other hand, the implementing agency WFP Ecuador, has a unit for monitoring and evaluating implemented projects and initiatives. Monitoring and evaluation (M&E) are a systematic, technical, and continuous process that allows you to collect, analyze, and use information to measure the performance of your interventions in real time. This system is guided by corporate guidelines and is operationalized through the Corporate Results Framework (CRF), which structures the levels of outputs, results, and expected effects. M&E allows us to observe progress, detect deviations, make timely decisions, and generate evidence for the constant improvement of operations, maintaining high standards of quality, relevance, and accountability. In 2023, 100% of WFP-led evaluations were rated as "satisfactory" or "highly satisfactory", reflecting an effective implementation of the institutional evaluation approach.

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174-180. During implementation, data collection is carried out through field visits, structured surveys, participant interviews, and direct observation. The data collected is disaggregated according to relevant variables such as age, sex, location, or population group, and stored in secure and standardized systems. The MoDA platform allows the information to be georeferenced, facilitating the spatial analysis of the intervention. The collection also incorporates a collaborative perspective, in which implementing partners and local actors are actively involved in data collection and validation. As part of this decentralized approach, 296 consultants were hired for evaluations in 2023, of which 57% were women and 51% came from developing countries, strengthening the diversity and contextualization of the analyses.

172- The analysis of the information is carried out by cross-referencing results with the predefined goals in the monitoring plan. This allows for comparative reporting, early warnings, and analytical visualizations through dashboards that consolidate data from the field. In addition, the system incorporates the Complaints and Feedback Mechanism (CFM), which receives comments, claims, or requests from beneficiaries through calls, text messages or WhatsApp. These cases are registered on platforms such as CRM or SharePoint List, from where they are automatically referred to the corresponding focal points for attention and follow-up. The management of these channels is complemented by a continuous improvement approach: in 2023, 57% of centralized and 69% of decentralized evaluation recommendations were implemented within the planned deadlines.

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H. CONSULTATION PROCESS DURING THE PREPARATION OF THE CONCEPT NOTE

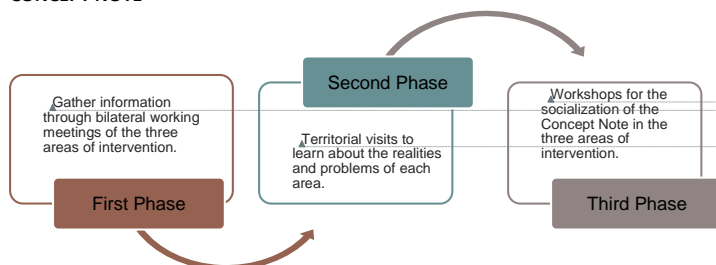


Figure 12. Phases of the socialization process and validation of the Concept Note of the three intervention areas

173-182. The formulation phase of the Concept Note has three phases, a consultative process was developed structured, in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund. This process was led by the Ministry of Environment, Water and Ecological Transition (MAATE), with technical support from the World Food Programme (WFP), and allowed for the identification, validation and prioritization of climate challenges, key actors, adaptation measures

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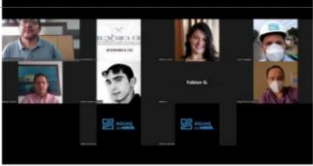
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and associated risks, with special emphasis on the participation of vulnerable groups, women, young people, and people at climate risk.

174-183. The territorial, participatory and multisectoral approach ensured the alignment of the project with the three prioritized Outcomes:

- O1: Use and interpretation of agroclimatic information for local decision-making.
- O2: Increase in adaptive capacity in the face of severe droughts in prioritized areas.
- O3: Strengthening local capacities and articulation for the sustainability of climate investment.

Phase 1 Territorial participatory base line

Dates		Actors	
04/03/2024, 08/03/2024, 19/04/2024 Areas Manabí, Bolívar/Quiroga		Technicians from the Bolívar Mayor's Office, Ministry of Environment, Water and Ecological Transition, Consulting Team, WFP	
23/02/2024, 19/04/2024 Areas Manabí, Manta/San Lorenzo		GAD Manta, Ministry of Environment MAATE, Consulting Team, WFP	
10/01/2024, 09/02/2024 Areas Azuay, Cuenca and Gualaquce		ETAPA, MAATE, WFP	
			

Phase 2 Inter-institutional coordination visits (May-June 2024)Phase 1 Territorial participatory base line.

Dates	Actors	Problems/Needs	Proposed
Areas: Manabí, Bolívar/Quiroga 04/03/2024, 08/03/2024, 19/4/2024	Technicians from the Bolívar Mayor's Office, Ministry of Environment, Water and Ecological Transition, Consulting Team, WFP	Water scarcity and ecosystem degradation	Studies of resilient infrastructure, ecological restoration, agroforestry systems
Areas: Manabí, Manta/San Lorenzo 23/02/2024, 19/4/2024	GAD Manta, Ministry of Environment MAATE, Consulting Team, WFP	Deficit of drinking water and sanitation, pressure on Pacoche	Forest conservation, gallery reclamation, watershed management
Areas: Azuay, Cuenca and Gualaceo 10/01/2024, 09/02/2024	ETAPA, WFP, MAATE	Sedimentation, erosion, lack of weather alerts	Reforestation, technified irrigation, strengthening of monitoring

Phase 2 – Inter-institutional coordination visits (May-June 2024)

Date	Location	Key Players	Validated adaptive measures
11/7/2024	Cuenca / Machángara	Machángara Basin Committee, ETAPA, ELECAUSTRO, Chiquintad Council, MAATE-Azuay, FONAPA, Saucay Association	Implementation of the SMIC with a community approach Technified irrigation system Infiltration terraces and absorption ditches Management Plan for the Machángara Wildlife Refuge - Training for women and young people in climate monitoring
12/7/2024	Gualaceo	GAD Gualaceo, EMAPS GEP, Mancomunidad Collay, Remigio Crespo Water Board, San Francisco River Water Board, Luis Cordero Vega, Water Board Uchucay Water Board, Maylas Foundation,	Strengthening the Watershed Management Committee SMIC and water monitoring green infrastructure and reforestation Agroforestry systems Climate communication plan
16/7/2024	Bolívar/Quiroga	GAD Bolívar, MAATE, WFP	Conservation of recharge areas (La Esperanza dam); Water management legal mechanism; Germplasm bank and seed production centre, Community training in monitoring and decision-making
17/7/2024	Manta / San Lorenzo	local Council, local conseil communities	SMIC and water monitoring, filtering galleries and catchment meshes, Conservation of the Pacoche Forest Inclusion of climatic variables in PDOT; Capacity building of national committees

184. Four field visits were made to the intervention areas to refine the intervention strategy. Municipal authorities, water boards, MAATE technical teams and community representatives participated. This process made it possible to validate local priorities, the predominant climatic threats (drought, erosion, water scarcity) and existing institutional barriers, thus articulating the project's measures with the Development and Territorial Planning Plans (PDyOT), the 2nd NDC and the National Adaptation Plan.

110 direct participants (29 women) were registered, including water boards, basin councils, local governments, and representatives of rural communities.

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Validated adaptive measures
Implementation of the SMIC with a community approach Technified irrigation system Infiltration terraces and absorption ditches Management Plan for the Machángara Wildlife Refuge Training for women and young people in climate monitoring
Strengthening the Watershed Management Committee SMIC and water monitoring green infrastructure and reforestation Agroforestry systems Climate communication plan
Conservation of recharge zones (La Esperanza dam) Water management legal mechanism Germplasm bank and seed production centre, Community training in monitoring and decision- making
SMIC and water monitoring, filtering

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~~175. 110 direct participants (29 women) were registered, including water boards, basin councils, local governments, and representatives of rural communities.~~

~~176. The three Outcomes, priority adaptation measures and social, environmental and gender risks were validated and integrated into the Safeguards Assessment Matrix and Risk Management Plan.~~

~~186. An andragogical and culturally relevant approach was applied, ensuring the inclusion of women heads of household, young people, and rural migrants.~~

~~187. During the preparation of the Concept Note and based on the participatory workshops and the Population and Housing Census (INEC, 2022), it was identified that approximately 100%² of the beneficiary population in the 3 areas of intervention self-identifies approximately as mestizo, 1.77% as indigenous, 0.67% as Afro-descendant and 1.45% as Montubia. mainly in the provinces of Azuay (Cuenca and Gualaceo) and Manabí (Manta and Bolívar). In the design phase of the full proposal (Fully Developed Proposal), priority will be given to the accurate identification and inclusion of the 4.38% of the population with ethnic self-identification, and Free, Prior and Informed Consent (FPIC) will be applied to the mestizo, indigenous, Afro-descendant and Montubia population³, through consultation ⁴processes particularly for the optimal location of the unidentified Subprojects in the 3 areas of intervention.~~

~~188. This approach responds to the Adaptation Fund's principle of promoting participatory and inclusive processes that recognize the differentiated vulnerability of ethnic groups to climate change; In addition, the~~

² The beneficiary population is distributed in 11 rural parishes: Zone 1: Chiquintad and Checa of the Municipality of Cuenca, Luis Cordero Vega, Remigio Crespo Toral, Mariano Moreno, Daniel Córdova Toral of the Municipality of Gualaceo, Zone 2: Calceta, Quiroga and Membrillo of the Municipality of Bolívar. Zone 3: San Lorenzo of the Municipality of Manta. In the 3 prioritized areas, the beneficiary population is 34,539 people, which represents 100% of the target population of the proposal.

³ FPIC is based on Article 8(I) of the Convention on Biological Diversity and Article 530 of the Organic Code of the Social Knowledge Economy. This principle applies to indigenous peoples and local communities, including the mestizo people as holders of traditional knowledge and subjects of rights, considering that this people also has a territorial bond and a differentiated cultural heritage. FPIC will be applied for the optimal location of unidentified subprojects. FPIC is not limited to indigenous peoples alone.

⁴ According to the 2022 Population and Housing Census, the mestizo population is the majority in the intervention areas. However, the detailed design of the proposal will make it possible to identify and consult in a differentiated way the indigenous and Montubio peoples, recognized by the Constitution of Ecuador as ancestral peoples with their own cultural and territorial characteristics.

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application of FPIC ensures that indigenous, Afro-descendant and Montubia communities who suffer disproportionate impacts from the drought and face ethnic-linguistic barriers that limit their access to technical assistance, financing and livelihood strengthening and participate autonomously in the definition, design and localization of adaptation measures. Thus, this mechanism, aligned with Article 57 (7) of the Constitution of Ecuador and Article 530 of the Organic Code of the Social Knowledge Economy, strengthens climate justice through nature- and community-based solutions, building on the successful experiences of the binational project "Building Capacity to Adapt to Climate Change in the Awa and Afro-descendant Peoples" to guarantee the full exercise of their collective rights.

189. This consultative process laid the foundations for a participatory, territorial, inclusive and technical implementation of the project, aligned with the Environmental and Social Safeguards policy of the Adaptation Fund, a mechanism that will be implemented in the design phase of the full proposal (Fully Developed Proposal).

~~2. This consultative process laid the foundations for a participatory, territorial, inclusive and technical implementation of the project, aligned with the Environmental and Social Safeguards policy of the Adaptation Fund.~~

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I. JUSTIFICATION OF THE REQUESTED FINANCING

3. This project proposal responds to local needs defined through meetings and workshops held in the areas of intervention and in technical meetings with the Ministry of Environment, Water and Ecological Transition (MAATE), therefore, it is aligned with national public policies on climate change.

4.190. The implementation of the 3 components proposed to the Adaptation Fund will improve the living conditions of the population most affected by the drought, since they will increase their economic income by increasing the productivity of their crops, through the provision of water and sustainable and agro-biodiverse agricultural practices. Improve their social conditions, since access to information and knowledge will be equitable and priority will be given to young women heads of household, in this way visibility will be given to a forgotten segment of the population. Landscapes and natural ecosystems, which have been deteriorated by their poor management, will be conserved, and restored, this will improve the balance between productive and social systems.

Components / Results / Products	Reference scenario without AF	Additionality with AF
<p>COMPONENT 1: Climate information for effective decision-making</p> <p>OC1. <u>Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems.</u></p> <p>Local communities and governments have used and interpreted the agroclimatic information generated by the local hydrometeorological network to make decisions for their food systems.</p>	<p>There are agroclimatic stations that have stopped transmitting information due to lack of maintenance.</p> <p>There are no local agroclimatic networks that generate information to make informed decisions.</p> <p>The lack of agroclimatic newsletters has caused farmers to make bad decisions when planting and losing their crops.</p> <p>Little or no technical capacities to manage and interpret agroclimatic information has caused farmers to lose their crops and increase their debts.</p>	<p>Through the funding received from the adaptation fund, agro-climatic stations will be repowered and installed to strengthen existing local hydrometeorological networks.</p> <p>Through monitoring rooms, informative materials such as agroclimatic newsletters will be designed to keep the population informed about prolonged droughts.</p> <p>Training and technical assistance will be provided for the interpretation of agroclimatic information.</p>
<p>COMPONENT 2: Local climate risk and implementation of adaptation measures</p> <p>OC2. <u>Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies.</u></p> <p>The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas.</p>	<p>The absence of local climate information has led to poor and inoperative adaptation measures.</p> <p>Prolonged periods of drought have led to the loss of crops and income for farmers.</p> <p>Drought leads to a reduction in the productivity and production of agri-food systems.</p> <p>High temperatures, the absence of rain, the increase in extensive agriculture and the uncontrolled growth of urban areas have caused the degradation of natural ecosystems.</p>	<p>Through the financing of the project by the Adaptation Fund, adaptation measures will be implemented in the sectors of water security, food security and conservation of natural resources.</p> <p>For water security, management actions will be implemented for the storage and distribution of water resources, such as reservoirs, irrigation systems, fog trap nets, among other measures.</p> <p>For the conservation of natural resources, reforestation, restoration, sustainable management of the paramo and tropical rainforest will be implemented to ensure the quantity and quality of water.</p> <p>For food security, measures will be implemented to increase crop production,</p>

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	<p>The absence of preventive measures for the management of river and the increase in the extensive agricultural frontier causes the accumulation of sediments in the lower basins, affecting the flow for power generation in the Paute hydroelectric complex, which has generated economic losses in Ecuador.</p> <p>National climate finance is limited to implement efficient and effective adaptation measures.</p>	<p>resilient seed management, and agro-biodiverse systems.</p>
<p>COMPONENT 3. Strengthening capacities and spaces for articulation as a sustainability strategy.</p> <p>OC3. <u>Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral development planning. Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.</u></p>	<p>Few local and community capacities for the management and development of adaptation measures to cope with prolonged droughts.</p> <p>Weakening of local and community decision-making spaces impede the management of national and international climate finance.</p> <p>Absence of citizen and community participation and empowerment process for the management of actions and measures to reduce the effects of droughts.</p>	<p>The intervention areas will have transparent and efficient decision-making spaces to strengthen the investments that are implemented in the territory.</p> <p>The Adaptation Fund's investment will focus on a capacity-building program, with modules that technicians demand at the local and national levels.</p> <p>Through financing from the Adaptation Fund, there will be a communication strategy that will make visible the results and efficiency of the investment in different national and international spaces such as the COP summit on climate change, biodiversity and desertification.</p>

J. SUSTAINABILITY OF THE PROJECT

5-191. Component 3 of the proposal includes a process of increasing local and community technical capacities, in addition to strengthening spaces for articulation and decision-making for the development of public policies and regulatory frameworks. Similarly, the design of the agroclimatic newsletter and adaptation measures will be designed through participatory workshops and community consultations, for their appropriation and citizen empowerment. These procedures will be part of the technical sustainability strategy to maintain the operability of climate investment over time.

6-192. This strategy coherently integrates the three dimensions of sustainability: environmental, social, and economic, with special emphasis on environmental sustainability as the articulating axis of adaptation actions. In this sense, the implementation of nature-based measures, such as reforestation, ecological restoration, and conservation of strategic ecosystems, which not only contribute to climate resilience, but also strengthen essential ecosystem services, is prioritized. These actions will be carried out through a participatory process, promoting community co-responsibility through *mingas* and collective workdays, which guarantees social appropriation and sustainability over time.

7-193. Likewise, sustainable land management practices are incorporated, such as the control and stabilization of riverbanks, the construction of infiltration terraces and drainage ditches, which will be maintained continuously by the communities themselves. These interventions increase water infiltration and recharge, reducing soil erosion and ensuring the supply of water for human consumption and agro-productive activities, especially in contexts of water stress. By generating tangible environmental benefits and strengthening community

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management of natural resources, these measures ensure a strong ecological foundation for the continuity of climate investment and the long-term sustainability of the project.

~~8-194.~~ From a societal perspective, this project proposal prioritizes strengthening local governance processes through inclusive mechanisms of community consultation and participation in the design and implementation of adaptation measures. The strategy contemplates the development of technical and organizational capacities in key actors in the territory, as well as the production and socialization of accessible materials on agroclimatic information that promote informed and timely decision-making.

~~9-195.~~ In addition, the creation and consolidation of spaces for community and institutional articulation is promoted, aimed at promoting dialogue, territorial planning, and co-responsibility in climate risk management. These actions contribute to social empowerment, community cohesion and the ownership of the measures adopted, ensuring the continuity, scalability, and social sustainability of climate investments beyond the time horizon of the project.

~~10.~~ Similarly, WFP Ecuador has offices deployed nationwide in 22 of Ecuador's 24 provinces and has 9 sub-offices: 5 in the Sierra region (Tulcán, Ibarra, Cuenca, Guaranda, Ambato), 3 in the Coast region (Manta, Guayaquil and Santa Elena) and 1 in the Amazon (Lago Agrio), under a Territorial Coordination. This institutional capacity ensures technical assistance and accompaniment to subnational and community governments in the implementation of the project.

~~11-196.~~ From the dimension of economic sustainability, this proposal prioritizes the valorization of local and ancestral knowledge as a basis for the design and implementation of climate adaptation measures that strengthen local economies. Components 2 and 3 incorporate comprehensive strategies aimed at community empowerment and the strengthening of productive capacities, promoting the exchange of experiences between territories as a mechanism to demonstrate the effectiveness and efficiency of the measures adopted, especially those of low cost and high impact.

~~197.~~ As detailed in section II.C on "Cost-effectiveness", the proposed measures are based on Nature-Based Solutions, allowing for a rigorous assessment of their cost-effectiveness ratio. Through participatory processes of training and citizen consultation — contemplated in component 3 — it is sought to generate appropriation and efficient use of these solutions, maximizing their benefits in agricultural productivity, and in the management, storage, and distribution of water resources. Finally, national, and subnational financial mechanisms (fiscal budgets) will be identified to institutionalize the relevant actions of the project and to be part of the planning and management of subnational governments. Through component 3 and its sustainability and empowerment strategy, processes of institutionalization of the knowledge and information generated by the project will be established, for example, agroclimatic bulletins would be a potential public policy institutionalized in local governments, as part of a service to farmers.

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K. OVERVIEW OF THE ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS IDENTIFIED AS RELEVANT TO THE PROGRAM

13. The proposal is designed to achieve significant environmental, social, and economic benefits. To achieve these ends, one of the strengths is the high degree of empowerment of local and national authorities as well as civil society organizations.

14-198. The proposed adaptation measures will be determined in conjunction with local authorities of sub-national governments, water committees and representatives of civil society organizations (foundations), national and sectional authorities, beneficiary family farming associations and participating institutions, ensuring that they are culturally relevant and attuned to the local needs of each of the prioritized areas.

15. In the design stage of the concept note, environmental and social risks were preliminary assessed under the 15 principles established in the Environmental and Social Policy of the Adaptation Fund. During the full proposal preparation, a full environmental and social risk assessment will be performed, and risk mitigation measures will be designed for the risks identified, in line with the Adaptation Fund's and WFP's social and environmental standards. Potential risks were preliminarily identified along with the need for further assessment.

16-199. A preliminary assessment conducted at the concept note stage has classified the project in Category B.

Environmental and Social Principles	Risk Yes/No	Level	Description of Activity/Intervention Actions to Mitigate Risks Additional Evaluation Required
1- Compliance with the Law	Yes	Low	The project, from its Pre Concept Note phase, demonstrates a solid alignment with national and international regulatory frameworks such as the National Plan for Adaptation to Climate Change, the NDC, the National Irrigation and Drainage Plan, the cantonal PDyOT, municipal ordinances and other sectoral strategies. This normative articulation supports the implementation of the three components: access to climate information (Component 1), green infrastructure and sustainable production systems (Component 2), and local governance and regulations (Component 3). The Ministry of Environment leads environmental compliance and WFP ensures the application of social and gender standards. No further assessment is required at this stage. The risk is low. In the Full Proposal, a detailed regulatory update will be made by territory to guarantee comprehensive compliance and effective application in the areas of intervention.
2- Access and Equity	Yes	Middle	The project ensures equitable access to water, climate information, and adaptive benefits through three components: access to data and O1 capacity building. Use and interpretation of agroclimatic information for local decision making. O2: Increasing adaptive capacity in the face of severe droughts in prioritized areas and O3: Strengthening local capacities and articulation for the sustainability of climate investment. To mitigate risks of inequity , technical and social criteria validated with the community will be applied, solutions with collective impact will be prioritized, and the Community Complaints and Feedback Mechanism (CFM) will be activated. No further assessment is required at this stage , as the risks are manageable and are addressed in the Risk Management Plan included in this proposal.
3- Marginalized and Vulnerable Groups	Yes	Middle	The project recognizes that the impacts of climate change disproportionately affect vulnerable groups, particularly women, youth, people with disabilities, older adults, and isolated rural communities. Through its three components, affirmative actions will be implemented to guarantee their active participation, equitable access to climate information and inclusion in the decisions and benefits of the project. Priority will be given to territories with less access to water and technical capacities will be strengthened with adapted methodologies, promoting gender equity and intercultural governance. The inclusion of 50% of women and young people in planning and execution spaces will be a cross-cutting principle. To mitigate the identified social risks (classified as medium level), participatory technical and social criteria will be applied for the prioritization of territories and selection of beneficiaries, and the WFP CFM Mechanism will be activated. During the Full Proposal phase, an additional assessment will be carried out to further characterise vulnerable groups, identify specific barriers to access and

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			ensure that adaptive measures are implemented without generating unforeseen adverse effects, in coherence with the safeguards, gender and protection policies of the Adaptation Fund and WFP.
4. Human rights	Yes	Low	The project guarantees respect for human rights in accordance with the national and international legal framework. The three components (O1, O2, O3) are executed with a rights-based approach, ensuring equitable access to climate information, fair use of natural resources, and informed participation in water governance. Actions to Mitigate Risks: FPIC will be applied for Unidentified Subprojects (USP), community consultations with an intercultural approach, WFP's CFM and prevention actions against PSEA, in line with the Fund's policies. No additional assessment is required , as the risk is low and active preventive monitoring and response systems are in place.
5. Gender Equality and Women's Empowerment	Yes	Middle	The project integrates the gender approach in a transversal way in its three components. It promotes women's equal participation in access to climate information (O1), their priority inclusion in productive adaptation and water use measures (O2), and their leadership in local governance spaces (O3). These actions are developed by applying the SBCC (Change of Social Norms and Behavior) methodology and principles of co-responsibility. To mitigate risks of exclusion or overload , affirmative actions, training adapted to care responsibilities, indicators disaggregated by sex and age, and culturally relevant PSEA and CFM mechanisms will be applied. An additional evaluation is required . In the Full Proposal, a more in-depth analysis will be carried out to refine empowerment strategies and ensure sustainable positive impacts for women and historically excluded groups. At this stage, a Gender Strategy is annexed.
6. Fundamental Labor Rights	Yes	Low	The project will implement community activities through formal Field-Level Agreements (FLAs), prioritizing the hiring of local labor under decent working conditions, in accordance with national regulations and ILO principles. Actions to Mitigate Risks: Labor clauses will be included in the FLAs, the CFM will be activated, and awareness sessions on PSEA will be held, ensuring that partners and suppliers comply with WFP and Fund labor and protection standards. No further evaluation is required, the risk is low . In the Full Proposal phase, verification and monitoring mechanisms will be detailed to ensure compliance with labor rights.
7. Indigenous Peoples	No	Low	In the four cantons of intervention, 92% of the population self-identifies as mestizo, with indigenous roots in Cuenca and Gualaceo, and a migrant social fabric in San Lorenzo and Quiroga. Although legally recognized indigenous peoples are not identified, the project will apply an intercultural approach and ensure the CCLPI in activities with potential significant impacts such as USPs. No additional evaluation is required in this phase , but in the Full Proposal the socio-territorial characterization will be updated to ensure inclusion and respect for collective and cultural rights.
8. Involuntary resettlement	No	Low	The project activities will be implemented on public or community use land without involving physical or economic displacement. The measures, such as ecological restoration, green infrastructure or irrigation systems will be validated by the community and articulated with the territorial planning instruments Development and Territorial Planning Plan (PDyOT), and the Land Use and Management Plan (PUGS). No further assessment is required , as no resettlements are planned. FPIC and continuous monitoring will be applied during the design of the Unidentified Subprojects (USP) to avoid unforeseen impacts.
9. Protection of Natural Habitats	Yes	Middle	The project contemplates adaptation measures such as reforestation, green infrastructure and sustainable agroforestry systems in rural areas of the prioritized cantons, in order to restore degraded areas and improve water availability in the face of droughts. Actions to Mitigate Risks: Environmental and Social Management Plans (ESMP) will be applied for each intervention, with local validation and technical criteria that prioritize native species, exclude sensitive areas and avoid invasive species. If an Additional Assessment is Required , the Full Proposal will detail an environmental assessment for subprojects not yet located (USP), especially in areas with potential ecological value.
10. Conservation of Biological Diversity	No	Low	The project promotes ecological restoration and reforestation with native species as part of Component 2, contributing to the resilience of ecosystems in the face of prolonged droughts. All actions are aligned with the National Biodiversity Strategy and expressly avoid the use of exotic or genetically modified species. Actions to Mitigate Risks: The species used will be

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			technically validated, prioritizing native varieties adapted to the local context. Invasive species will be excluded and community actors will be trained in ecological restoration and habitat conservation criteria, guaranteeing practices compatible with biodiversity. No further evaluation is required. The project's approach integrates biological conservation principles and sustainable practices from its design. No negative impacts on wild flora or fauna are anticipated.
11. Climate change	No	Low	The three components of the project are designed to strengthen the climate resilience of communities in territories highly exposed to prolonged droughts. Component 1 promotes access to timely climate information through the Climate Information Monitoring System (SMIC) and training processes. Component 2 promotes nature-based measures, such as reforestation, soil restoration, and the construction of green infrastructure for water management. Component 3 promotes local policy frameworks and community participation in community water governance. Actions to mitigate risks: Interventions are designed to reduce climate exposure and social vulnerability. Through the use of native species, ecosystem conservation, territorial planning, and community training, adaptive practices aligned with the Second NDC, the Fifth National Communication, and the National Adaptation Plan are promoted. The actions do not generate significant GHG emissions, nor do they reduce carbon sinks. On the contrary, they strengthen the capacity for local adaptation and the sustainable use of the territory in the three areas of intervention. No further evaluation is required. The activities are expressly designed as adaptation measures, they do not increase vulnerability or negatively affect the climate. They are aligned with national climate policy and the Fund's standards.
12. Pollution prevention and resource efficiency	No	Low	The project promotes green infrastructure and agroecological practices without the use of hazardous substances. The activities are aimed at conserving water, preventing erosion and improving efficiency in the use of natural resources. Actions to Mitigate Risks: Local actors will be trained in responsible environmental management, efficient use of water and pollution prevention, avoiding the use of prohibited inputs and promoting sustainable practices. No, further evaluation is required. The actions are aligned with national regulations and do not present relevant risks of contamination or overuse of resources.
13. Public health	No	Low	The project does not contemplate activities that generate health risks. Its three components promote community well-being, access to safe water, and resilience to extreme weather events. Actions to Mitigate Risks: The works will be subject to environmental management plans with biosafety protocols. Awareness-raising sessions on protection and PSEA will be held in all areas of intervention. No, additional evaluation is required. No direct or indirect risks to public health are identified. Activities are aligned with WFP safety protocols and national regulations.
14. Physical and Cultural Heritage	No	Low	Ecuador ratified the Convention on the Protection of the Cultural and Natural Heritage of Humanity in 1975. In line with this commitment, the project will not intervene in areas with registered cultural heritage or affect archaeological sites. Although the beneficiary population identifies as mestizo, their cultural heritage is recognized and respect for traditional practices will be promoted. Actions to Mitigate Risks: An archaeological verification protocol will be applied prior to the execution of works. If necessary, it will be coordinated with the four municipalities and the National Institute of Cultural Heritage (INPC). In the event of fortuitous findings, the protection procedure established by the INPC will be activated. No additional evaluation is required, the activities were designed outside heritage areas and are in accordance with current national regulations.
15. Soil and Land Conservation	No	Low	The project will not generate negative impacts on soils or water bodies; on the contrary, its approach actively promotes their conservation. Through its three components, measures such as reforestation with native species, green infrastructure (ditches, terraces) and good agroecological practices in degraded areas will be implemented. In addition, local capacities will be strengthened for climate monitoring and sustainable management of the territory, articulated with the Territorial Planning Plans and the PUGS of the four municipalities. Actions to Mitigate Risks: No significant risks are anticipated. The activities promote the restoration of watersheds, the regeneration of soils and the adaptation of sustainable production systems, as an integral part of the technical design of the project. No, an additional evaluation is required: The interventions are aligned

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			with local and national environmental and territorial policies, and will directly contribute to soil conservation and the improvement of its water retention capacity in the face of climate change.
<u>Checklist of Environmental and Social Principles</u>		<u>No further assessment is required for compliance</u>	<u>Potential impacts and risks: further assessment and management is required for compliance</u>
<u>1. Comply with the Law</u>	x		Low risk The proposal demonstrates a strong alignment with national and international regulatory frameworks, such as the National Climate Change Adaptation Plan, the Nationally Determined Contribution (NDC), the National Irrigation and Drainage Plan, the Territorial Development and Land-Use Plans (PDOT), municipal ordinances, and other relevant sectoral strategies. This regulatory articulation supports the implementation of the project's three components: Component 1: generation and use of agroclimatic information for effective decision-making; Component 2: local climate risk management and implementation of adaptation measures; Component 3: capacity building and creation of articulation spaces as a sustainability strategy. The Ministry of Environment, Water, and Ecological Transition (MAATE) will lead and monitor compliance with all national policies, while the World Food Programme (WFP) will ensure the application of social and gender standards. Given that the level of risk has been assessed as low, no further environmental and social assessment is required. However, during the preparation of the Fully Developed Proposal, a territory-specific regulatory update will be carried out to ensure full compliance and effective application of the legal frameworks in the intervention areas.
<u>2. Access and Equity</u>			Medium risk The proposal ensures equitable access to water, climate information, and benefits through three components: C1. Use and interpretation of agroclimatic information for local decision-making; C2: Increased adaptive capacity to severe droughts in prioritized areas; and C3: Strengthening of local capacities and articulation for the sustainability of climate investment. To mitigate equity risks, technical and social criteria validated by the beneficiary population in the three priority areas will be applied, collective-impact solutions will be prioritized, and the Community Feedback Mechanism (CFM) will be activated. Given that the level of risk has been assessed as medium, an additional environmental and social assessment is required in the Fully Developed Proposal to refine effective inclusion mechanisms and ensure equitable access to all project benefits, particularly in the Unidentified Sub-Projects (USP). An Environmental and Social Management Plan (ESMP) will be developed with an intersectional, ethnic, gender, and generational approach.
<u>3. Marginalized and Vulnerable Groups</u>	x		Low risk The proposal addresses the differentiated impacts of climate change on women, youth, people with disabilities, older adults, and remote rural communities. Territories with limited access to water will be prioritized, and capacities will be strengthened using inclusive methodologies, ensuring the effective participation of at least 50% women and youth. Social criteria validated through participatory processes will be applied. Although no risks are anticipated, in the Fully Developed Proposal, the Unidentified Sub-Projects (USPs) will be validated using a participatory approach to ensure that adaptation measures do not generate adverse impacts and comply with the safeguards of the Fund and WFP.
<u>4. Human Rights</u>	x		Low risk The proposal ensures respect for human rights in accordance with national and international legal frameworks, in line with the Constitution of the Republic of Ecuador ¹ , Comprehensive Penal Code ² , Law on Jurisdictional Guarantees and Constitutional Oversight ³ . The three components (O1, O2, O3) will be implemented with a focus on rights, interculturality and cultural relevance, ensuring access to climate and agro-climatic information, green infrastructure, ecological restoration, irrigation systems and fair and equitable water redistribution, strengthening sustainable livelihoods, ecosystem conservation and community water governance. For the validation of the optimal location of the Unidentified Subprojects (USPs), Free, Prior and Informed Consent (FPIC) will be applied through community consultations with cultural relevance so as not to violate human rights or collective rights. The WFP's Community Complaints and Feedback Mechanism (CFM) will be activated as a citizen channel for receiving comments or complaints. During the Fully Developed Proposal formulation process, an Environmental and Social Management Plan (ESMP) will be prepared to verify compliance with safeguards associated with collective rights in indigenous, Afro-descendant and Montubio territories where the Unidentified Subprojects (USPs) may be implemented.
<u>5. Gender Equality and Women's Empowerment</u>			Medium risk 52.28% of the beneficiary population of the proposal are rural women. In areas like Quiroga (Bolívar) and San Lorenzo (Manta), over 70% of women heads of household have no personal income and face high levels of economic dependency. In Bolívar, only 24.6% of the employed population are women, and in San Lorenzo, 73.8% of women do not participate in the labor market due to unpaid care work. These conditions reflect structural exclusion in access to livelihoods, decision-making spaces, and control over water resources. The project will apply affirmative actions to ensure that at least 50% of women and youth have access to: modern irrigation, green infrastructure, agroforestry systems, nurseries, and germplasm banks. WFP-specific training methodologies will be implemented, adapted to their care responsibilities. These actions will be integrated into the Environmental and Social Management Plans (ESMPs) of each Unidentified Sub-Project (USP). Expected outcomes include: (i) increased economic autonomy for women

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		through access to resilient agricultural practices and local employment, (ii) reduction of unpaid care work burden, (iii) strengthening of technical capacities and leadership, (iv) effective inclusion in community structures, and (v) transformation of exclusionary social norms through participatory and intergenerational processes. An additional environmental and social assessment is required in the Fully Developed Proposal, and a mandatory Gender Plan will be developed with specific budget, disaggregated indicators, and active participation of women's organizations. Low risk
<u>6. Fundamental Labor Rights</u>	x _A	The proposal will implement community activities through Field Level Agreements (FLA), prioritizing the hiring of local labor under decent working conditions. Labor clauses will be included in the agreements, the Community Feedback Mechanism (CFM) will be activated, and awareness sessions on Protection from Sexual Exploitation and Abuse (PSEA) will be conducted. These actions aim to ensure that partners and providers comply with the labor standards of the Fund and WFP. Although the risk has been classified as low, in the Fully Developed Proposal phase, verification and monitoring mechanisms will be detailed to ensure effective compliance with these labor conditions, especially in the implementation of the Unidentified Sub-Projects (USPs). Medium risk
<u>7. Indigenous Peoples</u>		During the development of the four participatory workshops, it was identified that 4.38% of the beneficiary population self-identify as indigenous (1.77%), Afro-descendant (0.67%), and Montubio (1.45%) (INEC, 2022), present in the three priority areas of the provinces of Azuay and Manabí. These populations are part of the ancestral peoples protected by the Constitution of Ecuador and international treaties; therefore, the application of Free, Prior and Informed Consent (FPIC) will be mandatory for activities with potential significant impacts, especially in the Unidentified Sub-Projects (USPs). In the Fully Developed Proposal, their characterization will be deepened through culturally appropriate consultations, ensuring their effective participation and respect for their collective rights, cultural practices, and organizational structures. Given that the level of risk has been assessed as medium, an additional environmental and social assessment is required in the Fully Developed Proposal, with a specific evaluation to prevent impacts on fragile habitats and ensure the implementation of mitigation measures through the ESMP for each intervention. Low risk
<u>8. Involuntary Resettlement</u>	x _A	The proposal includes activities such as ecological restoration, green infrastructure, irrigation systems, which will be community-validated and articulated with the Territorial Development and Land-Use Plans (PDyOT) and the Land-Use and Management Plan (PUGS). Free, Prior and Informed Consent (FPIC) will be applied and continuous monitoring will be conducted during the design and implementation of the Unidentified Sub-Projects (USPs) to avoid unforeseen impacts on livelihoods or local settlements. No further environmental and social assessment is required. Medium risk
<u>9. Protection of Natural Habitats</u>		The project includes adaptation measures such as reforestation, green infrastructure, and sustainable agroforestry systems in rural areas within the three prioritized areas, aiming to restore degraded areas and improve water availability in the face of droughts. Environmental and Social Management Plans (ESMPs) will be applied for each intervention, which will be locally validated and will include technical criteria prioritizing the use of native species, excluding environmentally sensitive areas, and preventing the introduction of invasive species. Given that the level of risk has been assessed as medium, in the Fully Developed Proposal phase, a specific environmental assessment will be detailed for the Unidentified Sub-Projects (USPs), particularly in areas with potential ecological value. Likewise, an Environmental and Social Management Plan (ESMP) will be developed to ensure that no USP affects protected areas such as the Pacoche Protected Forest or the Saucay Forest. Low risk
<u>10. Conservation of Biological Diversity</u>	x	The proposal promotes ecological restoration and reforestation with native species as part of Component 2, contributing to ecosystem resilience against prolonged droughts. All actions are aligned with the National Biodiversity Strategy and explicitly avoid the use of exotic or genetically modified species. The species to be used will be technically validated, prioritizing native varieties adapted to the local context. Invasive species will be excluded, and community actors will be trained in ecological restoration criteria and habitat conservation, with an emphasis on incorporating ancestral practices for biodiversity conservation. Given that the level of risk has been classified as low, no further assessment is required. The project's approach integrates principles of biological conservation and sustainable practices from its design. No negative impacts on wildlife or flora are anticipated. Medium risk
<u>11. Climate Change</u>		The three components of the project are designed to strengthen the climate resilience of communities in territories highly exposed to prolonged droughts. Component 1 promotes access to timely climate information through the Climate Information Monitoring System (SMIC) and training processes. Component 2 encourages nature-based measures, such as reforestation, soil restoration, and the construction of green infrastructure for water redistribution. Component 3 promotes local regulatory frameworks and participation in community water governance. The project's interventions are designed to reduce climate exposure and social vulnerability. Through the use of native species, ecosystem conservation, territorial planning, and community training, adaptive practices aligned with the Second NDC, the Fifth National Communication, and the National Adaptation Plan are promoted. The actions do not generate significant GHG emissions

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		<p>or reduce carbon sinks. On the contrary, they strengthen local adaptive capacity and the sustainable use of land in the three priority areas.</p> <p>Given that the level of risk has been assessed as medium, an additional environmental and social assessment is required in the Fully Developed Proposal, which will include a specific climate risk assessment for the USPs, with an emphasis on reducing exposure and increasing community resilience. This analysis will be incorporated into the Environmental and Social Management Plan (ESMP).</p>
12. Pollution prevention and resource efficiency		<p>Medium risk</p> <p>The project promotes green infrastructure and agroecological practices without the use of hazardous substances. Activities are aimed at conserving water, preventing erosion, and improving efficiency in water use.</p> <p>Risk Mitigation Actions: Local actors will be trained in responsible environmental management, efficient water use, and contamination prevention, avoiding the use of prohibited inputs and encouraging sustainable practices.</p> <p>Given that the level of risk has been assessed as medium, an additional environmental and social assessment is required in the Fully Developed Proposal, including procedures in the Environmental and Social Management Plan (ESMP) for waste management, agrochemical control, and training plans on good environmental practices in rural communities.</p>
13. Public health	x _A	<p>Low risk</p> <p>The project does not include activities that pose health risks. Its three components promote community well-being, access to safe water, and resilience to extreme climate events.</p> <p>Risk Mitigation Actions: Civil works related to green infrastructure will be subject to environmental management plans with biosecurity protocols. Given that the level of risk has been classified as low, no further environmental and social assessment is required. No direct or indirect risks to public health have been identified. The activities are aligned with WFP safety protocols and national regulations.</p>
14. Physical and Cultural Heritage	x _A	<p>Low risk</p> <p>Ecuador ratified the Convention for the Protection of the World Cultural and Natural Heritage in 1975. In line with this commitment, the project will not intervene in areas with registered cultural heritage or impact archaeological sites. Although the majority of the beneficiary population self-identifies as mestizo, there is also recognition of indigenous, Afro-descendant, and Montubio communities; therefore, their cultural heritage will be valued, and respect for their traditional practices and knowledge will be promoted.</p> <p>Risk Mitigation Actions: An archaeological verification protocol will be applied before the start of civil works. In the event of chance findings, coordination will be carried out with the four municipalities and the National Institute of Cultural Heritage (INPC), activating the protection procedure established by that institution.</p> <p>Given that the level of risk has been assessed as low, no further environmental and social assessment is required. Activities have been designed outside heritage areas and in accordance with current national regulations.</p>
15. Soil and Land Conservation	x _A	<p>Low risk</p> <p>The project will not generate negative impacts on soils or water bodies; on the contrary, its focus is on their conservation and restoration. Through its three components, measures will be implemented such as reforestation with native species, the establishment of green infrastructure (infiltration ditches, terraces), and the application of good agroecological practices in degraded areas.</p> <p>Additionally, local capacities will be strengthened in climate monitoring, sustainable water management, ecosystem conservation, and resilient livelihoods, with a gender and intercultural approach. These actions will be coordinated with the Territorial Development and Land-Use Plans (PDOT) and the Land-Use and Management Plans (PUGS) of the four involved municipalities.</p> <p>Risk Mitigation Actions: No significant risks have been identified. The project's activities promote watershed restoration, soil regeneration, and the transition to sustainable production systems as an integral part of its technical design.</p> <p>Given that the level of risk has been assessed as low, no further environmental and social assessment is required, as the interventions are aligned with the environmental and social policies of the Fund and the national and local policies in force, directly contributing to improved soil conservation and its water retention capacity in the face of prolonged drought effects.</p>

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PART III: IMPLEMENTATION ARRANGEMENTS

A. Alignment with the Results Framework of the Adaptation Fund

Project objective(s)1	Project Objective Indicator(s)	Fund Results	Fund Performance Indicator	Grant Amount (USD)
OC1. <u>Increased awareness and behavioral change among local communities and governments through the use and interpretation of locally generated agro-climatic information to inform adaptive decision-making in food systems. Local communities and governments have used and interpreted the agro-climatic information generated by the local hydrometeorological network to make decisions for their food systems.</u>	Percentage of beneficiaries who are using and interpreting the climate information generated through the local agroclimatic network.	Outcome 1: Reduced national exposure to climate risks and threats.	Indicator 1: Relevant threat and hazard information generated and disseminated to stakeholders in a timely manner.	\$1,295,860 .00
OC2. <u>Enhanced adaptive capacity and climate-resilient livelihoods among vulnerable populations in drought-prone priority areas, through improved natural asset management and diversified livelihood strategies. The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas</u>	Number of adaptation measures implemented in the areas most affected by droughts.	Outcome 5: Increased resilience of ecosystems in response to climate change and variability-induced stress.	Indicator 5: Ecosystem services and natural assets maintained or enhanced under climate change and variability-induced stress	57,950 85,000.00
		Outcome 6: Livelihoods and sources of income of vulnerable people in the targeted areas diversified and strengthened.	Indicator 6.2: Percentage of the target population with sustainable and climate-resilient livelihoods	
OC3. <u>Improved institutional and technical capacities at local level, and establishment of coordination platforms to support the formulation and integration of climate-resilience strategies and regulatory frameworks into territorial and sectoral</u>	Number of beneficiaries trained, and number of articulation spaces strengthened.	Outcome 7: Improved policies and regulations that promote and implement resilience measures.	Indicator 7.2: specific development strategies with mainstreaming	1,096,523,600 454,0043

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development planning. Local capacities have been strengthened and spaces for articulation for the development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.			climate change priorities	
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Project output1	Project Objective Indicator(s)	Fund Output	Fund output indicator	Grant Amount (USD)
Output 1.1. <u>Local hydrometeorological monitoring networks and climate information platforms enhanced to generate and disseminate timely and locally relevant climate data and bulletins, enabling informed decision-making and community-level risk reduction in response to drought.</u> Strengthened local hydrometeorological networks and climate information platforms, which facilitate the timely generation and dissemination of relevant climate newsletter and data, contributing to informed decision-making and effective management of drought-related risks	Number and type of hydrometeorologic al systems and climate information platforms strengthened or implemented to generate and disseminate drought data and alerts.	Output 1: Risk and vulnerability assessments conducted and updated at the national level	1.2 Development of early warning systems	775470,000. 00
Output 1.2. <u>Strengthened technical capacities of subnational teams in climate data analysis, interpretation, and information management for the delivery of early warning systems and community awareness actions.</u> Technical capacities of the subnational teams, strengthened and improved, on climate analysis and information management for the issuance of early warnings	Number of subnational technicians trained in climate analysis and information management for the issuance of early warnings.			520390,000. 00

Output 2.1 <u>Development of climate risk assessments and cost-benefit analyses for drought adaptation at watershed level, supporting evidence-based planning and enhancing local ownership of climate risk reduction strategies.</u>	Number of climate risk studies and technical strategies developed for drought adaptation in prioritized watersheds.		1.1. Number and type of projects carrying out and updating risk and vulnerability assessments	<u>160</u> 446,000.00
Output 2.2 <u>Design and implementation of an integrated portfolio of nature-based and community-driven adaptation interventions to enhance the resilience of vulnerable natural assets and strengthen climate-adaptive livelihood strategies at the local level.</u>	Number and type of natural and productive assets implemented or improved for water management, soil restoration, and ecosystem adaptation to drought.	Output 5: Vulnerable physical, natural and social assets strengthened in response to the impacts of climate change, including variability.	5.1. Number and type of natural resource assets created, maintained or enhanced to withstand conditions resulting from climate variability and change (by asset type)	<u>52,792</u> 20,000.00 2,325,000.00
<u>Portfolio of adaptation measures to long periods of drought.</u>	Number and type of physical and knowledge assets developed to strengthen the adaptation of agricultural and community livelihoods to climate change.	Output 6: Specific individual and community livelihood strategies strengthened in relation to the impacts of climate change, including variability.	6.1.1. Number and type of adaptation assets (physical and knowledge) created in support of individual adaptation. O community livelihood strategies	
Output 3.1 <u>Strengthen national and subnational technical capacities to integrate climate resilience measures into sectoral policies and development strategies, enhancing adaptive responses to prolonged droughts.</u>	Number and type of technical and institutional capacities strengthened to integrate drought adaptation into territorial management and local and national planning.	Output 7: Improved integration of climate resilience strategies into countries' development plans	7.1. No, type and sector of policies introduced or adapted to address climate change risks	<u>670</u> 94,000.00
Output 3.2 <u>Support the establishment and reinforcement of decision-</u>	Number of strengthened or created local		7.2. No. or specific development strategies	<u>426</u> 429,6400 <u>54,004</u>

making platforms at national and local levels to formulate and implement policies and regulatory frameworks that mainstream climate change priorities and ensure the sustainability of climate-resilient development. Strengthen decision-making spaces at the local and national levels to develop policies and regulatory frameworks that ensure the sustainability of climate investment.	strategies, ordinances and mechanisms that incorporate climate change adaptation priorities and ensure the sustainability of climate investments.		incorporating climate change priorities	
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PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government²

<i>Mr. Angel Sandoval</i> <i>Undersecretary for Climate Change</i> <i>Ministry of Environment, Water and Ecological Transition</i> <i>angel.sandoval@ambiente.gob.ec;</i>	Date: <i>2nd September 2024</i>
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B. Implementing Entity certification

B.

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

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⁶ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Matteo Perrone - Country Director and Representative Ecuador
Implementing Entity Coordinator

Date: 2nd September 2024

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Project Contact Person:
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ADAPTATION FUND

Letter of Endorsement by Government

Date: 6th June 2025

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

Subject: Endorsement for Integrated and Integrated Management of Water Resources in the watersheds prioritized by the National Adaptation Plan of Ecuador

In my capacity as designated authority for the Adaptation Fund in Ecuador, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Ecuador.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project will be implemented by World Food Programme (WFP-Ecuador).

Sincerely,

Mrs. Jessica Gallegos
Undersecretary for Climate Change
Ministry of Environment, Water and Ecological Transition



Revised PFG Submission Form¹
Project Formulation Grant (PFG)

Date of presentation: 10th June 2025

Adaptation Fund Project ID: AF00000413

Country/s: Ecuador

Project/Program Title: Integrated Water Resources Management in the watersheds prioritized by the National Adaptation Plan of Ecuador

Type of EI (NIE/RIE/MIE): Multilateral Implementing Entity

Implementing Entity: World Food Programme

Executing Entity(s): The project will be executed by local NGOs, to be identified during full project preparation. The PFG will be executed by WFP.

One. Project preparation period

PFG Start Date	October, 2025
PFG End Date	April, 2026

B. Proposed activities for the preparation of the project (\$)

List of proposals Project preparation activities	Output of PFG activities	Amount in US\$	Budget note²
Literature review	<ul style="list-style-type: none">• An orderly and systematized documentary archive with all the technical and methodological studies generated by the subnational and national governments.• Documentation of similar studies in the Latin American and Caribbean region	8,000.00	Compilation of climate and technical information generated by subnational and national governments for the development of full proposal

¹ As presented in AFB-PPRC.33/40, annex 1.

² The proposal should include a detailed budget with budget notes indicating the breakdown of costs at the activity level. It must also include a budget on the use of the Executing Entity's management fee.

1.- Local consultations and/or workshops to discuss the specific ideas of the project and the program	<ul style="list-style-type: none"> • Participatory workshops for the socialization of the Concept Note and obtaining information to complete Section III. • Local consultations for the definition of an intervention strategy and development of implementation agreements 	20,000.00	These consultations will allow to define the strategy for the development of Section III of the Full Proposal Implementation Arrangements.
2.- Analysis of environmental and social and gender risks and formulation of the Environmental and Social Management Plan and the Gender Action Plan.	<ul style="list-style-type: none"> • Workshops for updating environmental and social risks. • Analysis of the social, environmental and gender risks of the project. • Preparation and validation of the Environmental and Social Management Plan (ESMP). • Development of the Gender Action Plan 	17,166.33	These activities will ensure that the project complies with Environmental and Social Safeguards and, in turn, support the design of the Gender Action Plan.
4.- Free, prior and informed consent and related consultations when appropriate to ensure compliance with the Environmental and Social Policy.	<ul style="list-style-type: none"> • Socialization workshops for the design of adaptation measures to be proposed in the Full Proposal. • Design of the methodology for Free, Prior and Informed Consent • Technical document containing the entire Free, Prior and Informed Consent process to be included in the Full Proposal 	20,000.00	This proposal proposes to carry out a process of free, prior and informed consent for the design and implementation of adaptation measures, with the purpose of ensuring their appropriation and sustainability of the AF's investment.
6.- Economic and financial analysis for the development of the budget for the proposal	<ul style="list-style-type: none"> • Development of the economic and financial budget for the full proposal. 	10,000.00	This activity will ensure a budget in accordance with local needs and efficient for the optimization of the investment made by the AF.
9.- Consultancies and contracts to develop the Full Proposal	<ul style="list-style-type: none"> • Development and design of the sections for the fully developed proposal. 	40,000.00	A technical consulting team will be hired to develop the full proposal in order to optimize resources and time for its presentation to the AF Board.
Implementing Entity Management fee		9,833.67	Includes direct and indirect support costs of WFP
Total Project Formulation Grant		125,000.00	

Please describe below each of the activities of the PFG and justify its need and the amount of funding required:

Bibliographic review: During the first workshops held in the intervention areas, various technical and methodological studies from previous initiatives were identified. Ecuador's Ministry of the Environment, Water and Ecological Transition has generated relevant information on the impacts of climate change in these areas. In this context, it is considered a priority to collect, review and systematize this information through the creation of a physical and digital archive that consolidates existing documents. This process will allow for the precise identification of required studies and information gaps, thus facilitating the formulation of a portfolio of adaptation measures that adequately respond to local needs.

Local Consultations: A process of socialization of the Concept Note submitted to the Adaptation Fund will be developed. Based on the approved version, local consultations will be carried out aimed at building a consensual intervention strategy and designing territorial implementation agreements. At least 10 consultation workshops are planned: three in each intervention area and one with the Ministry of the Environment. These spaces will ensure the active participation of local actors, allowing the proposed measures to be validated and strengthened.

Analysis of environmental, social and gender risks, and formulation of management plans: At least three specific workshops will be organized to identify, update and validate environmental, social and gender risks related to the implementation of the project. These inputs will be the basis for the formulation of the Environmental and Social Management Plan (ESMP) and the Gender Action Plan (GAP), which will incorporate the gender approach both in the adaptation measures and in the capacity building plan that will be included in the final proposal.

Free, Prior and Informed Consent: In accordance with Ecuador's current legal framework, including the Constitution, any intervention in rural and community territories must be preceded by a free, prior and informed consent (FPIC) process. To this end, at least three participatory workshops will be held to ensure the active inclusion of local and community partners. During these spaces, the adaptation measures contained in the Concept Note will be reviewed, adjusted and collectively approved, which will be expanded and detailed in the Full Proposal. This process will also contribute to greater community ownership and ensure the sustainability of Adaptation Fund investments.

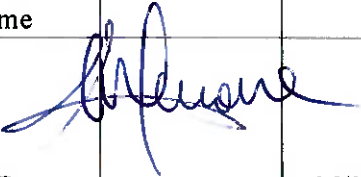
Budget design: A detailed budget will be prepared that includes all the costs associated with the design and implementation of adaptation measures, institutional articulation mechanisms and capacity building, among other actions proposed in the proposal. The process will include a detailed analysis of each expenditure item, which will be initially validated with local and community actors (within the framework of the workshops), and subsequently reviewed to ensure efficiency and transparency in the allocation of resources

Development of the Full Proposal: The formulation of the comprehensive project proposal will incorporate all the essential components required by the Adaptation Fund. First, the specific impacts of climate change and vulnerabilities that the project seeks to address will be identified and characterized, based on scientific information, climate risk assessments, and socio-environmental analyses that support the need for an adaptation intervention. The objectives of the project will be clearly defined and supported by a set of concrete, coherent and results-oriented activities. The participation and representation of key stakeholders, including local communities and vulnerable groups, will be ensured to ensure that the design of the project responds to the real needs, capacities and priorities of the territory. The proposal will contain a detailed budget, broken down by component and activity, as well as a realistic execution schedule to guide implementation. A robust monitoring and evaluation plan will also be incorporated to monitor progress,

measure results, and adjust when necessary to ensure the effectiveness of interventions. A climate, operational and social risk management strategy will also be presented, identifying potential barriers and proposing concrete mitigation measures. Finally, the proposal will fully comply with the technical, environmental and social guidelines established by the Adaptation Fund, to ensure the probability of approval.

C. Executing Entity

This application has been prepared in accordance with the procedures of the Adaptation Fund Board and meets the Adaptation Fund's criteria for project identification and formulation

Implementation Entity Coordinator, IE Name	Signature	Date (Month, Day, Year)	Project Contact Person	Telephone	Email Address
Matteo Perrone		06/02/2025	Diego Guzmán Climate Change and Food Systems Program Officer	+593 998291681	<i>diego.guzman@wfp.org</i>

APPENDIX 2: GENDER ASSESSMENT

Diagnosis and Identified Gaps

The gender analysis carried out during the design phase of the Pre-Concept Note has made it possible to identify structural inequalities that affect women, men, and rural youth differently across the three prioritized zones:

Area 1: Azuay (Cuenca and Gualaceo): According to INEC (2022), between 30% and 40% of the rural population lives in poverty. Many women are left in charge of the household due to male migration, facing an overload of unpaid care work and exclusion from decision-making spaces such as water committees, irrigation boards, and production associations.

Area 2: Manabí (Bolívar): 90% of the rural population lives in poverty. Only 24.6% of the employed population are women. According to INEC (2022), 72.7% of women have no autonomous income and are excluded from community decision-making spaces. Unlike Azuay, this area lacks strong community water governance.

Area 3: Manabí (Manta, San Lorenzo): Only 26.5% of women are employed. Over 73% have no income and are not actively seeking employment due to unpaid care responsibilities. Water scarcity and environmental degradation further aggravate this situation.

These structural gaps significantly limit rural women's access to development benefits, restrict their economic autonomy, and hinder their effective participation in territorial management. In contexts of high climate vulnerability, such as prolonged drought—particularly in areas with limited access to water—these inequalities are exacerbated, increasing women's exposure to risks and perpetuating their exclusion from decision-making spaces, water governance, and the management of their livelihoods.

Objective of the Strategy

Strengthen gender equity and equality and the empowerment of rural women, female heads of household, and youth through their participation in climate change adaptation processes, equitable access to project benefits, and the transformation of exclusionary social norms.

Cross-cutting Application by Components with a Gender Approach

<u>01. Equitable access to agroclimatic information.</u>	Andragogical methodologies with cultural and territorial relevance will be implemented to ensure that rural women, female heads of household, and youth can access training processes using asynchronous formats, accessible schedules, and thematic content delivered in simple and comprehensible language.
<u>02. Effective climate change adaptation measures, strengthening the resilience of vulnerable communities and ecosystems to drought.</u>	Affirmative actions will be implemented to ensure that at least 50% of women and youth benefit from project components such as technified irrigation, green infrastructure, agroforestry systems, germplasm banks, and nurseries. Their inclusion will be supported through care-centered approaches and co-responsibility mechanisms.
<u>03. National and local technical capacities as an effective adaptive response to the impacts of prolonged droughts.</u>	At least 50% participation of women and youth will be ensured in the formation of committees, boards, water user councils, and watershed councils in the three prioritized zones, to ensure that women are actively involved in decision-making processes and their voices are heard in the fair and equitable distribution of water. The formation of community networks composed of at least 50% women and youth will be promoted to support the sustainable management of water and their livelihoods. Gender mainstreaming will be incorporated into ordinances and legal frameworks within the three prioritized zones.

Instruments for the Study of Social and Gender Norms

Below are specific suggestions for mechanisms corresponding to each instrument, with a focus on gender, interculturality, and territorial relevance:

<u>Instrument</u>	<u>Culturally Appropriate Methodologies</u>
<u>Social and Behavior Change Communication (SBCC)</u>	Community-level participatory workshops ensuring equal participation of men and women; intergenerational dialogue spaces to foster the leadership of rural women. Focus groups for reflection on responsible masculinities.
<u>SNET (Social Norms Exploration Tool)</u>	Participatory application of qualitative and quantitative diagnostics to identify prevailing gender norms; development of community power maps; targeted surveys and interviews with women and youth; integration of findings into the planning of adaptation measures.

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Community Feedback and Complaints Mechanism (CFM).	Activation of phone and WhatsApp lines for community feedback and listening; to receive suggestions or complaints for project improvement.
Prevention of Sexual Exploitation and Abuse (PSEA).	In-person sessions with local stakeholders and technical partners to raise awareness and promote culturally relevant messaging on Prevention of Sexual Exploitation and Abuse (PSEA).
Gender-responsive Environmental and Social Management Plans (ESMPs) for the optimal location of Unidentified Sub-Projects (USPs).	Differentiated risk matrix and consultation processes to obtain Free, Prior and Informed Consent (FPIC) with at least 50% participation of women, youth, and female representatives of Indigenous peoples, Afro-Ecuadorians, and Montubios.
Edu-communicational materials.	Audiovisual or radio testimonies, infographics featuring messages of resilience and equity with cultural and territorial relevance.

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The gender analysis carried out as part of the design of the Concept Note has identified structural inequalities that affect women, men, and young people in a differentiated way in the 3 areas of intervention. In Azuay (Cuenca and Gualaceo) and Manabí (Manta and Bolívar), most rural women face exclusion in decision-making on water management, high levels of economic dependence, overload of unpaid work, and limited access to timely and useful climate information. According to data from the 2022 Census, in areas such as Quiroga (Bolívar) and San Lorenzo (Manta), more than 70% of women heads of household do not have access to self-employed income and more than 90% of households are in a situation of multidimensional poverty.

In Component 1, which promotes access to climate information through the Climate Information Monitoring System (SMIC), a differentiated gender and intergenerational approach will be incorporated. Training and dissemination methodologies will be adapted to the dynamics of women's time, prioritizing accessible tools, asynchronous formats, community modules and inclusive languages. The community use of the SMIC will be promoted with emphasis on the productive decisions of women farmers and young people, reducing the gap in access to climate information.

In Component 2, focused on green infrastructure, water redistribution systems, sustainable production and conservation, affirmative actions will be applied to ensure that women heads of household, single mothers and vulnerable small producers have equitable access to the benefits of the project. Restoration, technified irrigation and sustainable soil management activities will incorporate local practices and women's knowledge. The training sessions and content will be designed with a focus on care, respecting the times and knowledge of women and promoting their leadership.

Component 3, which promotes community governance and local regulatory frameworks, will encourage the participation of at least 50% of women and young people in decision-making spaces. Female community leadership and gender-sensitive accountability mechanisms will be articulated. The gender approach will be transversal in the design of ordinances, land use plans and local climate resilience strategies.

As a cross-cutting axis of the project, WFP's SBCC (Social and Behavior Change Communication) strategy will be implemented to transform social norms and behavioral patterns that perpetuate the exclusion of women. This strategy will integrate edu communication materials with an intercultural and gender approach, community dialogues, participatory methodologies, and local testimonies. Co-responsibility in care, equity in decision-making and the full participation of women in adaptation to climate change will be promoted.

In addition, the Complaints and Feedback Mechanism (CFM) will be activated and awareness sessions on Protection against Sexual Exploitation and Abuse (PEAS) will be held with local actors, guaranteeing safe, respectful, and violence-free conditions for the participation of women and vulnerable groups, for which WFP has an expert on the subject who will contribute to the application of these methodologies.

The approach adopted is aligned with the Adaptation Fund's Gender Policy, the WFP and Government of Ecuador Gender and Empowerment Framework (MAATE) and the guidelines of its protection and safeguards policies. During the Full Proposal phase, the analysis will be deepened with disaggregated indicators and the participation of local women's and youth organizations, guaranteeing a comprehensive, transformative, and sustained response to gender gaps in rural areas of Ecuador.

APPENDIX 3. Environmental and Social Risk Management Plan.

Introduction

The ESMP has been prepared for the project "Integrated and Integrated Management of Water Resources in the basins prioritized by the National Adaptation Plan of Ecuador", which will be executed in Azuay, Cuenca and Gualaceo and Manabí, Manta and Bolívar, affected by prolonged droughts. It aims to reduce climate vulnerability through nature-based solutions, green infrastructure, water governance and community strengthening. The ESMP responds to the 15 principles of Environmental and Social Safeguards of the Adaptation Fund (FA).

Key components of the project:

C1. Local communities and governments have used and interpreted the agroclimatic information generated by the local hydrometeorological network to make decisions for nature-based adaptation (restoration, reforestation, irrigation).

C2. The adaptive capacity of the most vulnerable population has increased in periods of severe drought in the prioritized areas.

C3. Development of policies and regulatory frameworks have been created as sustainability strategies for the continuity of climate investment made in the intervened territories.

Identified risks (Category B):

- Exclusion of vulnerable groups.
- Perception of inequality in access to irrigation.
- Slight impacts from physical interventions.
- Limited participation of women.
- Weak institutional sustainability.
- Conflicts due to lack of free, prior, and informed consultation for the optimal location of Unidentified Subprojects (USPs).
- Protection and violence risks (PEAS).

Mitigation measures:

1. Affirmative action (min. 50% participation of women and young people).
2. Community validation for the selection of beneficiaries and location of USP Unidentified Subprojects.
3. Environmental and social management plans by activity.
4. Gender-sensitive training and violence prevention.
5. Technical assistance to local governments for long-term project sustainability.
6. Activation of the Grievance Mechanism (CFM-WFP).

Supervision and monitoring:

- Indicators disaggregated by sex and age.
- Frequency: monthly (CFM and PEAS), quarterly (local coordination), semi-annual (compliance), pre-execution (FPIC).
- Use of the COMET institutional system to follow up and monitor the progress of the project.
- Multi-level and multi-stakeholder governance between WFP, municipalities, partners and beneficiary population.

Estimated costs:

In the pre-concept stage it is not necessary to include a budget, it will be detailed during the design stage of the complete project (Full Proposal).

7. Environmental and Social Risk Management and Supervision Dashboard

Risk: Exclusion of vulnerable groups from project benefits			
Possible negative impact	Monitoring indicator	Methodology, frequency	Responsibility
Persistence of structural gaps, invisibilization of the needs of women, youth, people with disabilities and other rural populations	Number of women strengthened in their community leadership who actively participate in local water governance and climate risk management spaces	Attendance record, lists of participants disaggregated by sex and age Frequency: Semi-annual	WFP Project Technical Unit, in coordination with gender focal points and local governments
Risk: Perception of inequality in access to water resources			
Possible negative impact	Monitoring indicator	Methodology, frequency	Responsibility
Community conflicts, institutional mistrust, resistance to adaptation measures	Number of minutes of coordination meetings between local actors prepared	Minutes of meetings in which various actors participate Frequency: Quarterly	Local Government and Implementing Partners

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