

GEF-8 REQUEST FOR CEO CHILD  
ENDORSEMENT/APPROVAL

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## General Child Project Information

### Child Project Title

Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean (Venezuela)

Region	GEF Project ID
Venezuela	11351
Country(ies)	Type of Project
Venezuela	FSP
GEF Agency(ies)	GEF Agency Project ID
FAO CAF	748210
Project Executing Entity(s)	Project Executing Type
Ministry of Popular Power for Ecosocialism (MINEC), Venezuela Food and Agriculture Organization FAO	Government GEF Agency
GEF Focal Area (s)	Submission Date
Multi Focal Area	2/10/2025
Type of Trust Fund	Project Duration (Months)
GET	60
GEF Project Grant: (a)	Agency Fee(s) Grant: (b)
15,143,432.00	1,362,902.00
PPG Amount: (c)	PPG Agency Fee(s): (d)
300,000.00	26,991.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
16833325	119,154,475.00

### Project Sector (CCM Only)

Mixed & Others

### Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Significant Objective 1	Significant Objective 1	Principal Objective 2	Significant Objective 1

### Project Summary

Provide a brief summary description of the project, to offer a snapshot of what is being proposed. The summary should include: (i) what is the problem and issues to be addressed? ii) as a child project under a program, explain how the description fits in the broader context of the specific program; (iii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. (max. 250 words, approximately 1/2 page)

Venezuela is a megadiverse country, home to the Maracaibo System (MS), which constitutes a complex hydrographic and hydroecological unit that forms part of the Caribbean Large Marine Ecosystem (CLME). It is composed of a set of interconnected brackish and marine water bodies, including Lake Maracaibo (LM), the Maracaibo Strait, El Tablazo Bay, and the Gulf of Venezuela. It is placed in the westernmost part of Venezuela and is a transboundary system, with 17% of its surface located in Colombia.

The MS comprises an extensive network of coastal wetlands with more than 50% of the total mangrove forest of the Venezuela Caribbean coast, it is home of several Caribbean migrant species, also there are endemic and threatened species as well. The MS is of paramount importance due to its biodiversity, and by the ecosystem services that provides to riparian communities, supporting their livelihoods. However, it is affected by pollution associated with rapid urban growth, industrial and petroleum development, and agricultural production practices without integrated planning in the Lake Maracaibo Basin (LMB). The discharge of untreated wastewater, as well as diffuse contributions from agricultural activity, has led to eutrophication and hypoxia in the MS. In fact, the MS has been identified as one of the marine dead zones in the CLME.

The project seeks to address eutrophication and hypoxia in the MS by reducing the flow of nutrients and pollutants from agriproductive activities and untreated wastewater discharges, contributing to the socio-environmental sustainability of the MS and enhancing the environmental benefits of the CLME. It is considered transformative, as it will address the barriers and causes of the problem and promote environmental, social, and economic changes with a gender and intercultural approach.

This project was designed to overcome the outdated and uncoordinated scientific information regarding the environmental condition of the MS with new monitoring strategies and technical tools like mathematical models; the information collected will be organized and systematized in an Information Management System for supporting the decision-making process for environmental planning and implementation of actions. The lack of environmental planning for the sustainable management of the MS will be overcome working with the authorities, communities and all the stakeholders in the design and implementation of strategies for the sanitation of the MS, planning for basin management based on the source to sea (S2S) approach and financial strategies for supporting the sustainable production.

The unsustainable practices that increase nutrient pollution impacting the CLME will be overcome with the implementation of pilot tests based on NbS for wastewater treatment, pilot test for sustainable agriculture incorporating Nature-based Solution (NbS) for nutrient load reduction into the MS, biotrade models for sustainable production of coffee and cocoa and the establishment of Farmer Field Schools to promote the adoption of NbS in productive process. All of these pilot tests and production strategies will be integrated in actions plans for sustainable soil management and are focused on nutrient load reduction from point and diffuse pollution sources with participation of women, communities and indigenous people. Furthermore, these solutions have been designed to be scaled up and replicated within the LMB and to contribute to reducing gender gaps and ensuring the integration of ancestral knowledge.

The actions and strategies outlined will enable the project to achieve significant outcomes. Regional public institutions and communities will have updated information to promote the conservation and sustainable development of the Maracaibo System (MS). Public institutions and grassroots organizations will be strengthened through access to updated data on wastewater generation and treatment in the MS. Local producers, indigenous communities, civil society organizations (CSOs), NGOs, and businesses will benefit from financial incentives to adopt Nature-based Solutions (NbS) that reduce nutrient pollution. Public institutions will promote territorial planning processes that integrate sanitation and productive activities, with a focus on nutrient recycling and reuse. Both institutions and communities will implement NbS as part of wastewater treatment solutions, while local

producers will adopt good practices for the sustainable management of the MS, incorporating NbS approaches. All these efforts will be supported by a knowledge management strategy to disseminate results and facilitate the exchange of lessons learned on NbS, nutrient pollution, and marine hypoxia. The reduction of nutrient pollution and marine hypoxia in the MS will contribute directly to the sustainability of the Caribbean Large Marine Ecosystem (CLME).

Venezuela will contribute to generating global environmental benefits: 40,000 ha of landscapes under improved practices (core indicator -Ci 4); a contribution will be made toward increasing 2,000,000 hectares of marine habitat under improved practices to benefit biodiversity (Ci 5); a reduction in global greenhouse gas emissions, targeting a decrease of 2,180,736 tons of CO<sub>2</sub> equivalent emissions (Ci 6); contributions to the health of the CLME through the improved cooperative management by actively participating in the Clean and Healthy Ocean Integrated Program (CHO IP) (Ci 7). The project will also benefit at least 100,000 residents (50,000 women / 50,000 men, Ci 11) through land-use planning processes, implementation of NbS, wastewater treatment, training in management and communication technologies, monitoring, value chain development, and sustainable financial management, all with a gender and intercultural approach.

This project is part of the CHO IP, whose main goal is to address hypoxic marine areas by halting coastal pollution of agricultural, industrial, and municipal origin through public policies and investments in infrastructure combined with NbS. Therefore, this project will contribute to the objective of the CHO IP by addressing marine hypoxia and halting pollution in the Venezuelan coast of the CLME. Marine hypoxia is a transboundary issue - it is not confined to a single country or a single region, but is a global issue with global impacts. Consequently, a programmatic approach that addresses the identification and implementation of collaborative solutions at global, regional, and national levels is the most effective way to address the problem over the long-term. More information on the rationale for a programmatic approach is given in the Program Framework Document (PFD).

The GEF-8 Clean and Healthy Ocean Integrated Program (CHO IP) targets nitrogen, phosphorus, and organic matter released by agri-food (crops, livestock, poultry and aquaculture) and industrial and municipal systems, as nutrient pollutants generated by these sectors are the primary agents causing harmful algal blooms (HAB) and eutrophication that leads to hypoxia. The overall goal of the CHO IP, to which the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean contributes, is to address marine hypoxic zones by curbing coastal pollution from agriculture, industrial and municipal sources through policy and regulatory measures and infrastructure investments combined with nature-based solutions. The CHO IP consists of 15 Child Projects, 1 Global Coordination Project (GCP) and 14 Country Projects (CP) spanning Latin America, Africa, Asia and the Middle East (Maldives, Thailand, Sri Lanka, Vietnam, Venezuela, Mexico, Trinidad and Tobago, Panama, St. Kitts and Nevis, Grenada, Jordan, Moldova, Peru, Madagascar), which altogether are included within 9 LMEs.

As a participant in the CHO IP, under the overall coordination and support of the Global Coordination Project (GCP), the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will contribute to addressing the issues affecting land-based nutrient pollution and marine hypoxia identified in the programmatic Theory of Change and following the Program Framework Document (PFD). The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean agrees to follow principles that will guide their collaboration on Knowledge Management and Learning (KML), communications, gender and stakeholder engagement, and programmatic coordination and reporting, as well as monitoring and evaluation (M&E). These principles and reporting frameworks will be defined and agreed upon during the Inception phase of the program.

More specifically, the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will contribute to and engage with regional and global learning, help build a resource information base and best management practice archive, strengthen scientific monitoring, shared capacity building efforts such as thematic Communities of Practice and other common activities established by the GCP that link and support action on nutrient pollution and marine hypoxia issues at global, LME, and national levels, and in the process help shape a global network of informed stakeholders and countries concerned with and better equipped to address this critical issue.

As argued in the PFD, participation of the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean in the wider CHO IP, provides additional opportunities and resources not available to the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean itself which will improve the delivery and effectiveness of its results at the national as well as regional and global levels, and deliver impact at a much wider scale than would be possible as a stand-alone project. As a member of the CHO IP, the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean includes a set of standard activities that will link with activities at the regional and global levels, via the Global Coordination Project (GCP), providing greater connectivity and networking between the Program's Child Projects, and enhanced opportunities for awareness raising and knowledge exchange (particularly technical knowledge), stakeholder dialogue and innovation at scale. Furthermore, participation in the Program offers the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean the opportunity to access additional targeted technical capacity not available to the project alone, to enhance achievement of project results, such as support through the GCP to guidance on improving financing for investments that include measures to address nutrient pollution and marine hypoxia and technical capacity on monitoring and tracking of nutrient pollution, hypoxia, and coastal health to promote science-based strategic and adaptive management. Participation in the overall Program will also help ensure that the project's activities fully and meaningfully integrate challenges and opportunities specific to women, youth and Indigenous peoples, employ common messaging and communications tailored for impact.

Involvement in the wider CHO IP will help maximize the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean resources and capacity to facilitate and drive transformational change by cohesively and more effectively addressing hypoxia drivers (e.g., agriculture and municipal/industrial wastewater pollution) at scale.

## Child Project Description Overview

### Project Objective

To address eutrophication and marine hypoxia in the Caribbean Large Marine Ecosystem (CLME) by reducing the flow of nutrients and contaminants to the Maracaibo System (MS) from agroproductive activities and untreated

wastewater discharges, in order to contribute to the socio-environmental sustainability of the marine-coastal area and to increase regional environmental benefits

## Project Components

### Component 1: Strengthening institutional and community capacities for informed decision-making in the integrated management of the MS (TA)

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
3,701,916.00	34,506,479.00

Outcome:

#### Outcome 1.1:

Regional public institutions and communities have updated information with a gender and intercultural approach to promote the conservation and sustainable development of the MS (TA)

#### Outcome 1.2:

Public institutions and grassroots organizations strengthened with updated information on wastewater generation and treatment in the MS (TA)

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Output:

Output 1.1.1:

MS Information Management System established that contributes to the Global GO2DAT System and national platforms (intervention area level 1)

Output 1.1.2:

Socio-Environmental Information Subsystem for Sustainable Planning and Land Management of the MS developed (intervention area level 1)

Output 1.1.3:

Information Subsystem on nutrients, and the quantity and quality of water in fluvial, lacustrine and marine environments within the MS implemented (intervention area level 1)

Output 1.1.4:

Environmental Risk Management Subsystem to promote sustainability and resilience in the MS developed (intervention area level 2)

Output 1.2.1:

WWTPs in the MS characterized to support a sanitation plan (intervention area level 1)

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## Component 2: Strengthening the public policy framework to encourage and finance actions that mitigate the problems of eutrophication and hypoxia in the CLME

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
3,218,645.00	24,973,690.00

Outcome:

Outcome 2.1:

Local producers, indigenous communities, CSOs, NGOs, and businesses have financial incentives to adopt Nature-based Solutions (NbS) to reduce nutrient contamination (INV)

*Core indicator 5: 2,000,000 ha of area of marine habitat under improved practices to benefit biodiversity resulting from interventions aimed at reducing nutrient pollution, improving water quality, and enhancing ecosystem resilience.*

*Core indicator 5.2: Caribbean large marine ecosystem with reduced pollution and hypoxia.*

*Core indicator 11: 100,000 direct beneficiaries (50,000 women, 50,000 men).*

Outcome 2.2:

Public institutions promote territorial planning processes that include sanitation and productive activities, considering nutrient recycling and reuse (TA)

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Output:

Output 2.1.1:

Strategy on financial Instruments to promote the adoption of nature-based solutions (NbS) in the productive systems of the southern lake region developed (intervention area level 3)

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Output 2.1.2:

Community-based savings and credit system with a gender and interculturality approach implemented to promote resilience and sustainable production (intervention area level 3)

Output 2.1.3:

Pilot projects on sustainable production with female leadership and an intercultural approach, implemented and financed through community savings and credit groups (intervention area level 3)

Output 2.2.1:

Land Use Planning and Regulation Plans (PORU) for the Chama and Escalante rivers sub-basins designed, incorporating guidelines for the implementation of NbS in production systems, nutrient management, and integrated pest management (intervention area level 2)

Output 2.2.2:

Environmental Sanitation Plan for the MS with an emphasis on nutrient reduction and the rehabilitation and management of WWTPs designed (intervention area level 1)

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### Component 3: Implementation of innovative models and practices to mitigate pollution and marine hypoxia in the MS, strengthening livelihoods and food security (INV)

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
5,812,989.00	42,154,035.00

Outcome:

Outcome 3.1:

Public institutions and organized communities implement NbS as part of the solutions for wastewater treatment (INV)

Outcome 3.2:

Good practices implemented by local producers for the sustainable management of the MS incorporating NbS (INV)

Indicators

*Core indicator 4.1: At least 10,000 hectares of the mangrove forests of Lake Maracaibo under improved management.*

*Core indicator 4.3: At least 20,000 hectares under sustainable soil management in agricultural production areas located in the intramontane valleys of the upper and middle basins of the Andean region that drain into Lake Maracaibo (intervention level 2.1).*

*At least 10,000 hectares under sustainable soil management in agricultural and livestock production areas in the Andean foothills and the southern lake plain (intervention level 2.2) (Core indicator 4.3)*

*Core indicator 6.1: Greenhouse gases sequestered or emissions avoided in the agricultural, forestry, and other land use sectors and in treatment systems (metric tons of CO<sub>2</sub>-e) at least 2,180,736 (tCO<sub>2</sub>-e).*

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Output:

Output 3.1.1:

Pilot tests with NbS implemented for wastewater treatment (intervention area level 3)

Output 3.2.1:

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Pilot tests for sustainable agriculture incorporating NbS for nutrient load reduction into the MS (intervention area level 3).

Output 3.2.2:

Farmer Fields Schools (FFS) established, to promote the adoption of NbS in productive processes with a gender and intercultural approach (intervention area level 3).

Output 3.2.3:

Biobrade models developed in agricultural production areas, mainly for coffee and cocoa, promoting sustainable production practices with a gender and intercultural approach (intervention area level 3).

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## Component 4: Knowledge Management and Learning (KML) and Monitoring and Evaluation with a gender and intercultural approach

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,191,633.00	8,970,271.00

Outcome:

Outcome 4.1:

Stakeholders across sectors and levels apply knowledge management strategies with a gender and intercultural approach to disseminate results, exchange lessons learned, and scale up innovative solutions to address nutrient pollution, marine hypoxia, and implement NbS

Outcome 4.2:

Established coordination mechanisms with the GCP ensure that the project results contribute to the global objectives of the CHO IP

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Output:

Output 4.1.1:

Mechanisms Implemented for knowledge management and the exchange of best practices and lessons learned with a gender and interculturality approach, aligned with the CHO IP.

Output 4.2.1:

Regular submission of project reports to the GCP contributes to the effective implementation of the CHO IP's M&E strategy.

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## M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
497,134.00	2,592,275.25

Outcome:

Monitoring and Evaluation (M&E)

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Output:

Outcome 4.3.1: Project implementation is supported by a Monitoring and Evaluation System with a gender and intercultural approach based on measurable and verifiable results through adaptive management

Output 4.3.2: Independent mid-term and final reviews are conducted to inform project implementation through an adaptive management approach

## Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
Component 1: Strengthening institutional and community capacities for informed decision-making in the integrated management of the MS (TA)	3,701,916.00	34,506,479.00
Component 2: Strengthening the public policy framework to encourage and finance actions that mitigate the problems of eutrophication and hypoxia in the CLME	3,218,645.00	24,973,690.00
Component 3: Implementation of innovative models and practices to mitigate pollution and marine hypoxia in the MS, strengthening livelihoods and food security (INV)	5,812,989.00	42,154,035.00
Component 4: Knowledge Management and Learning (KML) and Monitoring and Evaluation with a gender and intercultural approach	1,191,633.00	8,970,271.00
M&E	497,134.00	2,592,275.25
<b>Subtotal</b>	<b>14,422,317.00</b>	<b>113,196,750.25</b>
Project Management Cost	721,115.00	5,957,724.75
<b>Total Project Cost (\$)</b>	<b>15,143,432.00</b>	<b>119,154,475.00</b>

Please provide Justification

### CHILD PROJECT OUTLINE

#### A. PROJECT RATIONALE

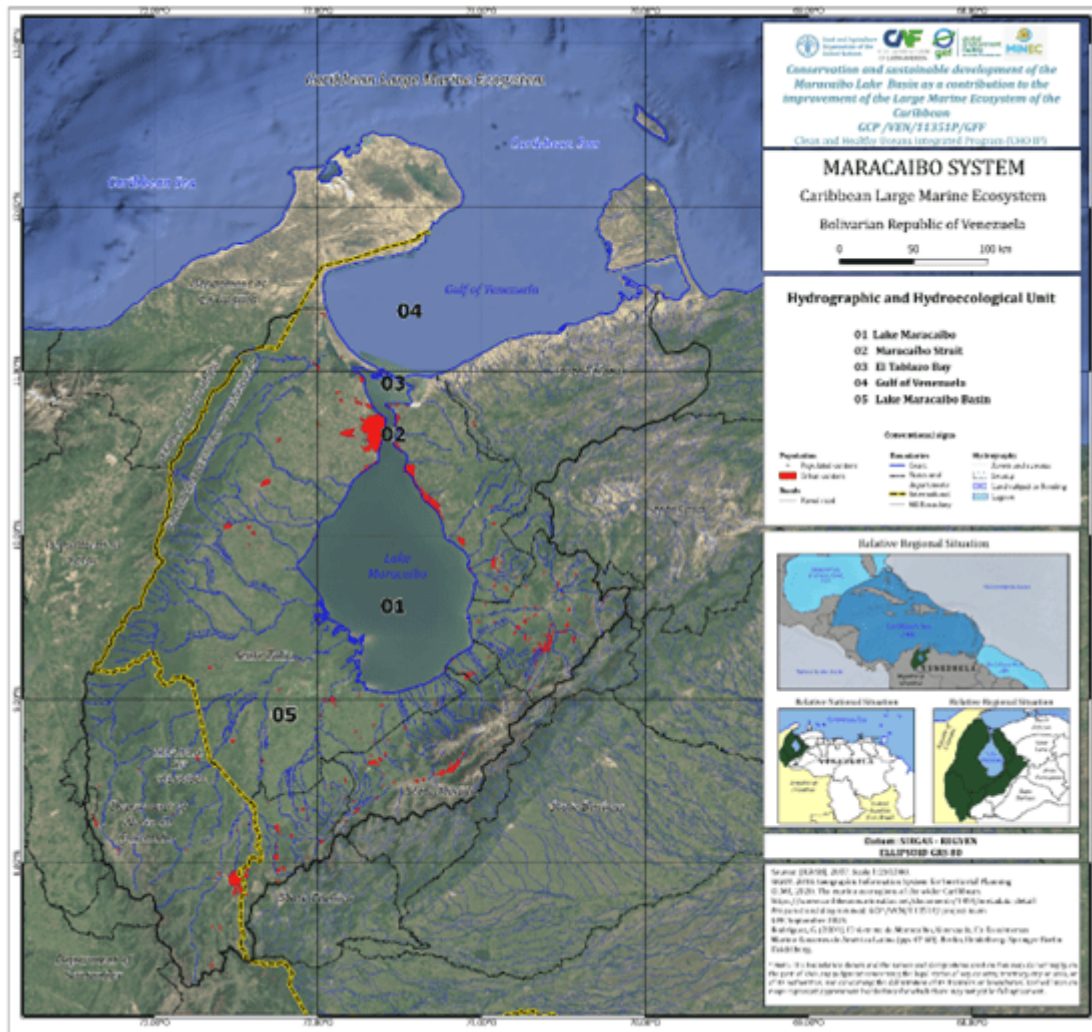
Describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Since this is a child project under a program, please include an explanation of how the context fits within the specific program agenda. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

The Bolivarian Republic of Venezuela is located on the northern coast of South America, with a projected population of 34,090,650 for the year 2024 according to the national statistics authority (INE, for its acronym in Spanish). It sits at the intersection of the Andean, Amazonian, Caribbean, and Guiana biogeographical regions. The country's flora and fauna species diversity are among the richest in the world, making it one of the 17 megadiverse countries globally (Huérffano, Fedón & Mostacero, 2020). This is due to its wide variety of ecosystems, climates, and natural regions. In the

Andean regions (Andean Mountain Range and Sierra de Perijá), the Coastal Range, and the Guiana region, there are high levels of endemism among birds, mammals, invertebrates, and vascular plants.

The Maracaibo System (MS) constitutes a complex hydrographic and hydroecological unit that forms part of the Caribbean Large Marine Ecosystem (CLME). It is composed of a set of interconnected brackish water bodies, including Lake Maracaibo (LM), the Maracaibo Strait, El Tablazo Bay, and the Gulf of Venezuela. It is placed in the westernmost part of Venezuela and is a transboundary system, with 17% of its surface located in Colombia (Figure 1).

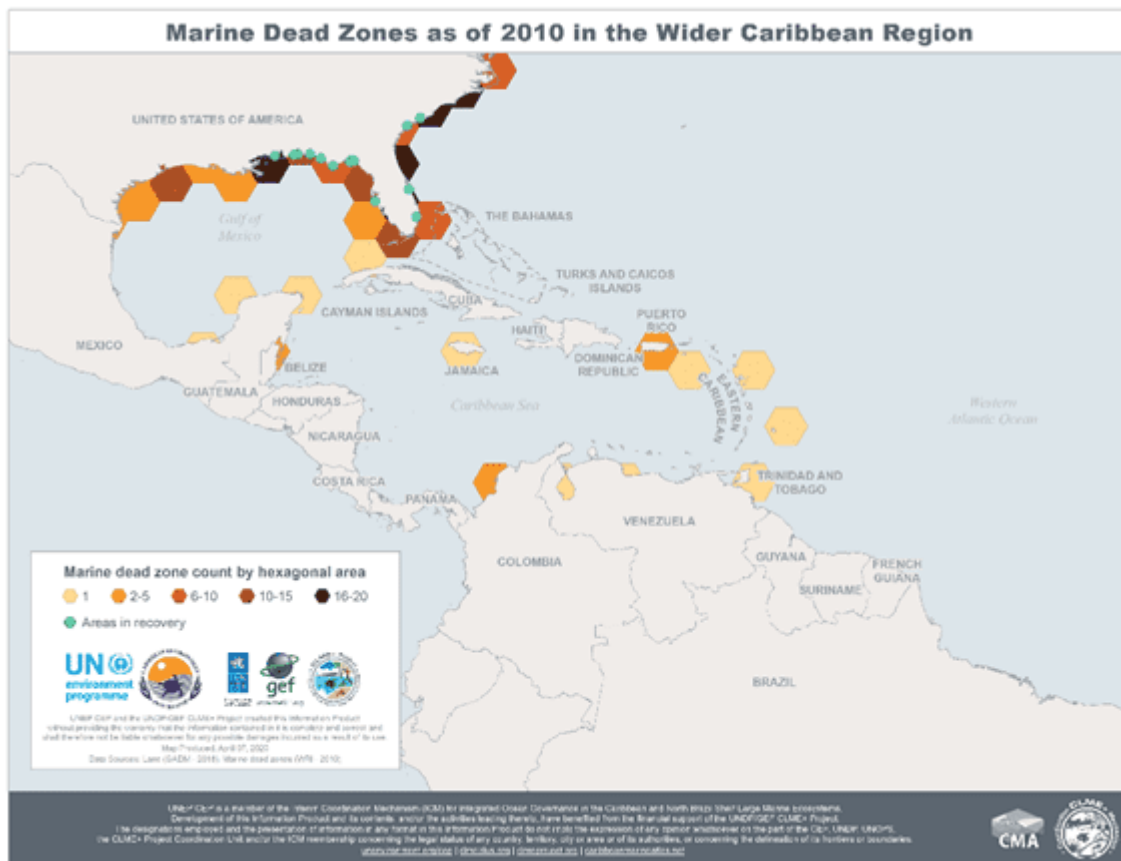
**Figure 1. Maracaibo System, is composed of a set of interconnected brackish water bodies, including Lake Maracaibo, the Maracaibo Strait, El Tablazo Bay and the Gulf of Venezuela.**



The MS constitutes one of the most significant sources of freshwater, nutrients, and sediments flowing into the western Caribbean. Through the navigation channel and other coastal fluxes, the system's contributions directly influence the environmental quality of adjacent marine zones, affecting key ecological processes such as primary productivity, marine population dynamics, and biodiversity patterns. The combination of factors related to topography, winds, rivers discharge and tides generates in the LM water currents follow a counter-clockwise patterns, due to winds and the water discharge of the main tributary, while in the Gulf of Venezuela, a cyclonic circulation occurs in the western part, and anticyclonic circulation on the south-east (Rodríguez, 1999). Between the LM and the Gulf of Venezuela there is a water exchange, connecting the lake with the Caribbean Sea, results in significant ecological interdependencies. This linkage means that the ecological health of LM and its watershed has profound repercussions on the state of the CLME, particularly in its southwestern section (Figure 2) (Blazquez Gómez et al., 2017; CLME+ Project, 2020).

**Figure 2. Location of the Maracaibo System in the Large Caribbean Marine Ecosystem. The figure illustrates the location of the CLME with the MS, highlighting in green the Maracaibo**





Marine hypoxia is a transboundary issue - it is not confined to a single country or a single region, but is a global issue with global impacts. Consequently, a programmatic approach that addresses the identification and implementation of collaborative solutions at global, regional, and national levels is the most effective way to address the problem over the long-term. More information on the rationale for a programmatic approach is given in the Program Framework Document (PFD).

The MS constitutes a representative territory of the CLME, due to its biodiversity and the environmental problems associated with eutrophication and marine hypoxia. Agricultural, industrial, and urban activities generate nutrient and pollutant fluxes that, when transported into the Caribbean, contribute to eutrophication, loss of coastal habitats, and decline of fish populations, affecting both local ecosystems and regional-scale ecosystem services (Rabalís, et al., 2013; Ledo et al., 2023).

The MS has an extensive network of wetlands, which due to their salinity conditions, are habitat to more than 28,000 ha of mangrove forests. It generates diverse ecosystem services, which support community economic activities such as fishing and tourism. Some of these wetlands are considered sites of high cultural and traditional values to local indigenous communities, like lagoon Sinamaica, a marine-coastal wetland in the Gulf of Venezuela. Regarding biodiversity, examples of relevant wetlands include Las Ciénagas de Juan Manuel (227,795 ha) and La Ciénaga de Los Olivitos (26,000 ha), both declared protected areas, the latter designated as a RAMSAR site.

The marine-coastal wetland Ciénaga de Los Olivitos is also a Wildlife Refuge and Fishing Reserve; It is placed in the Tablazo Bay and among its wildlife includes more than 200 species of vertebrates, some of them are endangered; 69 fish species, some of them migrate around the CLME; more than 100 birds' species, including 29 migrant birds. A relevant example of migrant bird is the flamingo *Phoenicopterus ruber*, the Ciénaga de Los Olivitos is its only nesting site in Venezuela and one of the few in the Caribbean (BirdLife International, 2023).

Wetlands and its associated mangroves in the MS have been impacted by human activities in the basin: agriculture, industrial production and municipal activities. About 42% of mangroves forest in the MS has been lost between

2010-2021; also, these wetlands have been affected by wastewater discharge and its ecological condition requires restoration actions (FAO y MINEC, 2023; Medina and Barboza, 2006; Klein and Yereña, 2008).

The main source of impacts in the MS come from human intervention in LMB, it has led to nutrient and organic pollution in the MS. As a consequence, there is a eutrophication process and anoxic conditions in the MS. The environmental quality of the MS has been affected by pollution associated with rapid urban growth, industrial development, the oil industry, and uncoordinated agricultural and livestock production practices. Additionally, there are limitations in the disposal of solid waste and untreated domestic wastewater discharges. As a result, nutrient pollution from both point and diffuse sources is deteriorating water quality in the basin.

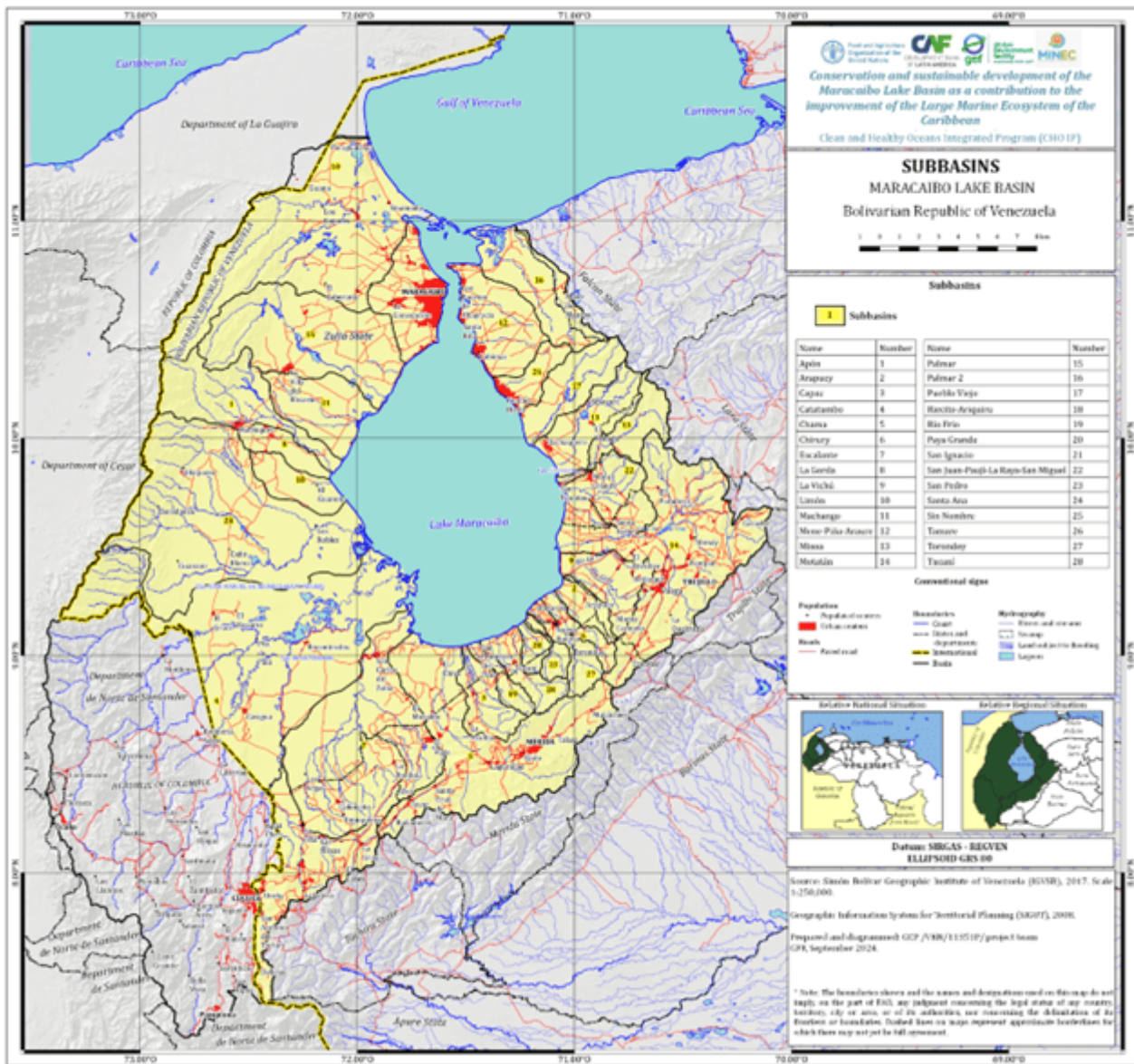
This has resulted in eutrophication and hypoxia in Lake Maracaibo and has generated a contaminant plume that extends into the Caribbean Sea, directly affecting the environmental quality and ecological balance of the marine ecosystem as a whole. Furthermore, eutrophication in LM is evidenced by frequent blooms of cyanobacteria and the aquatic plant *Lemna minor* (Rincón and Mejía, 2013; ACFIMAN, 2024). If this trend continues, pollution levels would increase, exacerbating negative impacts on ecosystems and the coastal economy due to decreased fishing and tourism activities.

In this context, the project aims to address eutrophication and marine hypoxia in the Caribbean Large Marine Ecosystem (CLME) by reducing the flow of nutrients and contaminants to the Maracaibo System (MS) from agriproductive activities and untreated wastewater discharges, in order to contribute to the socio-environmental sustainability of the coastal watershed and enhance regional environmental benefits. This objective is aligned with the guidelines of the GEF-8 Clean and Healthy Ocean Integrated Program (CHO IP), which targets nitrogen, phosphorus, and organic matter released by agri-food (crops, livestock, poultry and aquaculture) and industrial and municipal systems, as nutrient pollutants generated by these sectors are the primary agents causing harmful algal blooms (HAB) and eutrophication that leads to hypoxia.

The overall goal of the CHO IP, to which this project belongs, is to address marine hypoxic zones by curbing coastal pollution from agriculture, industrial and municipal sources through policy and regulatory measures and infrastructure investments combined with nature-based solutions. The project Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean, was formulated in alignment with the program's theory of change to address eutrophication and hypoxia issues.

The LMB consists of a hydrological system with over 130 waterways, including 12 main sub-basins that contribute 90% of the estimated total runoff. These sub-basins include the Catatumbo, Escalante, Chama, Capaz, San Pedro, Torondoy, Motatán, Pueblo Viejo, Limón, Palmar, Apón, and Santa Ana rivers. The Catatumbo sub-basin has 60% of its area in Colombia, primarily in the Norte de Santander department, with a population of 1,551,994 in the Colombian territory, representing 96% of the department's total population (DANE, 2018). This sub-basin contributes nearly 70% of the water flowing into the lake (Figure 4).

**Figure 4. Sub-basin System of Lake Maracaibo**



The basin's average annual precipitation is 1,349 mm, based on the historical data (1970-2000), with a north-south gradient: in the north (Maracaibo), the average temperature is 29°C, and the annual precipitation is about 500 mm, whereas in the southern plains (Santa Bárbara), temperatures range from 27-28°C, and rainfall can exceed 2,000 mm (Medina and Barboza, 2003, 2006; Silva, 2002, 2010). The LMB has an average flow rate of 1,616 m<sup>3</sup>/s (DHI, 2014), with flow variability ranging from 0.3 to 2.7 times depending on contributions during dry periods (January-March) and peak periods (October-November) (Findikakis et al., 2001; Laval et al., 2005). Moreover, according to the data base included in the Water Balance Living Atlas (ESRI), during the period 2000-2024 the basin's average annual precipitation is 1931 mm and the average annual runoff is 1610 m<sup>3</sup>/s. These seasonal changes are exacerbated by climate change and climate variability. In the southern region of the lake, floods frequently occur, significantly impacting its inhabitants and livelihoods, primarily agricultural and livestock activities (Rincón, 2017).

The total population of the LMB is approximately 7,500,000 people, with 80% of this population located in Venezuelan territory, making it one of the most densely populated basins in Venezuela (UCAB, 2021). Zulia is the state with the largest area and population within the basin, representing 64% of the total LMB population in Venezuela, approximately 3,833,935 people.

The LMB encompasses a rich diversity of geographical regions and physiographic units that define its territory (Figure 5). These include the Andean Region, characterized by mountains and intramontane valleys with intensive agricultural systems; the Continental Coastal Region, defined by alluvial plains; and the Western and Eastern Lake Coasts, featuring lacustrine soils and predominantly livestock activities. The Serranía de Perijá

Region is notable for its mountainous systems and unique biodiversity, while the Lara-Falcón Low Hills and Ridges Region is characterized by gentle undulations and semi-arid lands used for subsistence agriculture. Finally, the Southern Lake Maracaibo Region, with extensive alluvial plains and piedmont areas, is the epicenter of agricultural and livestock production, dominated by tropical crops such as plantains, oil palms, and fruits, positioning it as a key productive hub for the basin's socioeconomic development.

Fishing and aquaculture in LM are also fundamental activities for the livelihoods of thousands of families in the MS, sustaining a major local economy based on artisanal catches of species such as manamana (*Potamorhina laticeps*), bocachico (*Prochilodus reticulatus*), curvina (*Cynoscion spp.*), catfish (*Siluriformes*), shrimp (*Litopenaeus schmitti*), and blue crab (*Callinectes sapidus*), as well as the growing aquaculture development of the shrimp industry. In artisanal fisheries, women play a key role, particularly in the processing of blue crab. However, overexploitation of resources, the use of non-selective fishing gear, pollution from oil spills and plastics, along with saltwater intrusion and hydrological changes, affect aquatic ecosystem productivity and sustainability, impact fisheries, and harm communities dependent on fishing ( Villasmil & Mendoza, 2001; Molina and Mejías, 2019).

Agricultural and livestock production is present in 80% of the municipalities within the basin, spanning from the lacustrine plains to the Andean mountains. However, the Southern Lake region stands out as the most significant spatial unit due to its size, productivity, and demand for agricultural inputs, hosting the largest cultivated area and accounting for over 60% of the basin's fertilizer demand, followed by the Andean region.

The Southern Lake region is subdivided into two main areas: the Andean-Lacustrine Piedmont and the Southern Lake Alluvial Plain, each with distinct productive dynamics and nutrient contributions. In the Andean-Lacustrine Piedmont, fertile soils support commercial crops such as cocoa, avocado, banana, citrus fruits, and tropical fruits. Cocoa, renowned for its high quality, comprises more than half of Venezuela's fine aromatic cocoa varieties, representing a strategic opportunity for implementing agroforestry systems that enhance soil health, carbon sequestration, and other ecosystem services. However, crops like bananas place significant pressure on resources, with an estimated annual fertilizer demand of 8,000 tons.

**Figure 5. Geographical regions, Lake Maracaibo basin. (Attached due to capacity system limits)**

In the Southern Lake Plain, tropical crops such as plantains, oil palms, and fruits (passion fruit, guava, papaya, and citrus) are combined with livestock activities (buffalo and cattle) for milk and meat production. These activities are fundamental to the Venezuelan dairy industry and involve small, medium, and large producers. Pastures for livestock production commonly use urea fertilization and herbicides. Additionally, livestock activities contribute to greenhouse gas emissions and organic and mineral waste that flow into water bodies. The crops with the highest fertilizer demand are oil palm (65,000 ha) and plantain (29,000 ha), with annual demands of 38,038 tons and 29,000 tons, respectively.

In the agricultural areas of the Andean region, which include high mountain zones such as the Andean páramos and intramontane valleys, short-cycle crops like potatoes, carrots, and high-altitude vegetables are concentrated. These are cultivated in small production units, mostly family-owned plots of less than five hectares, supplying the national market with a demand of 26,000 metric tons of fertilizers annually. While these productive systems are economically significant, they are associated with soil contamination, water pollution, and risks of farmer intoxication due to the intensive use of pesticides and other agrochemicals (Molina, 2012; Flores-García et al., 2011; Molina-Morales et al., 2012; Marín et al., 2022).

In the transition to the mid-mountain zone, there is a coffee-growing area of approximately 60,000 hectares, which requires 45,000 metric tons of inorganic fertilizers annually and exhibits agricultural practices in need of sustainability improvements. Additionally, dairy cattle farming is practiced in these areas, which, while using fewer fertilizers, applies herbicides and ivermectin in its management. Mid-altitude vegetables such as tomatoes, bell peppers, and onions hold significant economic importance in the area, with large amounts of fertilizers and agrochemicals used in their production.

Considering this, it is estimated that more than 70% of the total nitrogen (Nt) and total phosphorus (Pt) nutrient load entering the lake is directly or indirectly attributable to agricultural activities (Castellanos, 2024). State-

subsidized fertilizers since the 1970s promoted excessive use without technical guidance and with limitations in productivity. Therefore, it is required to improve fertilization programs, taking into account innovative options like fertigation and bio-fertilizers (Solórzano, 2022):

Nonetheless, the region also benefits from initiatives such as the laboratory network of the National Institute of Comprehensive Agricultural Health (INSAI) and experiences with bio-input use, offering opportunities to strengthen nutrient management and the sustainability of productive activities. These characteristics make the South of the Lake region and the Andean region a priority spatial unit for designing project activities that aim to implement tailored practices based on the dynamics of each subregion.

Currently, the MS is equipped with at least 52 industrial and municipal wastewater treatment plants (WWTPs) employing various treatment technologies, predominantly lagoon systems without mechanical aeration, which are not designed for nutrient removal. The installed treatment capacity of municipal systems exceeds 7,000 liters per second (Hidrolago Engineering Management, 2023). However, less than 5% of this capacity is currently operational. Efforts to reverse this situation have been undertaken by Water and Sanitation Utility of Zulia State (HIDROLAGO) and the Ministry for Water Management (MINAGUAS), with partial rehabilitation of some WWTPs, most notably the “Planta Sur” and “El Switche” plants in the municipalities of Maracaibo and Cabimas, respectively. These efforts have increased treatment capacity to about 30%, though still without nutrient removal capabilities due to the use of lagoon systems without aeration.

By 2011, 43% of the MS's wastewater treatment plants were operational, 32% were partially operational due to lack of maintenance, and 25% were nonfunctional due to advanced deterioration (Corona-Lisboa, 2013). Currently, the sanitation infrastructure has deteriorated further compared to the conditions described in that study. With an average production of 210 liters per person per day of wastewater, it is estimated that the current wastewater production in the Venezuelan portion of the basin is approximately 14,500 liters per second. This implies that the installed treatment capacity would only cover 48% of the wastewater. This highlights the significant effort required to increase wastewater treatment coverage in the MS, as well as the need to incorporate technologies for nutrient removal, supported by a sanitation plan tailored to the basin's characteristics.

Finally, oil activities are extensive within the lake and along the northeastern coast, where there are hundreds of oil wells and processing and refining centers, including the Bajo Grande Refinery (Rodríguez-Olarte et al., 2018; Machado-Allison, 2017) (Figure 6). The construction of the navigation channel in the Maracaibo Strait to facilitate the entry of oil tankers from the Caribbean Sea into the lake, carried out in several stages between 1935 and 1962, altered the balance between the lake's freshwater and the salty waters of the gulf, introducing a salt wedge that caused lake stratification. This process limited vertical mixing in the lake, contributing to the formation of an anoxic, saline hypolimnetic cone in the lake's center, with high concentrations of nitrogen and phosphorus. The impact of the oil and petrochemical industries also includes hydrocarbon spills and lake stratification, generating anoxic conditions at the lake bottom and contributing to its eutrophication, thereby affecting the CLME.

The amount of nitrogen entering the Gulf of Venezuela from the lake is estimated at 35,443 tons/year, phosphorus (Pt) at 6,168 tons/year, and total carbon at 208,173 tons/year (DHI, 2014). It means that the activities in the LMB impacts the MS with organic matter and nutrients discharge, leading to eutrophication and hypoxia in the CLME. The study carried out by the DHI was the first and currently the only hydrodynamic analysis in the whole MS based on mathematical models, including MS hydrodynamic, eutrophication, and water quality analysis. Although it was carried out in 2014, the local experts consider the DHI study an appropriate baseline, as indicated by Castellanos (2024). Furthermore, the ICLAM, conducted a study of the water quality s of Maracaibo System in 2024, with water quality sampling and analysis of historical data. The results show that during 2023 and 2024, the presence of total coliforms were found in 100% and 97% respectively of the water samples analyzed. This indicates the influence of fecal contamination from untreated wastewater in all the stations studied in Lake Maracaibo.

The 2024 monitoring showed anoxic conditions in several of the stations analyzed. As for phytoplankton, there is a significant predominance of cyanobacteria in all areas, which indicates that the MS has characteristics of a lake ecosystem with a progressive increase in the level of eutrophication. This pattern is evidence that the MS is progressively increasing the concentration of nutrients coming mainly from anthropogenic sources. In this

regard, the historical water quality data in the MS shows that between 2005-2024 the annual average phosphorus concentration was much higher than 100 µg/l, which means a eutrophic condition. The highest values were obtained in 1997 (897 µg/l), 2004 (584 µg/l) and 2023 (507 µg/l). The phosphorus concentration has been higher in the years after the data analyzed in the DHI study, which means that current conditions regarding nutrient pollution have worsened compared to the estimate made in 2014. The 2024 trophic state index indicates that Lake Maracaibo presented a range from Eutrophic to Hypertrophic. These results show little or practically no variation with respect to the trophic state index determined in Lake Maracaibo in the past (ICLAM, 2024).

If the current situation persists, nutrient inputs from the agricultural sector will intensify due to the lack of a coordinated effort to promote good production practices with a sustainable agriculture approach. The current production model makes crops less productive and more vulnerable to the effects of climate variability, threatening food security. Similarly, nutrient inputs from domestic wastewater discharges would continue, even in a scenario where 100% of wastewater treatment plants are rehabilitated, as the current treatment systems are inefficient for removing nitrogen (N) and phosphorus (P) loads.

Environmental degradation in the MS led the national government to designate part of its territory as a Critical Area with Priority for Treatment (ACPT). This designation is a type of Areas under Special Management Regime (ABRAE) that, according to the Organic Law for Land Use Planning (LOOT), includes 'territorial spaces that, due to their ecological conditions, require priority management, planning, and protection.' Under this designation are sectors of the lake's eastern and western coasts and parts of the sub-basins of the Guasare, Limón, Apón, Catatumbo, Escalante, Torondoy, Machango, Zulia, and Chama rivers.

***Figure 6. Problem Tree of Maracaibo System (attached due to size limits)***

The situation described is rooted in structural factors that have negatively affected the environmental quality of the Maracaibo System (MS), particularly the persistent weaknesses in the implementation of environmental public policies. Although various laws and regulations have been enacted for the environmental management of the basin, their implementation has been largely ineffective, in part due to limited intersectoral coordination.

In response to this context, the national government established on a permanent basis the Presidential Commission for the Conservation and Sustainable Development of Lake Maracaibo (PCLM) on August 28, 2023. The Commission is chaired by the Vice Presidency for Public Works and Services and has a Technical Secretariat led by the Ministry of Ecosocialism (MINEC). It also includes the participation of key ministries responsible for petroleum, fisheries and aquaculture, water management, science and technology, education, transportation, industry, indigenous peoples, communes and social movements, planning, and defense. The PCLM developed the Master Plan for the Rescue, Conservation, and Sustainable Development of Lake Maracaibo (MPLM), which guides short-, medium-, and long-term strategies and actions to fulfill the commission's mandates, as outlined in Figure 7.

***Figure 7. Functions of the Presidential Commission for the Conservation and Sustainable Development of Lake Maracaibo. Source: Prepared based on information from Official Gazette 42,701 (attached due to size limits)***

Achieving sustainable management of the MS faces several barriers: a) Outdated and uncoordinated scientific information on the environmental conditions of the MS and its impact on the rest of the CLME; b) Lack of interinstitutional mechanisms and updated policies for pollution monitoring and sustainable management planning of the MS; c) Lack of planning for sustainable wastewater management in the MS; d) Lack of

incentives to adopt more sustainable practices; and e) Lack of policies, coordination, and knowledge leads to unsustainable practices that increase nutrient pollution impacting the CLME.

The project will seek to overcome these obstacles by considering the objectives and actions outlined in the Master Plan for the rescue, conservation, and sustainable development of Lake Maracaibo, with the aim of leveraging a long-term state policy that promotes sustainable development of the basin. This project has been designed to contribute to the Master Plan. Figure 8 shows the direct contributions of the project components to the vertices and programs of the plan. For example, Component 1 of the project will contribute to programs for strengthening the environmental monitoring network, developing early warning systems, and sustainably managing lake ecosystems, included in Vertex 1 of the Master Plan. Component 2 will make an important contribution to Vertex 3, which includes planning actions for discharge control and wastewater treatment. Component 3, through the proposed pilot tests, will contribute to the nutrient reduction program targeting nutrients entering the lake, included in Vertex 4. Component 4 will support dissemination and training programs related to the sustainability of the MS, included in Vertex 5.

The decree establishing the PCLM states that a fund will be created to cover its operational costs. Currently, the national government is investing in the following actions: environmental education programs in schools and high schools, water quality monitoring in the lake with logistical support from Venezuela Petroleum Company (PDVSA), plastic collection campaigns in the lake (232,000 tons in one year), replacement of oil pipelines in the lake to prevent spills (\$200 million to replace 575 km of pipelines), investment in strengthening the Institute for the Control and Conservation of the Lake Maracaibo Basin (ICLAM) laboratories and improving its facilities, and the initiation of the rehabilitation process for the wastewater treatment plants in the cities of Maracaibo and Cabimas. Therefore, the funds allocated to this project serve as an incremental contribution to strengthen and consolidate the work carried out within the PCLM and in full alignment with the Master Plan.

***Figure 8. Relationship between project components and vertices/programs of the Master Plan (attached due to size limit)***

Additionally, this project will contribute to increasing the impacts of GEF ID 10678 - GCP/VEN/020/GFF: Integrated Landscape Management of Multiple-Use Areas for Sustainable Development of the Venezuelan Andes, which shares some similar goals and common initiatives with this project that will be strengthened. For instance, the project GCP/VEN/020/GFF has a component dedicated to implement sustainable soil management in agriculture areas. One of these areas is in the Southern Region of Lake Maracaibo, with this project we can scale up this experience through the pilot tests and action plan for sustainable soil management.

Furthermore, synergies will be created with the Venezuelan chapter of the Regional IAEA Project RLA 7026 *Organic and Inorganic Pollution in Aquatic Environments of Latin America and the Caribbean and Its Impact on the Proliferation of Toxin-Producing Cyanobacteria Affecting Human Health (ARCAL CLXXVIII)*.

Regarding stakeholders that will play a relevant role in the project, the first level is the PCLM. This commission establishes governance for the basin and convenes representatives from the academic, private, non-governmental, and grassroots community sectors to execute actions related to its functions. It also coordinates with different levels of government to implement strategies and actions, leveraging the capacities of the governors' and mayors' offices in the MS. The PCLM has a Scientific and Technical Committee led by MINEC through the Vice Ministry of Environmental Management, and it includes ICLAM, the Water Research Center of the University of Zulia, and the Zulian Institute for Technological Research (INZIT). This committee proposes and coordinates environmental monitoring, scientific research, and other technical activities necessary to fulfill the presidential commission's objectives.

In relation to local community organizations, during the project design phase links were established with Agropueblo, a social organization of small-scale farmers with presence in Zulia and Mérida State. They have experience in producing biofertilizers, apiculture and implementing agroecological practices. They will be a key allied for implementing pilot projects for sustainable agriculture. Indigenous organization were also involved, like Comuna Añu Juana Ramírez la Avanzadora, Comuna Etnia Guajira, Comuna Añu Santa Rosa de Agua, and members of communities Cacique Toa, El Rosario, El Guayabal and representatives from the Venezuelan Indigenous Council-Zulia State. The role for indigenous communities will be highly relevant for designing jointly local sanitation solutions as pilot projects, and to incorporate traditional knowledge for sustainable agriculture and mangrove conservation. Another relevant local actor is the NGO ACLAMA, an organization with technical expertise in sanitation and environmental management of the MS. They will support the design of the environmental sanitation plan of the MS. Within the private sector, the National Confederation of Farmers and Cattle Raisers of Venezuela (CONFAGAN)-Zulia, will participate providing technical and logistical support for pilot tests in sustainable agriculture.

As a participant in the CHO IP, under the overall coordination and support of the Global Coordination Project (GCP), the conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will contribute to addressing the issues affecting land-based nutrient pollution and marine hypoxia identified in the programmatic Theory of Change and following the Program Framework Document (PFD) (Figure 10). The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean agrees to follow principles that will guide their collaboration on Knowledge Management and Learning (KML), communications, gender and stakeholder engagement, and programmatic coordination and reporting, as well as monitoring and evaluation (M&E). These principles and reporting frameworks will be defined and agreed upon during the Inception phase of the program.

More specifically, the conservation and sustainable development of the Maracaibo lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will contribute to and engage with regional and global learning, help build a resource information base and best management practice archive, strengthen scientific monitoring, shared capacity building efforts such as thematic Communities of Practice and other common activities established by the GCP that link and support action on nutrient pollution and marine hypoxia issues at global, LME, and national levels, and in the process help shape a global network of informed stakeholders and countries concerned with and better equipped to address this critical issue.

As part of the CHO IP, this project includes a set of standard activities that will be linked to regional and global activities, aiming to achieve greater connectivity and networking among the national projects of the program, as well as better opportunities for awareness-raising, knowledge exchange (particularly technical knowledge), stakeholder dialogue, and innovation at scale. Additionally, the CHO IP will provide support through the GCP, globally led by FAO and regionally by CAF, to guide improvements in investment financing, including measures to address nutrient pollution and marine hypoxia. It will also support the strengthening of technical capacities for monitoring and tracking nutrient pollution, hypoxia, and coastal health to promote strategic, science-based adaptive management. The global platform for the CHO-IP is led by CAF in the Latin America and the Caribbean region and it will be able to deliver advisory key information and tools for knowledge management and innovative financing, as well as guidance for coherence in policy design and private sector involvement.

At the national level, the project is strengthened through a coordinated and complementary implementation between the FAO and the CAF, combining their institutional, technical, and financial capacities to maximize impact. Execution will be guided by a coordination model designed to foster synergy and optimize outcomes between both agencies. FAO and CAF will jointly participate in adaptive project management, coordinating monitoring and evaluation actions and contributing to the achievement and tracking of CHO IP goals.

FAO leads the technical execution of the project, bringing expertise in sustainable agriculture, biodiversity, forest management, water resources, food security, and governance. It also facilitates engagement with communities, local governments, and actors in the agri-environmental sector. FAO's expertise covers key themes such as

sustainable production, savings and credit systems, governance strengthening, and environmental monitoring. A concrete contribution of FAO expertise in this project will be the implementation of codes and technical guides developed by the agency, like the Fertilizer Code, the Voluntary Guidelines for Sustainable Soil Management, the Joint FAO-IOC-IAEA Technical guidance for the implementation of early warning systems for harmful algal blooms and the FAO-MINEC technical guide for mangrove forest restoration in Venezuela. The implementation of the FAO Farmers Field Schools jointly with the Global Soil Doctors Programme will be a key strategy for achieving the results of the project. The FFS has been implemented successfully for 30 years in more than 90 countries, supporting 20 million of producers and with impacts in higher productivity, sustainability and resilience; increased food security and more social cohesion. The Global Farmer Field School Platform, established since 2018, will be a relevant strategy for sharing knowledge with FFS in other regions and countries in the LAC; it will contribute with the KM and Learning strategy of the CHO IP.

CAF acts as a strategic partner, providing knowledge, alliances, and a regional vision aimed at transforming environmental challenges into sustainable development opportunities. Its contribution includes co-financing key actions, particularly in bio business, sustainable agriculture, and water sanitation.

In coordination with FAO, and within a joint strategy of technical assistance and local capacity strengthening, CAF will apply its expertise in biomonitoring, bio business, and the incorporation of clean technologies in productive activities such as fishing, agriculture, and tourism. From a multilevel stakeholder coordination perspective, the role of both agencies in the region represents a strategic advantage to strengthen environmental governance, especially in addressing eutrophication and hypoxia issues in the MS.

These actions align with CAF's strategic framework focused on biodiversity and biotrade, consistent with its Green Agenda, which promotes green financing and sustainable development in Latin America and the Caribbean. Through its BIOCAF 2022–2026 program and the Andean Biotrade Program, CAF fosters economic instruments for conservation, such as payments for environmental services and green bonds, while strengthening sustainable value chains linked to biodiversity. These initiatives aim to catalyze a transition toward resilient, low-carbon economies, supporting local communities and encouraging financial innovation for biotrade, positioning CAF as a key factor in regional biotrade projects (CAF, 2021; CAN & PNUMA, 2014).

CAF will convey expertise in building sustainable links between local producers, key value chains, access to financial opportunities and capacity development tools in the process which includes: i) identification and access to national and international market; ii) leadership strengthening in local markets; iii) sound strategy for the use of local natural resources; iv) adoption of sound green, blue and orange economy standards without generating non-tariff barriers; and v) capacity building in structuring sound business plans and business models. The project area historically has led the production value chains of dairy products, fruits, cocoa, and others key for the economy of Venezuela. At the end of the day, the role of CAF would be to put in the table options and tools to timely and greenly strengthen the local bio-economies.

Venezuela's participation in the global program will help ensure that the project's activities fully and meaningfully integrate the specific challenges and opportunities of women, youth, and Indigenous peoples, using tailored messaging and communications for greater impact. Regional and global exchanges are expected to help coordinate efforts and feed national knowledge through the sharing of lessons learned during the CHO IP implementation process and the national projects.

Through its participation in the CHO IP, Venezuela aims to maximize the project's resources and capacity to facilitate and drive transformative change, addressing the drivers of hypoxia—such as agriculture and municipal and industrial wastewater pollution—on a basin-wide scale more cohesively and effectively. The CHO IP consists of 15 Child Projects, 1 Global Coordination Project (GCP) and 14 Country Projects (CP) spanning Latin America, Africa, Asia and the Middle East (Maldives, Thailand, Sri Lanka, Vietnam, Venezuela, Mexico, Trinidad and Tobago, Panama, St. Kitts and Nevis, Grenada, Jordan, Moldova, Peru, Madagascar), which altogether are included within 9 LMEs.

Venezuela will contribute to generating global environmental benefits: 40,000 ha of landscapes under improved practices (Ci 4); a contribution will be made toward increasing 2,000,000 hectares of marine habitat under improved practices to benefit biodiversity (Ci 5); a reduction in global greenhouse gas emissions, targeting a decrease of 2,180,736 tons of CO<sub>2</sub> equivalent emissions (Ci 6); contributions to the health of the CLME through the improved cooperative management by actively participating in the CHO IP (Ci 7). The project will also benefit at least 100,000 residents (50,000 women / 50,000 men, Ci 11) through land-use planning processes, implementation of NbS, wastewater treatment, training in management and communication technologies, monitoring, value chain development, and sustainable financial management, all with a gender and intercultural approach.

The project in the CHO IP framework, will contribute to and benefit from regional and global learning, helping to create a resource information base and a repository of best management practices, strengthening scientific monitoring, and participating in capacity-building efforts related to nutrient pollution and marine hypoxia actions at global, LME, and national levels. This process will help form a global network of informed stakeholders and countries concerned about this critical issue and better equipped to address it.

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<sup>[1]</sup> The IMMA Initiative is the major activity of the Marine Mammal Protected Areas Task Force. The Marine Mammal Protected Areas Task Force (MMPATF) was created in 2013 by the International Committee on Marine Mammal Protected Areas (ICMMPA), the International Union for the Conservation of Nature's (IUCN) and World Commission on Protected Areas (WCPA) <https://www.marinemammalhabitat.org/>

## **B. CHILD PROJECT DESCRIPTION**

This section asks for a theory of change as part of a joined-up description of the project as a whole, including how it addresses priorities related to the specific program, and how it will benefit from the coordination platform. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the guidance document. (Approximately 3-5 pages) see guidance here

The objective of the project is to address eutrophication and marine hypoxia in the Caribbean Large Marine Ecosystem (CLME) by reducing the flow of nutrients and contaminants to the Maracaibo System (MS) from agriproductive activities and untreated wastewater discharges in order to contribute to the socio-environmental sustainability of the marine-coastal area and to increase regional environmental benefits. To achieve this, the project's key actions are designed to overcome identified barriers and drive short-, medium-, and long-term changes, as outlined in the Theory of Change (ToC) (Figure 9).

As previously described, without the implementation of this project, the ongoing environmental degradation of the Maracaibo System (MS) would increase pressure on the ecosystems of the Gulf of Venezuela, due to their hydrological connection as part of the same water system. This would result in severe impacts on water quality, biodiversity, marine habitats, and livelihoods across the broader Caribbean Large Marine Ecosystem (CLME). In turn, this would negatively affect the livelihoods and food security of local and Indigenous communities living within the MS. Nutrient inputs would continue to rise as a result of weak land-use planning, the lack of coordinated efforts to promote sustainable agricultural practices, and ongoing discharges of untreated domestic wastewater. These conditions could trigger critical consequences, such as the proliferation of cyanobacteria, increased sediment transport and deposition, the degradation of protected areas and wetlands, and the loss of essential ecosystem services and habitats for aquatic and terrestrial species. Moreover, insufficient wastewater treatment, the indiscriminate use of fertilizers, and the lack of incentives for sustainable production would further increase socio-economic vulnerability and environmental pressure—

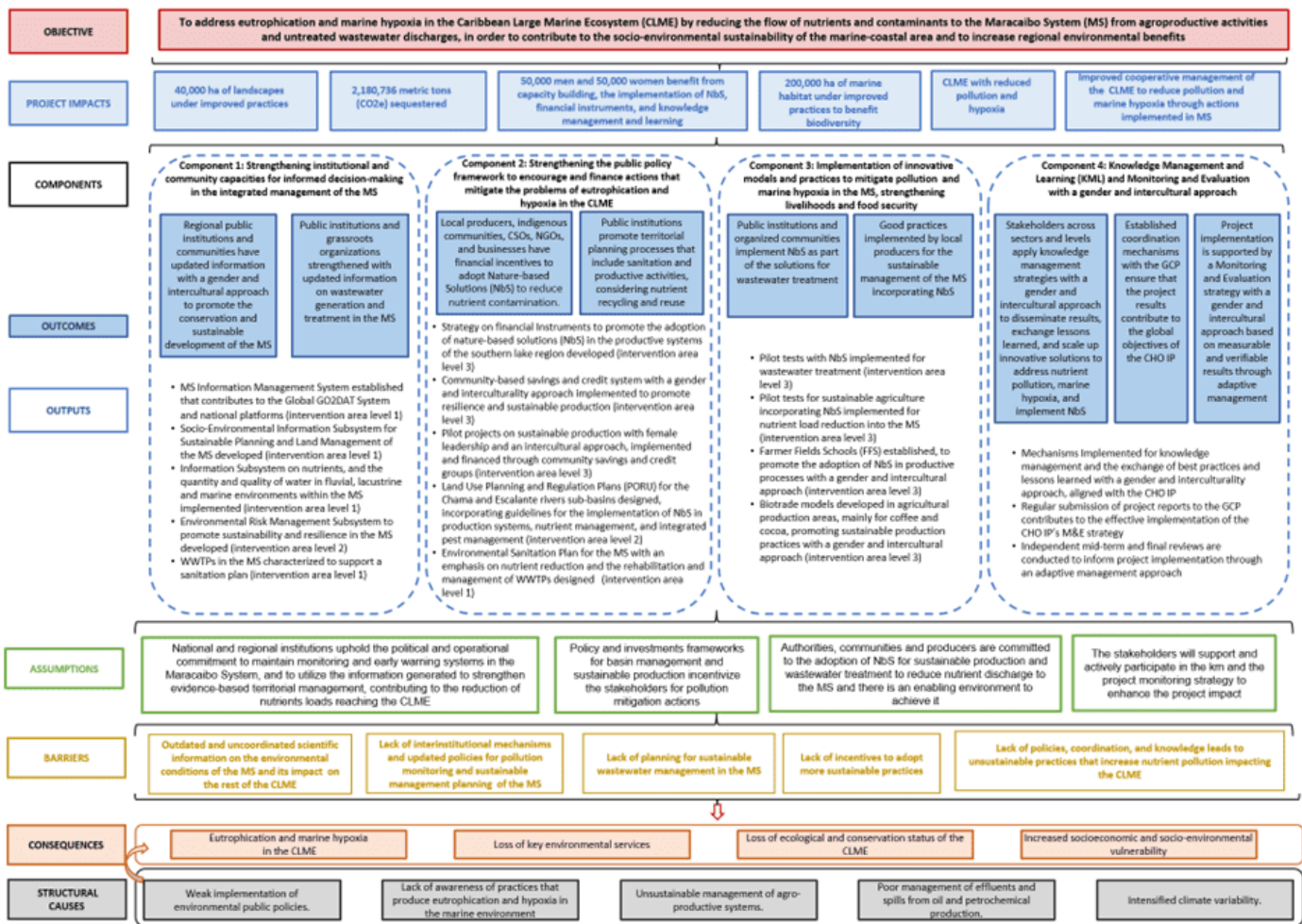
ultimately reducing opportunities for local development and threatening the long-term sustainability of the CLME.

Among the critical obstacles the project aims to address are the weaknesses and lack of coordination in generating scientific information on the MS's environmental conditions and its impact on the Caribbean Large Marine Ecosystem (CLME), insufficient inter-institutional mechanisms, outdated policies, inadequate wastewater treatment, limited adoption of sustainable practices by producers, and the absence of financial incentives to promote such practices.

In addition to addressing the identified barriers, the project focuses on tackling underlying causes and seeks to transform systems, structures, and behaviors. It aims to promote changes in the social, economic, and environmental contexts of the MS while generating global environmental benefits. The ToC for this project proposes an integrated approach to addressing key environmental issues, offering solutions with a systemic, multidisciplinary vision that incorporates gender and intercultural perspectives. This approach is structured around four components aligned with the ToC and the transformative vision of the GEF-8 Clean and Healthy Oceans Integrated Program (CHO IP) (Figure 10). It seeks to strengthen scientific information generation and public policies, leverage financial resources, foster innovation and learning, facilitate dialogue among stakeholders, and promote governance and public policies through intersectoral integration and the development of regulatory instruments that prioritize sustainable environmental management in the MS.

The project will also promote the adoption of NbS in production processes, sanitation, and watershed conservation through the implementation of pilot tests, management tools, and innovative financial mechanisms. This will contribute to the conservation and sustainable management of the watershed, generating positive local impacts that also support the program's regional and global objectives.

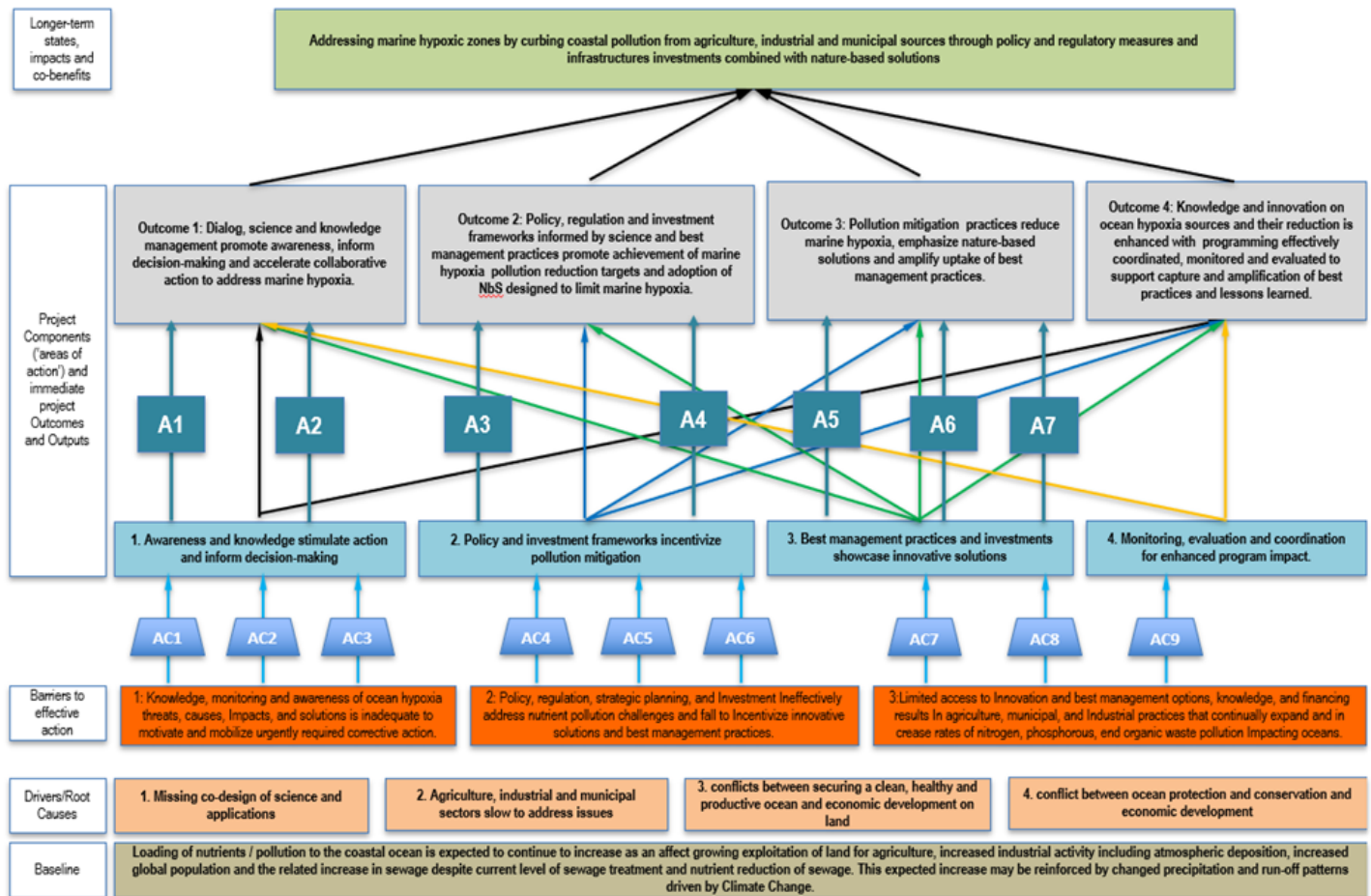
***Figure 9. Theory of Change for the Project Conservation and Sustainable Development of the Maracaibo Lake Basin as a Contribution to the CLME***



Intervention Area Level 1: Maracaibo System (MS), constitutes a complex hydrographic and hydroecological unit that is part of the Caribbean Large Marine Ecosystem. It is composed of a set of interconnected brackish water bodies, including Lake Maracaibo and the Gulf of Venezuela.  
 Intervention Area Level 2: Includes 09 prioritized sub-basins of the following rivers: El Limón, Catatumbo, Escalante, Concha, Chama, Motasán, Misoa, Pueblo Viejo, and the Southern Sub-basin System.  
 Intervention Area Level 3: Includes 10 municipalities: Cabimas, Colón, Francisco Javier Pulgar, Mara, Maracaibo, Santa Rita, Sucre (Zulia State), Alberto Adriani (Mérida State), García de Hevia and Simón Rodríguez (Táchira State).

The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean addresses key issues affecting land-based nutrient pollution and marine hypoxia, and aligns well with the programmatic Theory of Change (ToC) set out in the CHO IP Program Framework Document (PFD) (Figure 10). The project's components align with the components of this program: i) Awareness and knowledge stimulate action and inform decision-making; ii) Policy frameworks and investments incentivize pollution mitigation; iii) Best management practices and investments demonstrate innovative solutions; and iv) Monitoring, evaluation, and coordination for enhanced program impact.

**Figure 10. Theory of Change of the Clean and Healthy Oceans Integrated Program (CHO IP)**



The project will benefit from lessons learned from other national and regional CHO IP projects, including successful practices in integrated watershed management and nutrient pollution mitigation. The experience accumulated at both the national and international levels will enable the project to strengthen its actions and maximize its impact, establishing itself as a model for sustainable watershed management under a “source-to-sea” (S2S) approach, climate change mitigation, and the generation of both local and global environmental and social benefits.

The project intervention area corresponds to the MS, addressing various levels of intervention within it according to the results and products to be developed. Level 1 intervention corresponds to the entirety of the MS, including Lake Maracaibo and the Gulf of Venezuela; this is the area where the hydrographic and hydrodynamic models will be worked on, it will be highly relevant for updating scientific information about water quality, water quantity, and hydrodynamic behavior of the MS. This information will be integrated in the MS Information System for supporting the process of informed decision making. Level 2 intervention includes 9 prioritized sub-basins of the following rivers: El Limón, Catatumbo, Escalante, Concha, Chama, Motatán, Misoa, Pueblo Viejo, and the Southern Sub-basin System. In this level, sustainable soil management practices will be implemented in agricultural production areas located in the intramontane valleys of the middle and upper basins of the Andean region (level 2.1), in agricultural and livestock production areas in the foothill and plain units of the southern lake (SL) (level 2.2), and in mangrove forests of Lake Maracaibo under improved management (level 2.3). Additionally, in the sub-basins of the Chama and Escalante rivers, Land Use Planning and Regulations (PORU)<sup>12</sup> will be developed, which will include guidelines for the implementation of NbS, with an emphasis on reducing nutrient input. These plans will serve as a model to establish a watershed-based management system that can be replicated after the project's execution and that complies with the S2S approach proposed in the Coastal Zones Law. Level 3 intervention includes 10 municipalities: Cabimas, Colón, Francisco Javier Pulgar,

Mara, Maracaibo, Santa Rita, Sucre (Zulia State), Alberto Adriani (Mérida State), García de Hevia and Simón Rodríguez (Táchira State); with special attention to three key municipalities—Maracaibo, Mara, and Colón—selected for the Indigenous Peoples Plan, due to their significance in terms of indigenous population, impact on the watershed, and biophysical and socio-economic characteristics. Furthermore, at this level, pilots for the adoption of NbS will be implemented, and activities related to the wastewater treatment plants (WWTP) will be developed. Details regarding these pilot tests are in Annex R. The selection criteria and detailed maps are found in Annex E.

The project is structured into four components: i) Strengthening institutional and community capacities for informed decision-making in the integrated management of the MS; ii) Strengthening the public policy framework to encourage and finance actions that mitigate the problems of eutrophication and hypoxia in MS; iii) Implementation of innovative models and practices to mitigate pollution and marine hypoxia in the MS, strengthening livelihoods and food security; and iv) Knowledge Management and Learning (KML) and Monitoring and Evaluation with a gender and intercultural approach.

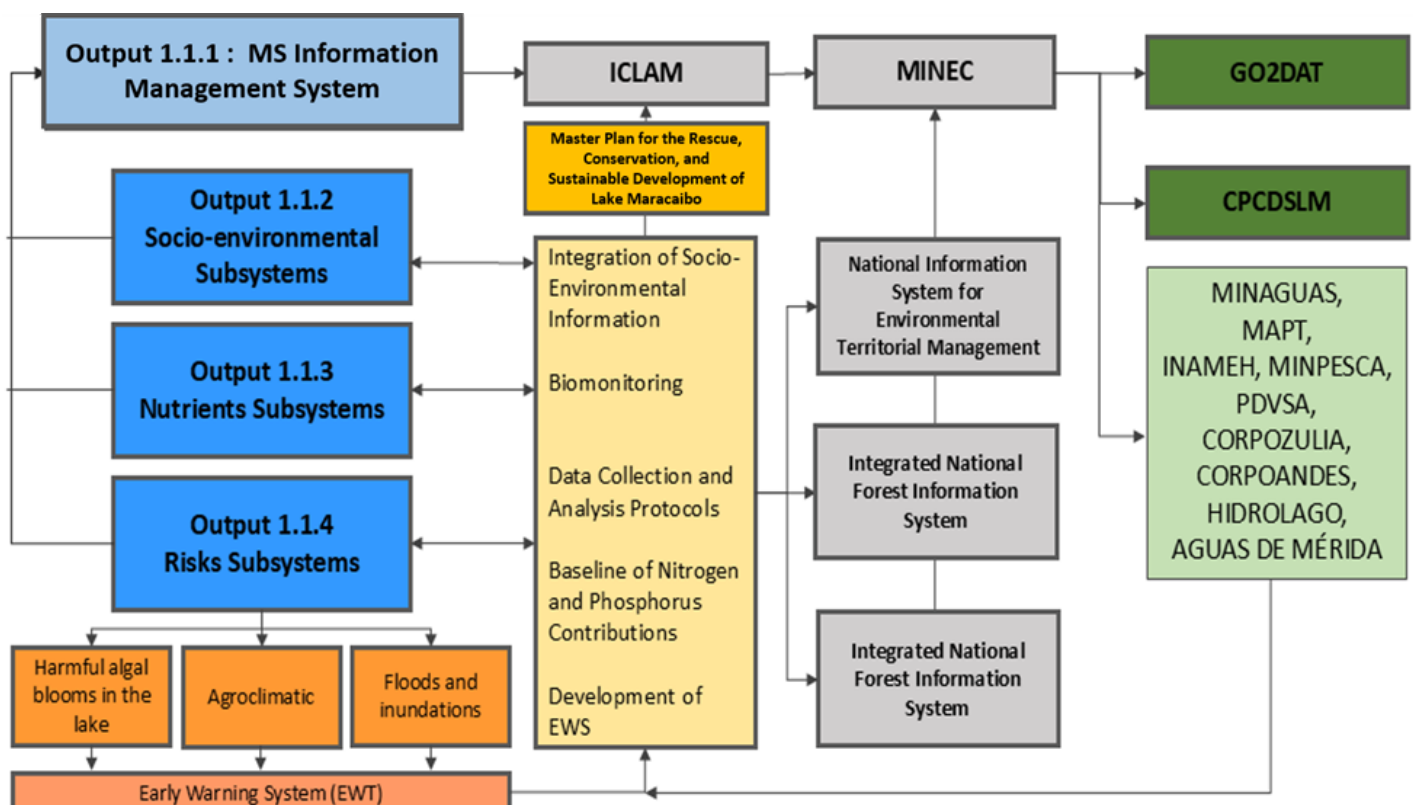
The **Component 1** will be implemented to strengthen institutional and community capacities for informed decision-making in the integrated management of the MS, therefore, it will contribute with updated information from the CLME that will promote the reduction of its eutrophication and hypoxia. This component will be key to update the environmental information of the MS, given the fact that the most recent data on nutrient pollution date back more than 10 years. This will be attained through the achievement of two outcomes: regional public institutions and communities have updated environmental information to support the sustainable development of the Maracaibo System (Outcome 1.1); and public institutions and grassroots organizations strengthened with updated information about wastewater management in the MS (Outcome 1.2.1). Together, these outcomes will address barriers (a) and (b) identified in the project rationale. A key deliverable under this component will be the development of an Information Management System for the Maracaibo System (MS-IMS), to be administered by ICLAM and connected to national and international databases, including contributions to the global GO2DAT system. The MS-IMS will be integrated into existing platforms of the Ministry of Ecosocialism (MINEC), such as the National Information System for Environmental Territorial Management (SIGTA), the National Integrated Forest Information System (SINIIF), and the National Climate Change Information System (SINACC). This integration will enhance sustainability by leveraging the Ministry's technical and financial resources. The MS-IMS will be based on open-source software to facilitate future expansions, such as adding new databases or modules as needed. While ICLAM will oversee system management as the MS's governing body, users will include communities, public institutions, researchers, the private sector, and other stakeholders, who will contribute data, share information, and participate in informed decision-making processes. The MS Information Management System includes three subsystems, that will be developed in the next products. This project will implement monitoring strategies for generating environmental data in these subsystems, one of the most relevant strategies will be based on citizen science. The outputs 1.1.2, 1.1.3, and 1.1.4 comprise the setup of networks for participatory environmental monitoring. Students and community members will be trained to generate and analyze relevant data; in this way, the scope of the monitoring will be enhanced and local people will be empowered. Consequently, the community's capacities for informed decision-making will be strengthened.

**Output 1.1.2** is the subsystem for sustainable planning and land management. This output includes monitoring in micro basins about socio-environmental data and its ecological state. **Output 1.1.3** is the subsystem for nutrients, quantity and quality of water in fluvial, lacustrine and marine environment within the MS. This output includes the implementation of water quality and quantity monitoring networks in prioritized sub basins. **Output 1.1.4** is the subsystem for environmental risk management, the goal is promoting sustainability and resilience addressing agroclimatic risk, flooding and inundation risk and risk regarding harmful algal blooms. This subsystem will incorporate Early Warning Systems (EWS) designed to be integrated into environmental risk management, based on technical indicators and specific thresholds to anticipate, mitigate, and respond to these risks, promoting environmental sustainability and socio-economic resilience in the MS. Outputs 1.1.3 and 1.1.4 includes the implementation of mathematical models as a technical tool for informed decision-making. **Output 1.1.5** is the characterization of the WWTP in the MS as a basic information to design and

implementation of a sanitation plan. This characterization comprises: type of treatment process, current condition of the plants, nutrient removal capacity, quality of influents and effluents from the WWTP, and possibilities for adaptation NbS for nutrient removal. The Component 1 will actively promote women’s participation in generating scientific information and co-designing monitoring strategies through citizen science-based environmental monitoring initiatives.

The proposed products from Component 1 will contribute to the execution of specific actions included in the Master Plan. This plan includes the creation of a geographic information system for integrating environmental information from the MS, biomonitoring to determine the health of lacustrine ecosystems, data collection and analysis protocols, development of early warning systems for climate risks and cyanobacterial blooms. These actions will be implemented with Outputs 1.1.1, 1.1.2, 1.1.3, and 1.1.4. The impact of the fisheries monitoring included in 1.1.2 will have direct and functional effects to assess the state of populations (mollusks, crabs, fish) in terms of their distribution, individual sizes, biology, and reproductive status, the latter being important for determining and reviewing minimum capture sizes, as well as fishing areas and methods. This will strengthen public policies for the conservation of hydrobiological resources, the sustainability of their exploitation, and the maintenance of regional food security. Additionally, Output 1.1.2 will provide information on marine-coastal habitats in the Maracaibo Strait and Gulf of Venezuela, such as mangroves; the biodiversity in these spaces will act as indicators of the condition of these ecosystems. Output 1.1.3 will establish a baseline of nitrogen and phosphorus contributions to the lake and the dynamics of these nutrients in the whole marine ecosystem. The proposed information management system will be articulated with MINEC systems, contribute to the execution of the Master Plan, facilitate the coordination of ICLAM with other public and private entities, and with organized communities for the environmental management of the basin. Additionally, it will facilitate the fulfillment of the functions of other public entities directly or indirectly related to the management of the MS, such as MINAGUAS, Ministry of Productive Agriculture and Lands, INAMEH, Ministry of Fisheries and Aquaculture, among others, as shown in Figure 11.

**Figure 11. Relationship of output 1.1.1 with the master plan and public sector actors.**



The assumptions associated with Component 1 are that national and regional institutions support technical training with dedicated personnel to develop monitoring and use the information for territorial management; institutions update the prioritized standards and policies in the Strengthening of Legal and Regulatory Frameworks Program of the Master Plan, relying on mathematical modeling, and there is a good institutional and community willingness to establish monitoring and early warning systems (EWS), with participation from local communities; there is significant female participation in activities and decision-making; there is a sustained political commitment of at least five years as necessary to implement and monitor MS management policies, ensuring legal and financial stability; the technical documentation of the WWTP is available or can be generated within the framework of the project, and institutions collaborate in data collection with binding specifications for future rehabilitations.

The main risks identified for Component 1 are associated with limitations—due to access—for the development of monitoring and evaluation sessions of hydrobiological resources; managerial changes or lack of interest affecting institutional environmental directives; replacement of key actors; implementation of policies inconsistent with the objectives of monitoring socio-environmental attributes; low incorporation and training of field and laboratory technical staff for the actions to be developed, and the non-adoption or reformulation of regulations and laws associated with conservation.

The **Component 2** will be focused on strengthening the public policy framework, including regulatory instruments and planning processes to encourage and finance actions that mitigate the problems of eutrophication and hypoxia in the CLME. This will contribute to overcoming barriers d and e identified. As a result, local producers, indigenous communities, Civil Society Organizations (CSOs), Non-Governmental Organizations (NGOs), and businesses will receive financial incentives to adopt NbS in production processes, sanitation, and MS conservation (**Outcome 2.1**). To achieve this, the project will provide a financial strategy to promote the adoption of nature-based solutions in the productive systems of the south LM (**Output 2.1.1**). This product will build in this initiative, taking into account the current conditions in the country to promote productive activities under a sustainable approach in the MS. This strategy will be linked to the pilots to be developed in Component 3, where financial instruments will be applied to coffee and cocoa production and in agricultural activities of small producers. The results of these pilots will be considered as part of the strategy, in a process of continuous feedback between both products.

The **Output 2.1.2** will implement a community savings and credit system, as a microfinance strategy, to promote resilience and sustainable production in selected local communities that will be trained in developing value chains in indigenous products and sustainable financial management. For the implementation of this product, the project will support the establishment of community-based savings and credit organizations with technical and financial training and capacity development. Conditionality for the access to micro rural finance services will be established by the application of agroecological techniques to reduce loads of N and P to the MS, and agroclimatic risk reduction. Some agroecological pilots will be led by women and implemented with a joint investment between the project and these organizations, and a portion of the income produced by these pilots will be used to capitalize a community savings and credit fund and mutual fund for contingency. This will positively impact women (rural peasant, fisherwomen, fish farmers, aquaculturists, agro-producers, afro-descendants and indigenous women) in the MS (**Output 2.1.3**). Implementers will be trained in gender and intercultural approaches, with an emphasis on addressing gaps through an equitable access to the proposed community financial instruments. This product will continue previous FAO experiences with community savings and credit systems in the Zulia state and will be supported for execution within the organizational and institutional structure of the Ministry of Productive Agriculture and Lands in the region. In this regard, the Socialist Agricultural Development Fund (FONDAS) is one of the bodies with which the project will articulate actions for the development, implementation, and future sustainability of this product.

In the **Outcome 2.2** public institutions (MINEC, MPPAPT, MINAGUAS, HIDROLAGO, CORPOZULIA, CORPOANDES, and AGUAS DE MÉRIDA) will promote territorial planning processes that include sanitation and the adoption of sustainable productive practices considering the recycling and reuse of nutrients. The Output 2.2.1 to achieve outcome 2.2, proposals for the Land Use and Regulation Plans (PORU)

for the sub-basins of the Chama and Escalante rivers will be made available to the MINEC authorities, incorporating guidelines for the implementation of NbS in productive practices, nutrient management, and integrated pest management. The monitoring of these PORU will be carried out through MINEC's Annual Operational Plans, where the budget execution for activities included in the planning process will be defined. This product will serve as a model for the integrated management of the LM sub-basins through MINEC's coordination with other public and private actors, and its results will allow replicating this management model in other sub-basins. Additionally, this product contributes to one of the actions of the Master Plan, which consists of the preparation of management and conservation plans that include the implementation of climate change adaptation and mitigation measures. The **Output 2.2.2**, MS environmental sanitation plan, with an emphasis on reducing nutrients and rehabilitating and managing WWTPs, taking at least 8 sub-basins as a pilot. This product contributes to the proposed rehabilitation of WWTPs considering nutrient reuse and recycling, included as part of the actions of the Master Plan. Output 2.2.2 will include an investment plan for the rehabilitation of infrastructure and the increase of wastewater treatment capacity of plants in the sub-basins.

Among the assumptions associated with Component 2 is the political will and commitment of the authorities to achieve the economic sustainability of MS management and conservation; communities are motivated and organized to promote local savings and credit, using NBS for sustainable production; additionally, both government and private sector actors maintain their interest in designing and implementing strategies related to regulations for sustainable production in the CLME.

The main risks of Component 2 are associated with potential changes in the authorities of public and private institutions, which may hinder the effective implementation of policies and commitments; communities and involved actors may resist adopting new sustainable practices and technologies; the implementation of new regulations may face bureaucratic obstacles and low coordination between different levels of government; the adoption of sustainable practices may involve high initial costs and economic risks for local communities (see B.3 Key Risks).

**Component 3** will contribute to the implementation of innovative models and practices to mitigate pollution in the MS, strengthening livelihoods. The Component 3 includes the **Outcome 3.1**: Public institutions and organized communities implement NbS as part of the solutions for wastewater treatment. To achieve this, the project will implement pilot tests using Nature-based Solutions (NbS) for wastewater treatment in prioritized municipalities -intervention area level 3- (**Output 3.1.1**). The pilot tests included in this product are wastewater treatment and reuse for irrigation in agricultural areas. The WWTP Caja Seca, located in Sucre Municipality, in Zulia state is close to a sugarcane plantation. This treatment plant will be rehabilitated and expanded, the pilot proposed is based on a new treatment line with constructed wetlands, equipped with an irrigation system. Another pilot test under this product will be implemented at the La Chamarreta Wastewater Treatment Plant (WWTP), located in Baralt municipality, Zulia state. The pilot will include an additional treatment line based on constructed wetlands, with the treated effluent used for irrigating livestock pastures. Also, pilot tests for local treatment in indigenous communities, based on septic tanks and biofilters. It will be implemented in the community San Antonio de los Caños, close to Lagunas de Las Peonías.

To achieve good practices implemented by local producers for sustainable MS management, through the incorporation of NbS (**Outcome 3.2**), the project will implement three outputs. **Output 3.2.1** is aimed at reducing the excess nutrient contribution from agricultural and livestock production systems, through pilot tests. These pilot tests will be part of an action plan for sustainable land management in agricultural production areas of the south LM, including conservation and restoration actions such as reforestation in high basins and riparian areas (riparian forests), to contribute to reducing nutrients and sediments reaching the lake, as well as favoring migratory fish populations and enabling their spawning. Additionally, these pilots will include agroforestry systems and the production and use of biofertilizers in micro basins within Chama, Escalante and Catatumbo River Basins. Another group of pilot tests will be implemented for sustainable management of mangroves, as part of an action plan for sustainable management of mangrove forests. These

pilots will be implemented in coastal areas close to Maracaibo city, in the Lagunas de Las Peonías and Laguna de Sinamaica.

**Output 3.2.2** consists in the implementation of Farmer Field Schools (FFS). The FFS are a participatory training methodology promoted by FAO, focused on experiential learning and practical knowledge gained directly by farmers in their own fields. Within the project, they will be considered as communities of practice under the CHO IP framework, to promote the adoption of NbS in productive processes. In this product the project will take advantage of the FAO experience implementing sustainable agriculture practices with FFS. The implementation comprises a learning process that include the Global Soil Doctors Programme and participatory training plans. As part of the active learning process, the project will implement pilot tests to promote the adoption of NBS in production processes, to achieve sustainable agricultural production under a gender and interculturality approach. Indigenous communities, peoples, and women will actively participate in these FFS. These pilots will be loted in micro basins within Chama, Escalante and Catatumbo River Basins. Another group of pilot tests will be implemented for sustainable management of mangroves, in coastal area of Lake Maracaibo.

This component also includes the implementation of sustainable biotrade models of agropecuary and aquatic production, to strengthen value chains, mainly for two strategic crops in the South Lake region: coffee and cocoa (**Output 3.2.3**). This product will contribute to the reduction of nutrient contributions by incorporating sustainable production practices and generating economic and social co-benefits by strengthening the livelihoods of local communities. Venezuela selected cocoa as a special agricultural product in the Global Action on Green Development of Special Agricultural Products: One Country, One Priority Product (OCOP) of FAO, so including this productive chain in the project will strengthen the results obtained and allow scaling it up. Additionally, the GEF ID 10678 FAO MINEC Sustainable Andean Landscape Management project has a component dedicated to strengthening the sustainable market based on improving quality and diversifying coffee and cocoa by-products. Therefore, these biotrade initiatives will increase the impact generated by that project, creating synergies and collaborations. The implementation of this product will take advantage of the regional experience of CAF in biotrade projects, it is an opportunity to design and apply new tools for inclusive bio-business actions. Output 3.2.3 will promote equitable participation between men and women in decision-making and benefit management.

The pilot tests to be implemented in this component will be designed to be scalable and replicable in other areas of the MS. Additionally, the participation of women and youth in implementing pilot tests and in the communities of practice will be promoted, with an inclusive approach. This component will collaborate in overcoming barriers c and f. The implementation of the pilot tests in Component 3 constitutes a fundamental element of this project, as due to its scalability and replicability, they will become practical mechanisms that contribute to the reduction of nutrients and organic matter in the Lake Maracaibo and Venezuela Gulf and, consequently, have positive effects on the conservation of the CLME.

Among the assumptions associated with Component 3 is that local communities and other key actors are willing to adopt innovative practices and actively participate in pilot programs and FFS; there are favorable regulatory and policy conditions for incorporating biotrade models and sustainable practices in the MS.

The main risks identified in Component 3 are the availability of operational wastewater treatment plants that can complement its treatment with NbS; the occurrence of adverse climatic impacts that generate extreme events such as floods or droughts, which could hinder the implementation of NbS; lack of interest from public, private actors, and organized community in implementing pilot plans with NbS to mitigate nutrient discharge from industrial, municipal, and agricultural origins.

**Component 4** of the project will establish knowledge and learning management (KML) strategies to promote the dissemination of results and exchange of experiences, integrating a gender and intercultural approach, and will establish a plan to promote the sustainability and scalability of the project's results (project exit strategy) (**Outcome 4.1**). These strategies will focus on knowledge management, effective communication, and incorporating lessons learned, aligning with the

guidelines of the CHO IP, and will be implemented through mechanisms that ensure the collection, systematization, and transfer of best practices. Key actions include the development of tools for managing and sharing knowledge with diverse stakeholders, including local communities, government institutions, and the private sector, with the aim of strengthening collaboration and joint learning. To achieve this result, **Output 4.1.1** will focus on creating specific mechanisms for knowledge management, such as digital platforms and participatory spaces, allowing the dissemination of technical and practical information while promoting the inclusion of gender and intercultural perspectives. Additionally, the exchange of experiences between local communities and institutional actors will be prioritized, fostering a constructive dialogue that integrates traditional knowledge and the NbS developed during the project. These actions will ensure that the project's lessons contribute not only to the sustainability of local interventions but also to the strengthening of capacities at regional and global levels, promoting a transformative impact on the sustainable management of the MS. Coordination mechanisms will be established with the GCP, ensuring that the project results contribute to the global objectives of the CHO IP (**Outcome 4.2**). In this framework, the project will periodically generate and submit reports on oxygen and nitrogen concentrations in the CLME for integration into GO2DAT. Regular submission of project reports to the GCP contributes to the effective implementation of the CHO IP's monitoring and evaluation strategy (Output 4.2.1). Furthermore, the project's implementation will be supported by a monitoring and evaluation system based on measurable and verifiable results, with an adaptive approach that allows interventions to be adjusted based on lessons learned and emerging needs (**Outcome 4.3**). This will include independent mid-term and final reviews (**Output 4.3.1**), which will assess the project's impact and alignment with established goals. These evaluations will be conducted under this output to inform project implementation through an adaptive management approach. These comprehensive actions will ensure the generation of knowledge and continuous learning, as well as the long-term sustainability of interventions, promoting efficient and adaptive management in the MS.

The project will promote regional integration and cooperation through active participation in regional events in the Caribbean and Latin America for the exchange of experiences in project management (CHO IP and other collaboration platforms). Additionally, continuous exchange will be established with other countries participating in the CHO IP program, including participation in webinars, newsletters, communities of practice, and country exchange spaces, as well as attendance at annual conferences and relevant events in person (Output 4.1.2). These efforts will allow for the integration of common learnings and strengthen the regional impact of the actions implemented in the MS.

The assumptions associated with Component 4 of the project include the availability of high-quality data, information, and knowledge, and the willingness of stakeholders to freely exchange them; women and indigenous communities are motivated and share their ancestral experiences and customs to enrich sustainable management practices; and the active participation of these communities in monitoring activities and generating key information to support the sustainable management of basin resources. These elements are essential to ensure the success of the component.

However, critical risks have been identified, such as the unwillingness of some stakeholders to share information, particularly indigenous communities, to the systematization of their experiences or the disclosure of ancestral knowledge related to traditional economic activities, worldview, spirituality, and natural medicine. To address this risk, transparent dialogues between stakeholders will be promoted to strengthen collaboration, and the implementation of Free, Prior, and Informed Consent (FPIC) and the Action Plan for Indigenous Peoples will be essential, ensuring respect for their rights, culture, and traditional practices while promoting an inclusive and participatory approach in project execution.

The gender approach will be transversal throughout the project implementation, adhering to the FAO Gender Equality Policy (2021a), and the GEF guidelines (2017), which establish three dimensions for addressing this issue: i) Closing gender gaps in access to and control of natural resources; ii) Improving women's participation in decision-making; and iii) Generating socio-economic benefits or

services for women. The project's Gender Analysis and Action Plan aims to promote the participation of women in decision-making through their involvement in various project activities, fostering governance and organizational spaces in the MS, and generating socio-economic benefits specific to them.

Gender gaps will be addressed through the incorporation of the approach in the four project components to promote equity and inclusive socio-economic benefits and improve women's participation in decision-making. In Component 1, women from public institutions will be trained in the generation and management of MS information and in participatory environmental monitoring, with the participation of women from local and indigenous communities (Outputs 1.1.1; 1.1.2; 1.1.3; 1.1.4). In Component 2, women will be trained, will become part of savings and credit communities, and will contribute to the design of financial instruments for the implementation of NBS (Outputs 2.1.1 and 2.1.2). In territorial planning processes, women will participate in the design of the PORUs and the MS sanitation plan (Outputs 2.2.1 and 2.2.2). In Component 3, women will participate in the implementation of NBS as a complement to wastewater treatment plants through training and integration into the process (Output 3.1.1) and in sustainable management pilots (Output 3.2.1). Women will be trained as promoters of Global Soil Doctor Programme and in FFS (Output 3.2.2). Women's needs will be considered in the design of biotrade models, and technical officers will be trained in their management in the public sector (Output 3.2.3). In Component 4, knowledge and learning management (KML) will be addressed with a gender and intercultural approach to systematize and disseminate lessons learned, ensuring women's participation in national and international exchanges within the CHO IP framework, among other activities. The details of these activities and indicators are aligned with the project's results and products and are developed in the Gender Analysis and Action Plan (Annex K) and the Work Plan (Annex G).

The Conservation and sustainable development of the MS as a contribution to the improvement of the large marine ecosystem of the Caribbean will collaborate closely with the CHO IP Global Coordination Project on its gender-related activities, including a set of mandatory activities to ensure harmonization at the programmatic level. This will include the need to: (1) conduct a gender analysis and develop a gender action plan (GAP) that aligns with the GCP GAP; (2) conduct a gender-responsive stakeholder analysis that aligns with the GCP Stakeholder Analysis and Engagement Plan; (3) ensure that the project's gender specialist and other relevant members of the project team participate regularly in the GCP Gender Working Group; (4) participate in relevant program-level capacity-building events organized by the GCP that seek to benefit women; (5) establish and collect, analyze and report on sex- disaggregated data, in alignment with the programmatic-level gender indicators and report these to the GCP; and (6) identify good practice examples and lessons learned on gender issues in relation to the CHO IP and transmit these to the GCP for dissemination through program-level communications and/or knowledge products.

The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will ensure that gender is mainstreamed throughout its activities, including (as relevant) into: (1) scientific and technical data collection and monitoring related to the CHO IP; (2) awareness-raising and outreach campaigns on nutrient pollution and marine hypoxia; (3) project activities to integrate gender considerations in policies, strategies and plans in the context of the CHO IP; (4) any activities addressing finance and investment to incentivize the take up of measures to address marine hypoxia including opportunities to promote women's access to blue/green finance and blue/green jobs; (5) any activities that offer opportunities to facilitate partnerships between women-led businesses and other key stakeholders (e.g. WE-Fi) for women to develop small businesses focused on activities addressing marine hypoxia; (6) tailored technical support activities promoting best management practices to mitigate aspects of nutrient pollution in the agricultural,

industrial and urban sectors, and (7) more generally, actions to ensure that women and women's groups/organizations can fully participate in all project activities.

It will be essential to consider the diversity of actors in the Lake Maracaibo basin, giving a central role to local and indigenous communities, who will be strengthened in their capacity to adopt and promote sustainable practices that value their ancestral knowledge, worldview, and relationship with the environment. These actions will contribute to improving their livelihoods and financial capacities while benefiting from more effective resource management and a stronger institutional framework that ensures the sustainability of environmental benefits. Government agencies will strengthen their capacities, implement policies, and provide ongoing support to the project and communities within a knowledge exchange framework. In turn, producers and officials from institutions will provide technical support, monitoring, and evaluation; academia will offer technical assistance and advisory services; private sector partners will contribute through productive activities and the promotion of sustainable value chains. The list of stakeholders and their specific roles is detailed in the Project Stakeholder Engagement and Grievance Mechanism Plan, ensuring their commitment to project implementation.

The project will ensure that MS management is aligned with an integrated spatial planning framework that addresses land use challenges and nutrient pollution, maximizing socio-environmental benefits in key intervention areas and generating global environmental benefits. This approach will result in the implementation of good practices in 40,000 hectares of landscapes under sustainable management, promoting the conservation and restoration of ecosystems in critical areas of the basin (Ci 4). Also, aims to reduce pollution and nutrient load into the CLME by increasing wastewater treatment discharged to the MS of 30% of treated wastewater from Venezuelan coastal areas (Ci 5). On the other hand, the project will contribute to climate change mitigation by avoiding emissions equivalent to 2,180,736 tons of CO<sub>2</sub> through the implementation of nature-based technologies and practices for nutrient management, the rehabilitation of wastewater treatment plants, and the promotion of sustainable agricultural systems in degraded areas (Ci 6) and will contribute to the health of the CLME by Venezuelan participation in regional agreements for the share management of the CLME (Ci 7). In addition to generating the global environmental benefits mentioned, the project seeks to directly benefit 50,000 women and 50,000 men through capacity building, job creation in sustainable initiatives, strengthening public policies, and improving the livelihoods of local communities (Ci 11). The proposed strategy will generate improvements in ecosystem services and functions, biological diversity, and terrestrial and aquatic ecological integrity, with an impact on reducing the risk of flooding, agroclimatic risks, and water pollution in the MS, contributing to the conservation of the CLME.

With support from the GEF and co-financing from the Venezuelan government and strategic partners, the project will mobilize resources amounting to a total of USD 116,333,333, of which GEF will contribute USD 16,833,333 (17%), complemented by USD 99,500,000 in co-financing. This incremental investment will allow the establishment of a framework to channel new investments in biodiversity conservation and sustainable livelihoods management, promoting economic and environmental stability.

The project was selected over other alternatives due to its alignment with national and international policies and its scalability and replicability potential in local and indigenous communities of other sub-basins in the region. With a favorable technical and economic framework, the project will address critical environmental problems in the MS, generate global environmental benefits, and contribute to the goals of the Integrated Clean and Healthy Oceans Program, strengthening the sustainability of Venezuela's aquatic and terrestrial ecosystems and the CLME region.

To ensure that the expected results of the project are resilient to future changes, emphasis will be placed on the ownership of the products by local actors, supported by educational and training programs focused on adopting NbS, sustainable production, and integrated basin management. Additionally, strategic partnerships will be established with private sector actors, non-governmental organizations, indigenous communities, local

governments, and cooperation networks to reduce the hypoxia in the marine ecosystem (through integrated and sustainable basin management), strengthening livelihoods and food security. Active participation and traditional knowledge from indigenous communities will be essential in this process, ensuring that the implemented solutions are culturally appropriate and socially inclusive. Local ownership will be a strength in the face of potential political changes or adverse macroeconomic contexts, allowing for adaptive and flexible management that can meet objectives in changing scenarios while strengthening local capacities to address anticipated environmental and climatic changes.

### Stakeholder engagement

The MINEC will coordinate the development and execution of the project, with significant participation from the ICLAM and the organizations that make up the PCLM. Various general directorates of MINEC and its affiliated bodies will participate in the development of the project. Inter-institutional coordination will also be promoted with the MINAGUAS, Ministry of Popular Power for Productive Agriculture and Land (MPPAPT), Ministry of Popular Power for Fisheries and Aquaculture (MINPESCA) and its affiliated bodies, which will contribute with technical information, training, and monitoring in areas such as water management, sustainable agriculture, and responsible fishing. Venezuela Petroleum Company (PDVSA) will collaborate with ICLAM in providing logistical support for lake water quality monitoring. Actions will be agreed upon with the National Institute of Meteorology and Hydrology (INAMEH) for monitoring and managing information on climate change and variability scenarios. Actions will be coordinated with various universities and research institutes (University of Los Andes - ULA, University of Zulia - LUZ, Environmental Studies Center - UBV Zulia, National Experimental University of the South of Lake - UNESUR, Central University of Venezuela - UCV, Lisandro Alvarado Central Western University - UCLA, Venezuelan Institute of Scientific Research - IVIC, Zulian Institute of Technological Research Foundation - INZIT) to contribute to capacity building both in governmental institutions and local communities. The regional development corporations (Corporation for the Development of the Zulia Region - CORPOZULIA and Corporation of Social Development Organizations and Institutions of Los Andes - CORPOANDES), State and Municipal Governments will be involved in the participatory construction of a proposal for the Zoning Plan and Use Regulations (PORU) for the Chama and Escalante River subbasin. With the Ministry of Popular Power for Indigenous Peoples (MINPPI), Ministry of Popular Power for Women and Gender Equality (MINMUJER), and regional and local organizations, actions will be coordinated to ensure the participation and empowerment of women and indigenous populations in the areas of intervention. Different organizations and associations of agricultural, livestock, fisheries, and aquaculture producers in the MS will promote the implementation of best practices for the sustainable management of the MS incorporating NbS.

Indigenous peoples and communities will actively participate in the project. The Añu and Wayuu indigenous peoples and communities of Laguna de las Peonías, Maracaibo municipality, will play a leading role in the development of pilot projects for improved mangrove management from an intercultural perspective, taking into account their traditional vision and knowledge. Indigenous peoples will also be involved in participatory monitoring, pilot projects for sustainable land management, Farmer Field Schools, and biotrade activities, especially the Indigenous peoples located in the southern area of Lake Maracaibo. Indigenous leaders from the Colón Municipality in Zulia state requested, during the consultation process, that the Escalante River basin be incorporated into the development of the project's PORU, due to the significant impact of agricultural and industrial processes in recent decades on their habitat. Their participation in the plan's design is ensured. On the other hand, various Indigenous peoples and communities will participate in identifying their wastewater treatment needs to incorporate them into the design of the Ministry of Health's Sanitation Plan, as well as agroclimatic technical roundtables.

In the Afro-descendant fishing village of Palmarito, in the Tulio Febres Cordero municipality of Mérida state, located south of Lake Maracaibo, there is one of the three women-only Councils of Fishermen, Women Fishermen, and Artisanal Aquaculture Farmers (CONPPAs) in the country. In this community, the formation of a local savings and credit system with broad participation by women will be promoted, enabling them to

consolidate their productive work and improve their living conditions with technical support and financial capacity building.

The involvement and active participation of these stakeholders in the project will be key to ensuring the achievement of the expected global environmental benefits, as well as the long-term sustainability of GEF investments. It is important to highlight that the designed actions will also generate co-benefits, which are essential to achieving durable and transformative global environmental benefits. These will mostly be socio-economic and will be closely associated with the successful application of mechanisms for system change: benefiting governance and policies, innovation and learning, financial leverage, and dialogue among multiple stakeholders. In this regard, strengthening institutional and local capacities for the generation of scientific information and enriching tools for monitoring the environmental conditions of the MS will provide long-term co-benefits, as the installed capacities will ensure the continuity and replicability of the actions. The financial leverage of the GEF, as support for implementing NbS to reduce nutrient inputs to the LM and sustainably improve productive conditions, will generate a framework where multiple stakeholders will be involved to achieve financial sustainability at the local level in the MS.

It is expected that the involvement of stakeholders and the satisfactory completion of the planned activities will create the necessary conditions to scale actions both within and outside the MS, integrating new actors and establishing strong mechanisms for exchange and inter-institutional coordination to ensure the continuity and sustainability of GEF investment.

The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will be responsible for the development of a country-level detailed SAEP covering geographically the source-to-sea continuum, which will be refined and operationalized at the start of the project. The country-level SAEP will include: (1) a stakeholder mapping and identification; (2) a stakeholder analysis characterization, including the following parameters: stakeholder type, sectors, stakeholder tiers, importance, interest, influence, action arena, positionality, and gender flag; (3) a stakeholder grouping to identify key categories of stakeholder to be prioritized; (4) the development of an engagement strategy with specific mechanisms and activities per key stakeholder groups. A template database to use for the stakeholders grouping, analysis and characterization will be provided by the GCP and used by the CPs to enable the development of an IP level database to be used for Communication activities as well as Stakeholder Engagement activities at the Global, Regional, and CP levels.

As part of the SAEP, the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will develop and implement a Private Sector Engagement Strategy (PSES) to ensure collaboration with key private sector entities, such as fertilizer companies, agri-food businesses, water supply firms, tourism businesses, fishing companies, the banking industry etc. As for the SAEP, the PSES at country level will need a detailed process for stakeholder mapping, characterization, categorization, leading to a comprehensive plan with specific engagement mechanisms and activities per key private sector groups that will be identified.

The Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will work with the GCP to ensure a harmonized approach to developing, reviewing, and implementing the SAEP and the PSES. Towards this end, the CP will dedicate time to support the GCP revise the SEAP at GCP/IP level. The project will use its own financial support from the IA to develop and implement these plans but may require additional technical support from the CGP, which would require additional financial contribution from the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean budget.

#### Private sector involvement

The private sector's involvement in the project will be carried out through contributions for the development of products and the achievement of results, including the implementation of NbS, participation in consultation

processes for the design of public policies that contribute to the sustainability of the MS, as beneficiaries and end users of best practices in agricultural and livestock production, among others. The Bolivarian Federation of Agricultural Producers of Zulia State (CONFAGAN-ZULIA), will be a key partner. CONFAGAN-Zulia includes agricultural and livestock producers in Zulia state, and they have implemented practices for sustainable production, for instance in Musaceae and in oil palm. They will support with workshops and trainings for sharing these practices with other farmers at the regional level. Additionally, CONFAGAN will support technical teams in environmental monitoring, with logistical assistance; they formally expressed this commitment by means of a cofinancing letter. In the same way, the Association of Shrimp Producers of Venezuela (ASOPROCA), will support the development of bioproducts, like biopesticides made from the shell of shrimps. Currently, the Zulian Institute for Technological Research (INZIT) developed an experimental line of bioproducts that require permanent supply of raw material to scale it up. The partnership with ASOPROCA will promote a new market for biopesticides and a circular economy in shrimp production. Both actors, ASOPROCA and INZIT were involved in the project design and during the implementation phase they will play a relevant role.

The leadership of the private sector will be key to engaging local communities in sustainability initiatives, promoting a sense of shared responsibility and mutual support. They will participate as collaborators in their areas of expertise, in the pilot projects planned under the project, demonstrating the benefits of sustainable practices. Strategic partnerships will be established by the project to encourage collaboration between the private sector, government entities, non-governmental organizations, and academia, facilitating the exchange of knowledge, resources, and technologies. Currently, there are collaborative initiatives between the public and private sectors to support the execution of reforestation plans. For instance, in SL region the MINEC have a partnership with palm oil producers and dairy companies for supporting the reforestation of local river basins. This partnership will be strengthened and expanded to other activities within the framework of this project.

The involvement of the private sector in the project, in collaboration with other sectors, will aim to address the main causes of environmental degradation in the MS and lay the foundations, for example, to encourage future investments in NbS, strengthen the private sector's commitment to defining and applying sustainable public policies, and generate articulation mechanisms that ensure the long-term sustainability of the project actions, among others. In this context, financing opportunities, such as social investments, donations, and public-private partnerships, will be explored to enhance the impacts of this project.

Innovation & Transformative Change, Knowledge management, Policy coherence and Capacity development

## **Innovation & Transformative Change**

The project is conceived as transformative, as it seeks not only to address the direct causes of eutrophication and hypoxia in the Maracaibo System (MS), but also to tackle the structural and underlying barriers that perpetuate these issues. Its integrated approach aims to transform systems, structures, and behaviors, promoting sustainable environmental, social, and economic change. In this regard, the project will contribute to improving the condition of the MS as part of the Caribbean Large Marine Ecosystem (CLME), generating both local and global environmental benefits.

The project's design is based on the premise that transformative change can be achieved through multiple, articulated, and participatory partial achievements that, collectively, scale into systemic impact. In addition to addressing the immediate causes of nutrient pollution, the project is expected to drive a transformation in how key actors—institutions, local communities, Indigenous peoples, and civil society organizations—engage with water resource management, land use, and territorial planning.

One of the cornerstones of this transformation will be the implementation of pilot experiences based on Nature-based Solutions (NbS), aimed at reducing nutrient loads to the MS, improving wastewater treatment, and promoting more sustainable agricultural and livestock production. These practices will not only help restore the

ecological balance of the system, but also generate local socio-economic benefits, particularly for vulnerable communities. They will also be designed with scalability and replicability in mind, allowing for their expansion to other areas of the basin.

The project also includes the design of economic incentives and the strengthening of the public policy framework to support the adoption of NbS by producers and other stakeholders. This enabling environment will foster the institutionalization of sustainable practices in planning instruments and environmental investment management, establishing sustainability guidelines to guide future interventions in the basin.

## **Capacity development**

Capacity development is a cross-cutting and strategic pillar of the project, aimed at ensuring the effective and sustainable implementation of its actions, as well as promoting structural change in how local actors manage natural resources and respond to the impacts of climate change in the Maracaibo Lake basin.

While the country has a strong technical and academic foundation, scientific information and environmental monitoring systems in the Maracaibo System (MS) remain fragmented, with limitations in data updating, institutional coordination, and public accessibility. Furthermore, significant gaps persist in local capacities to autonomously address environmental and socioeconomic challenges in the territory.

To address this context, the project will develop a comprehensive capacity development strategy focused on four key areas: i) Participatory environmental knowledge management: A participatory monitoring strategy will be implemented to assess the environmental conditions of the MS, involving communities, public institutions, grassroots organizations, and academic institutions. This strategy will generate quality data and information on water quality, aquatic ecosystems, and climate change impacts, supporting informed decision-making processes. The system will be integrated into national platforms and enable the generation of community-based early warnings in response to critical events such as algal blooms, hypoxia episodes, or water scarcity. ii) Training for sustainable production: Capacities among farmers, fishers, and aquaculture producers will be strengthened through the implementation of Farmer Field Schools (FFS), with support from FAO's Global Soil Doctors Programme. These FFS will function as communities of practice and intercultural learning spaces, promoting sustainable soil management, ecosystem restoration, and the application of Nature-based Solutions (NbS). iii) Capacity building for sustainable productive enterprises: The project will provide technical, training, and organizational support to local communities—particularly women, youth, and Indigenous peoples—to develop sustainable business models and inclusive value chains linked to strategic products. This includes support for community savings and credit systems, access to green financing, and training in business management with a focus on sustainability and equity. iv) Institutional strengthening with a gender and intercultural approach: Public officials and local stakeholders will be trained in management technologies, risk communication, ecosystem-based territorial planning, and participatory governance mechanisms. These actions will aim to close information access gaps and promote leadership by women and Indigenous peoples in environmental management processes.

In addition, the project will promote the systematization and dissemination of experiences, good practices, and lessons learned through accessible knowledge products for local and regional stakeholders, thus reinforcing collective learning and ensuring the long-term sustainability of installed capacities.

## **Knowledge management**

Knowledge management will be a central component of the project, conceived as a strategic, dynamic, and multidisciplinary process that integrates the generation, systematization, exchange, and use of knowledge to support decision-making, collective learning, and the long-term sustainability of interventions. This function will integrate gender and intercultural approaches throughout and will be aligned with the Knowledge Management and Learning (KML) strategy of the Clean and Healthy Ocean Integrated Program (CHO IP).

The Project Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean will collaborate closely with the Clean and

Healthy Ocean IP Global Coordination Project (CHO IP GCP) through strategic communication and awareness-raising on marine hypoxia and nutrient pollution. This will include developing a national baseline assessment of marine hypoxia and nutrient pollution awareness and a corresponding National Communication and Outreach Plan, adapting global communication materials to the national context, executing a national awareness-raising campaign, and utilizing gender-responsive social media strategies to highlight impact stories from a gender perspective. The project will also contribute to and benefit from GCP initiatives such as the Goodwill Ambassadors plan and the dissemination of policy briefs to strengthen the science-policy interface at national and regional levels. The project's communication specialist will participate in the CHO IP Communications Thematic Working Group, implement the CHO IP Visual Identity (presented in February 2025) across all communication products, and contribute to global-level communications with project specific materials. Press releases will be issued to announce key achievements, including the project launch, ensuring consistent visibility at the national level. Country projects will ensure that all communication materials highlight that the project is part of the global CHO IP, ensuring that the collective impact of national projects amplifies the overall global impact of the CHO IP.

The project will generate knowledge from its core activities, including pilots on sustainable production and restoration, the application of Nature-based Solutions (NbS), biotrade models, and participatory monitoring of environmental conditions in the basin. This knowledge—encompassing technical data, empirical results, and local insights—will be systematized and validated in collaboration with communities, institutions, and technical actors, and made available through an open-access digital platform integrated with the Maracaibo System Information Management System (MS-IMS).

The project will promote knowledge ownership and democratization through the development of educational and outreach materials tailored to different audiences—such as schools, community centers, local governments, and technical institutions—and through the use of digital platforms, audiovisual tools, and open repositories. Special emphasis will be placed on the active participation of women, youth, and Indigenous peoples in the dissemination of knowledge, strengthening their roles as multipliers within their communities.

The project will also encourage horizontal exchange spaces such as dialogue forums, local stakeholder gatherings, and twinning activities with other CHO IP projects in the region. These initiatives will facilitate the flow of good practices and the building of collaborative networks at the regional and global levels. The information generated through participatory monitoring and other community processes will be organized and made accessible to a wide range of stakeholders in user-friendly formats and tools adapted to local realities, promoting the use of knowledge as a driver for collective action.

At the global scale, the Conservation and sustainable development of the Maracaibo Lake basin as a contribution to the improvement of the large marine ecosystem of the Caribbean Project will collaborate closely with the Global Coordination Project (GCP) to ensure alignment with the program KML Strategy and implementation activities. The GCP will represent the CHO IP in terms of engagement with the GEF's International Waters Learning Exchange and Resource Network (IW: LEARN). This child project will provide inputs to the GCP to engage/liaise with IW: LEARN as outlined in the KML strategy (to be developed by the GCP during the program inception phase). The Project will prepare knowledge products to enhance cross-project learning and gender-transformative actions to reduce land-based pollution causing hypoxia, provide regular updates and contribute content to the CHO knowledge portal. In addition, the project will participate in learning exchanges, twinning programs, and provide inputs to the Clean and Healthy Ocean Knowledge Atlas as guided by the GCP. This collaboration will require staff time, event participation, and support from multimedia and design professionals to ensure high-quality contributions to global knowledge-sharing initiatives.

### **Policy coherence**

The project will address the development of its components considering the existing public policy frameworks and national strategies. On the other hand, Component 2 will seek to strengthen the public policy framework to encourage and finance actions that contribute to mitigating the eutrophication and hypoxia problems of the CLME. Product 2.1.1 will consist of a financial strategy proposal to promote the adoption of nature-based

solutions in the productive systems of the Southern Lake, presented to the relevant authorities. It is expected that this will serve as the basis for the possible formulation of a broader financial instrument or incentive mechanism that will allow for the adoption, sustainability, and scalability of these actions on a larger scale. Product 2.2.1 will consist of the formulation of Land Use Planning and Regulation Plan (PORU) for the Chama and Escalante River sub-basins, incorporating guidelines for the implementation of NbS in productive practices, nutrient management, and integrated pest management. This proposal is interesting as it aims to achieve the mainstreaming of key aspects for addressing hypoxia and eutrophication of the Lake Maracaibo basin, applied to a pair of sub-basins as a pilot model with replication potential in other sub-basins.

It is important to highlight that most of the project's actions are aligned with the priorities set out in the MPLM. One of these priorities is the sanitation of the LMB, the project will contribute with a plan to support the sustainable wastewater management in the basin. Furthermore, the implementation of the project will contribute to achieving the goals currently being updated, related to the National Biodiversity Strategy and Action Plan (NBSAP) within the framework of the UNCBD and aligned with the global action-oriented 2030 targets of the Kunming-Montreal Global Biodiversity Framework. Additionally, it will contribute to achieving the goals established in the 'National Strategy for Land Degradation Neutrality' (LDN), in line with global goal 15.3.

<sup>[1]</sup> According to Venezuela's legal framework, Areas Under Special Management Regime (ABRAE) must have a Zoning and Usage Regulations Plan (PORU). The PORU is the legal instrument that contains the policies, guidelines, and directives for managing the corresponding area, assigning uses and activities, as well as the management or operational programs. The Maracaibo Lake Basin was declared a Critical Area with Priority for Treatment (ACPT), one of the ABRAE categories for those national territories that, due to their ecological conditions, require priority treatment through a management, zoning, and protection plan. The decree establishing the ACPT for the Maracaibo Lake Basin specifies that MINEC will issue the standards for the conservation, defense, and improvement of this ABRAE, in order to implement the basin's management, zoning, and protection plan.

## Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this child project, including framework and mechanisms for coordination, governance, financial management and procurement. This should include consideration for linking with other relevant initiatives at country-level (if a country child project) or regional/global level (for coordination platform child project). If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

The project design was developed in alignment with national strategies, such as the MPLM promoted by the Presidential Commission, whose mission is to reverse the environmental degradation of the basin by controlling pollution sources and promoting sustainable production models. In addition, the ICLAM will be a key collaborator for the project's anchoring, providing technical and methodological capacities to the involved stakeholders, through actions related to water quality monitoring, restoration of degraded ecosystems, and promotion of integrated watershed management.

MINEC will have the technical and overall execution responsibility for the project, and the Food and Agriculture Organization of the United Nations (FAO) and the Development Bank of Latin America and the Caribbean (CAF) will be the GEF implementing agencies. FAO will also provide execution support by administering the GEF grant at the request of the country, as described below. MINEC will act as the lead executing entity and will be responsible for the day-to-day leadership of the project outcomes. MINEC is responsible for the timely execution of the agreed project outcomes, supervision of activities, timely reporting, and effective use of GEF resources for the intended purposes and in accordance with the requirements of FAO, CAF and GEF policies. The project organization structure is as follows (Figure 12).

The Government will designate a National Project Director (NPD). Located at MINEC, the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He/she will also be responsible for supervising and guiding the Project Coordinator (see below) on Government policies and priorities. The NPD will be responsible for:

- i. Representing the government in activities related to the project.

- ii. Serving as the liaison with FAO, representing MINEC as the main executing entity.
- iii. Coordinating activities with all national entities related to the different components of the project, as well as with project partners.
- iv. Ensuring the implementation of the PRODOC and the strategies and decisions of the Project Steering Committee.
- v. Supervising and guiding the Project National Coordinator on government policies and priorities.
- vi. Ensuring the proper technical and administrative execution of the project by monitoring and evaluating the project work plans, in close coordination with the National Coordinator of the Project.

The expectation is that the IA for each national CP will appoint a primary project contact who will be responsible for:

- Identifying appropriate staff to participate in meetings.
- Reporting all changes in project staffing to the GCP within two weeks of staffing changes so that there is an up-to-date and active distribution list.
- Identifying the correct counterparts for capacity building needs assessment.
- Identifying trainees for capacity building events.
- Identifying opportunities for peer-to-peer exchanges, study tours and other capacity building events.
- Participating in the PCC meetings and other cohort events.
- Identifying the correct counterpart to help organize training events sponsored by the GCP.
- Helping with the transfer of lessons learned to the GCP and support communications products.
- Liaising for the preparation of the annual Programme reporting
- Leading on other organizational or coordination issues between the GCP and the national CPs
- Representing the country in meetings and events related to the CHO IP as needed to discuss results, share good practices and lessons learned.

The Venezuelan focal point for the CP to link to GCP will be Alinexis Barrios, the General Director of the Office for Integration and International Affairs (MINEC).

The PMU (Project Management Unit) is formed by the Technical Project Coordinator (TCP), Financial and Operations Administrative Assistant (FOAA) and Support Consultant for Recruitment and Staff Management (SCRSM) (Figure 12).

The TPC will coordinate, supervise, advise, and review all products developed by consultants and advisors to ensure alignment with the project objectives and quality standards. The FOAA will execute all relevant actions for the appropriate operational and administrative management of the project, with a results-based approach to ensure the achievement of objectives and deliverables. Finally, the SCRSM will provide operational and administrative support to the PMU and PTT, ensuring the timely hiring of the required personnel and its proper management. The consultant will act as a liaison between the management and technical team, suppliers, and the administrative office (for more details see Annex L: Terms of Reference of project core staff).

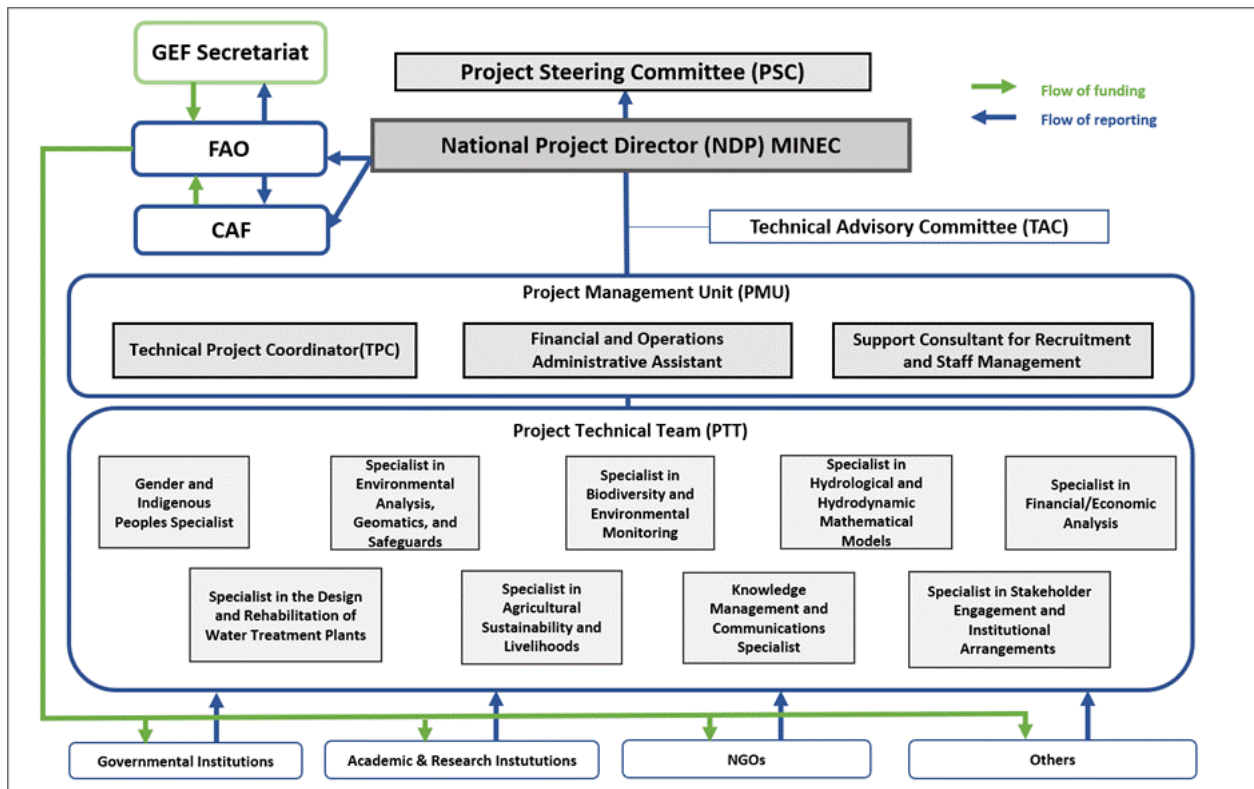


Figure 12. Organizational chart of the project Conservation and Sustainable Development of the Maracaibo Lake Basin as a Contribution to the Greater Caribbean Marine Ecosystem.

MINEC will chair the Project Steering Committee which will be the main governing body of the project. The PSC will approve Annual Work Plans and Budgets on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners.

The PSC will be comprised of representatives from MINEC, CAF, ICLAM, MINAGUAS, MPPAPT and FAO. The PSC will hold regular sessions at least twice a year. However, if deemed necessary by its members, extraordinary meetings can be convened. Sessions can be held in person or through electronic means. Whenever possible, in-person sessions will be held in the project area. All committee decisions will be made by consensus. In its first meeting, the PSC will agree on its operating procedures. The members of the PSC will be formally appointed through a formal note addressed to the FAO. The main functions of the PSC are:

- i. Provide guidance and strategic definitions for the execution of the project.
- ii. Supervise the project implementation and ensure the technical quality of its results and outputs.
- iii. Review and agree on the project's strategy and methodology, as well as agree on any changes and modifications necessary based on field implementation, following the procedures established by FAO and the donor.
- iv. Approve the annual work plans and budgets, as well as the progress reports.
- v. Review and comment on the mid-term and final evaluation reports of the project, and take measures to implement the recommendations.
- vi. Coordinate and manage, through institutional means, the timely contribution of the co-financing agreed upon by each participating institution in the project, as well as other funding sources that contribute to the project's objectives and results.
- vii. Promote agreements and other forms of collaboration with national and international organizations that contribute to the execution of the project and the achievement of its results.

- viii. Convene and organize meetings with various national, regional, and local stakeholders when relevant.
- ix. If necessary, resolve conflicts related to the project and its proper execution.
- x. Take measures and make arrangements to ensure the sustainability of the project's main outputs, as well as their expansion and replication.
- xi. Promote the dissemination of the project's lessons and learnings.

The members of the PSC will each assume the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

The FAO and CAF will be the GEF Implementing Agencies (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IAs, FAO and CAF hold overall accountability and responsibility to the GEF for delivery of the results.

In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex M for details):

The Budget Holder, which is usually the most decentralized FAO office, will provide oversight of day-to-day project execution;

The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee;

The Funding Liaison Officer(s) and the GEF Technical Officers (GTO) within FAO will monitor and support the project cycle to ensure that the project is being designed and carried out in accordance with FAO and GEF minimum fiduciary and technical standards.

FAO responsibilities, as GEF agency, will include:

Administrate funds from GEF in accordance with the rules and procedures of FAO;

Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, and other rules and procedures of FAO;

Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;

Conduct at least one supervision mission per year; and

Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;

Financial reporting to the GEF Trustee.

CAF responsibilities, as GEF agency and co-implementing agency for this project, are as follows:

Co-oversee project implementation in accordance with the CEO Endorsement Request document, project document, work plans, budgets, agreements with co-financiers, and other rules and procedures of CAF;

Co-provide timely technical guidance to ensure that appropriate technical quality is applied to all activities concerned;

Conduct at least one supervision mission per year; and

Co-reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress.

The project is aligned with the objectives of the Integrated Clean and Healthy Oceans Program (CHO IP), which aims to address nutrient pollution and marine hypoxia through information generation, the implementation of public policies, regulations, and innovative solutions such as Nature-Based Solutions (NbS). Coordination at the programmatic level will be led through the CHO Program Coordination Committee (CHO-PCC), which facilitates interaction with participating countries, partners, and other regional initiatives. Venezuela, as part of the CHO IP, will participate in technical cooperation spaces, communities of practice, and annual events organized by the program to share knowledge and lessons learned, considering the governance structure of the CHO IP (Figure 13).

The governance structure of the CHO IP will consist of the following key elements: CHO Program Coordination Committee (CHO-PCC): The CHO-PCC will provide a channel for countries and representatives of diverse global CHO stakeholder groups (including IAs, EAs, entities, organizations, networks and coalitions representing the interests of nitrogen users and producers, women, indigenous peoples, academia, research institutions, youth and the private sector) to share guidance on the priorities and approaches of the IP, including key emerging issues to be addressed and suggested initiatives or stakeholders with which the IP should collaborate. Members of the PCC include: GEF Implementing Agencies (FAO, ADB, CAF, EBRD, UNEP, WB, CI, IADB, UNDP) Global Coordination Project Partners (UNESCO-IOC, GWP, UKCEH/UNEP, UNIDO); Representatives/Focal Points of the Country Projects; GEF Secretariat. The GCP PMU serves as the Secretariat of the CHO-PCC. The CHO-PCC will also provide a space to guide on new and/or corrective actions to consistently support and consolidate the progress made by the 14 CPs and the GCP and address issues and bottlenecks. For this reason, the CHO-PCC will hold in-person meetings during the annual stocktaking meetings organized by the GCP, but will also hold virtual meetings when needed between these annual events.

The PCC will:

- Inform and receive advice from the SAB.
- Receive formal reporting from the GCP (aggregating information collected from the Country Projects through the Program-level monitoring and reporting framework);
- Advise and provide guidance to the GCP on priorities and approaches for portfolio delivery;
- Receive inputs from the program Implementing Agencies and Country Projects.
- The CHO-PCC does not take decisions on budgetary issues. Terms of Reference for the PCC will be defined during the first year of execution of the CHO IP and will be reviewed and adopted at the first Program Coordination Committee Meeting.

A CHO-IP Strategic Advisory Board (CHO-SAB) will support the GCP partners and PMU to optimize alignment between the technical activities of the IP/GCP and global initiatives/actors. Relevant members of the SAB will meet (as needed, and as requested by the IP co-leads, PCC members, partners and/or agencies), to advise on specific policy, strategic or technical issues, including:

- Guidance on the formulation and application of programmatic indicators that will be aggregated across the IP, including but not limited to GEF Core Indicators and Sub-Indicators (see M&E plan). Appropriate indicators will be defined during the GCP inception phase.
- Brokerage and organization of technical support from specialized institutions and service providers;
- “Matchmaking” to link country projects with regional and global actors, networks and initiatives that have the potential to support the operations at national level (for example as sources of finance, knowledge, policy engagement and market and value chain opportunities),

knowledge sharing, scaling of impacts, and transformational impacts at systems level for example on policy and legal frameworks.

- Terms of Reference for the SAB will be defined during the first year of execution of the CHO IP and will be reviewed and adopted at the first Program Coordination Committee Meeting.

The CHO-PCC will also provide a space to provide support, address issues and bottlenecks and advise on new and/or corrective actions to ensure consistent progress is made by the 15 CPs of the CHO IP. To facilitate this, the CHO-PCC will always be held in conjunction with the annual stocktaking meetings organized by the GCP.

### CHO IP Governance structure

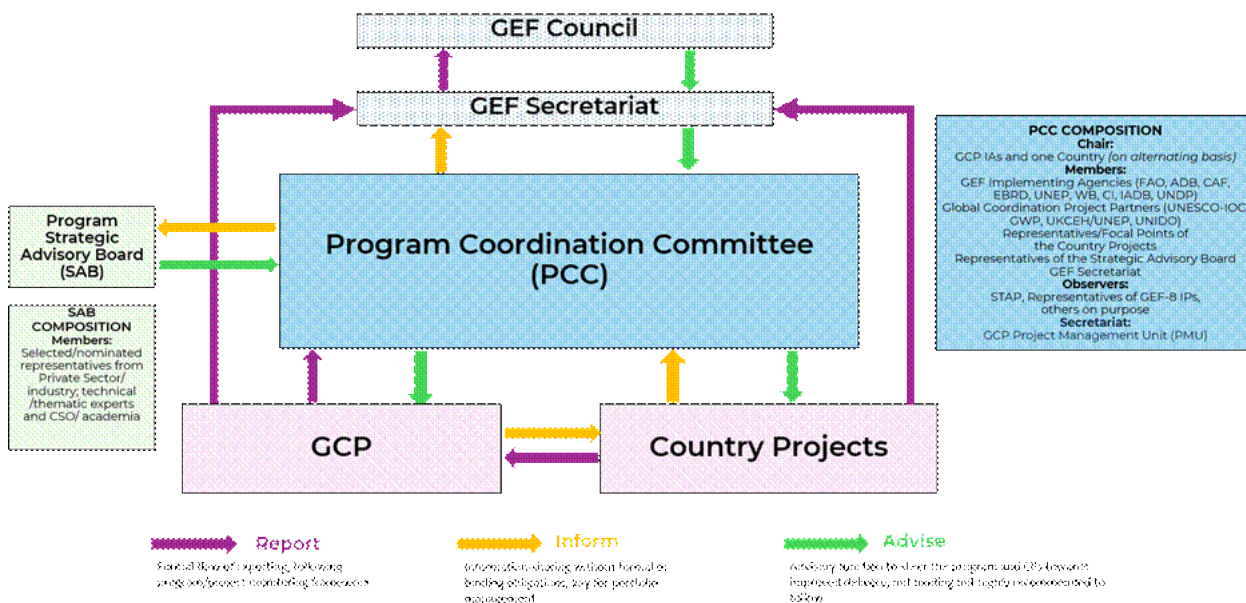


Figure 13. Governance structure of the CHO IP

A CHO IP Technical Advisory Group (CHO-TAG) will support the GCP and its Project Management Unit (PMU) to optimize alignment between the technical activities of the IP/GCP and global initiatives/actors. Relevant members of the TAG will meet (as needed, and as requested by the IP co-leads, Program Coordination Committee members, partners and/or agencies) to advise on specific policy, strategic or technical issues. These may include:

- Guidance on the formulation and application of programmatic indicators that will need to be aggregated across the IP, including but not limited to GEF Core Indicators and Sub-Indicators (see M&E plan). The full set of programmatic indicators will be confirmed at the startup of the GCP.
- Brokerage and organization of technical support from specialized institutions and service providers: the costs of identifying sources of technical support and organizing its provision will be covered by the GCP, but Country Projects will be required to cover the costs of contracting (individually or collectively) the provision of the support and of participating in capacity development events.
- “Matchmaking”, linking Country Projects with regional and global actors, networks and initiatives that have the potential to support the operations of Country Projects (for example as sources of finance, knowledge, and policy engagement), knowledge sharing, scaling of impacts, and transformational impacts at systems level (for example on policy and legal frameworks).

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Will the GEF Agency play an execution role on this child project? Yes

If so, please describe that role here and the justification.

At the request of the Bolivarian Republic of Venezuela, and as documented in the GEF OFP letter of support, in order to mitigate the risk of currency devaluation, FAO will provide execution support by administering the full GEF Grant portion, providing financial management, procurement of goods and contracting of services, following FAO rules and procedures, under the guidance of the MINEC as Executing Agency. FAO will disburse as requested by MINEC and in accordance with the work plans and budgets validated by the Project Steering Committee. FAO will also participate in Letters of Agreement with national institutions identified during project implementation, following FAO's rules and procedures, for the execution of relevant activities. MINEC assumes executing responsibilities and project guidance and as such, it is the main decision-making body on the use of all resources allocated to the projects, with supervision from FAO as implementing agency. FAO will not charge any cost on the project budget to perform the administration of resources.

To ensure adequate firewalls between implementation and execution roles, FAO office in the country provides the execution support role, while the implementing role is guaranteed by a project task force, with the participation of a Lead Technical Officer, Funding Liaison Officer and GEF Technical Officer, located in FAO's regional office and headquarters. FAO internal control frameworks are also designed to provide adequate oversight to project execution, with the Regional Office, the Finance Division, Office of Evaluation, Office of Inspector General, and Office of Climate Change and Environment monitoring the GEF portfolio.

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

The project's implementation aligns with initiatives and projects that address similar themes, promoting synergies in the sustainable management of natural resources, ecosystem restoration, and strengthening local capacities. However, this project stands out as an unprecedented initiative in the region, as it comprehensively tackles the challenges of hypoxia and eutrophication—topics with limited history of systematic and coordinated interventions in the country.

A notable synergy will be developed with the GEF ID 10678<sup>[1]</sup><sup>3</sup> project, which aims to reduce and reverse forest degradation in productive landscapes of the Andean region by promoting simultaneous agroforestry systems (SAF) and forest systems (FS). Experience sharing will be encouraged on resource management practices and land-use planning to enhance biodiversity conservation, with an emphasis on restoration strategies, sustainable soil management, and integrated landscape management. This learning is particularly relevant since both initiatives share part of their intervention area in the MS, enabling the integration of governance concepts and environmental benefits for the basin's sustainability.

Lessons learned will also be drawn from GEF ID 5410<sup>[2]</sup><sup>4</sup>, which implemented the National Integrated System of Forest Information and Indicators (SINIIF). This will serve as a model for designing mechanisms to strengthen socio-environmental monitoring in the basin. Moreover, the experience in formulating land-use plans and sustainable management practices, aligned with participatory governance, provides a reference for implementing participatory land-use planning and regulation (PORU) in the sub-basins of the Chama and Escalante rivers.

Finally, connections will be established with GEF ID 10971<sup>[3]</sup><sup>5</sup>, 'Conservation and Sustainable Use of Biodiversity in the Caroní River Basin,' which implements restoration practices in degraded areas and promotes sustainable productive activities within a participatory framework with a gender and intercultural approach. Lessons

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learned in community management and environmental restoration will serve as a foundation for similar actions in the Lake Maracaibo Basin.

This project takes into account the experiences of the GEF Small Grants Programme (SGP), implemented by UNDP. Initiatives such as biochar production in Mérida or the development of bio-inputs in Trujillo are successful examples that will be scaled up in the basin to foster sustainable resource management and income generation at the community level.

The project will also establish synergies with the recent 2024 National Climate Change Adaptation Plan (PNA), approved by the Green Climate Fund, which will guide adaptation policies in key sectors such as water, agriculture, and fisheries. Additionally, lessons from regional projects such as the Integrated System for the Treatment and Use of Domestic Wastewater in Maracaibo will be incorporated, offering technical precedents for implementing NbS as a complement to treatment systems.

Furthermore, FAO's regional projects TCP/RLA/3910<sup>[4]</sup> and TCP/RLA/3805<sup>[5]</sup>, focused on soil restoration and sustainable management and low-carbon agriculture, provide strategic tools that will be integrated into nutrient management activities and sustainable practices in the basin. These actions will help improve water quality, mitigate pollution, and strengthen climate resilience.

Finally, participation in the CHO IP will enhance the project's regional and international connections, allowing the exchange of best practices and innovative strategies to significantly contribute to global objectives of nutrient reduction and environmental quality improvement in LME.

<sup>[1]</sup> GEF Project ID 1678: 'Integrated Management of Multi-Use Landscapes and High Conservation Value Areas for the Sustainable Development of the Venezuelan Andean Region'

<sup>[2]</sup> GEF Project ID 5410: 'Sustainable Forest Management and Conservation of Forests from an Ecosocial Perspective in the Imataca Forest Reserve'

<sup>[3]</sup> GEF Project ID 10971: 'Conservation and Sustainable Use of Biodiversity in the Caroní River Basin'

<sup>[4]</sup> TCP/RLA/3910 - Political positioning of the soil restoration and management agenda in LAC and the adoption of strategies, tools, and best practices aligned with sustainable soil management.

<sup>[5]</sup> TCP/RLA/3805 - Support for Regional Cooperation in Climate Management of Agricultural Ecosystems with an Emphasis on Water and Soil

## Table On Core Indicators

### Core Indicators

Indicate expected results in each relevant indicator using methodologies indicated in the GEF-8 Results Measurement Framework Guidelines. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

#### Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
40000	40000	0	0

**Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	10,000.00		

**Indicator 4.2 Area of landscapes under third-party certification incorporating biodiversity considerations**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Type/Name of Third Party Certification**

**Indicator 4.3 Area of landscapes under sustainable land management in production systems**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
40,000.00	30,000.00		

**Indicator 4.4 Area of High Conservation Value or other forest loss avoided**

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Indicator 4.5 Terrestrial OECMs supported**

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

**Documents (Document(s) that justifies the HCVF)**

Title

**Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	2,000,000.00		

**Indicator 5.1 Fisheries under third-party certification incorporating biodiversity considerations**

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

**Type/name of the third-party certification**

**Indicator 5.2 Large Marine Ecosystems with reduced pollution and hypoxia**

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

2	1	0	0
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LME at PIF	LME at CEO Endorsement	LME at MTR	LME at TE
North Brazil Shelf Caribbean sea	Caribbean sea		

### Indicator 5.3 Marine OECMs supported

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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### Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	2175327	2180736	0	0
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>	0	0	0	0

### Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	2,175,327	2,180,736		
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>				
<b>Anticipated start year of accounting</b>	2026	2026		
<b>Duration of accounting</b>	20	20		

### Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>				
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>				
<b>Anticipated start year of accounting</b>				
<b>Duration of accounting</b>				

### Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
<b>Target Energy Saved (MJ)</b>				

### Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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### Indicator 7 Shared water ecosystems under new or improved cooperative management

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Shared water Ecosystem	Caribbean sea,North Brazil Shelf	Caribbean sea		
Count	2	1	0	0

**Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (scale of 1 to 4; see Guidance)**

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Caribbean sea	4	2		
North Brazil Shelf	4			

**Indicator 7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation (scale of 1 to 4; see Guidance)**

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Caribbean sea	4	2		
North Brazil Shelf	4			

**Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministeral Committees (IMC; scale 1 to 4; See Guidance)**

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Caribbean sea	3	3		
North Brazil Shelf	3			

**Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products(scale 1 to 4; see Guidance)**

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Caribbean sea	4			
North Brazil Shelf	4			

**Indicator 11 People benefiting from GEF-financed investments**

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	50,000	50,000		
<b>Male</b>	50,000	50,000		
<b>Total</b>	<b>100,000</b>	<b>100,000</b>	0	0

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

Core Indicator 4. Area of landscapes under improved practices (hectares; excluding protected areas) (40,000 ha)

Core indicator 4.1: Area of landscapes under improved management to benefit biodiversity (20,000 ha)

Core indicator 4.3: Area of landscapes under sustainable land management in production systems (20,000 ha)

A total of 40,000 ha is planned for the implementation of improved practices, including 20,000 ha of sustainable soil management practices in agricultural production areas located in the intermontane valleys of the middle and upper basins of the Andean region (Core Indicator 4.3, intervention level 2.1), 10,000 ha in agricultural and livestock production areas in the Andean foothills and the SL plains (Core Indicator 4.3, intervention level 2.2), and 10,000 ha of mangrove forests in the LM under improved management (Core Indicator 4.1, intervention level 2.3). The selection criteria and maps can be consulted in Annex E. Results will be monitored following the guidelines of the GEF-8 Results Measurement Framework.

Core Indicator 5. Area of marine habitat under improved practices to benefit biodiversity.

The target of 2,000,000 hectares of marine habitat under improved management practices is based on geospatial analysis of the area affected by nutrient discharges from the MS. This includes critical ecosystems within the Gulf of Venezuela and Lake Maracaibo, which are expected to benefit from interventions aimed at reducing nutrient pollution, improving water quality, and enhancing ecosystem resilience. Improved practices include wastewater treatment using NbS, adoption of sustainable agricultural practices with nutrient management and strengthening of institutional and community capacities for environmental monitoring, planning, and management. Through its integration into the CHO IP, the project will enhance its impact by contributing to regional and global efforts in restoring ecological health and resilience within the CLME.

The 2,000,000 hectares reported under CI-5 correspond to the marine and coastal areas positively influenced by these improved practices. This figure does not include mangrove restoration zones or agricultural lands already accounted for under CI-4, thereby avoiding any duplication.

Core indicator 5.2: Large marine ecosystems with reduced pollution and hypoxia

The project aims to reduce pollution and nutrient load into the CLME in the MS (Core Indicator 5.2. Large marine ecosystems with reduced pollution and hypoxia: CLME -1 LME)

Core Indicator 6. Greenhouse Gas Emissions Mitigated (metric ton of CO<sub>2</sub>e) (2,180,736 tCO<sub>2</sub>-e)

Core indicator 6.1: Greenhouse gas emission mitigated (2,180,736,0 tCO<sub>2</sub>-e). The project aims to potentially mitigate a total of 2,180,736 tCO<sub>2</sub>-e through sequestration or avoided emissions in the agriculture, forestry, and other land uses sector over a 5-year implementation period and a 15-year capitalization period. The estimates were made using the NEXT tool, which follows IPCC guidelines. The project will also contribute to mitigating greenhouse gas (GHG) emissions by improving wastewater treatment. The assessment of Greenhouse Gas Emissions Mitigated can be consulted in Annex Q.

Core Indicator 7. Shared water ecosystems under new or improved cooperative management

Core indicator 7.1: Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (2)

Core indicator 7.2: Level of Regional Legal Agreements and Regional Management Institutions to support its implementation (2)

Core indicator 7.3: Level of National/Local reforms and active participation of Inter-Ministerial Committees (3)

The project, by actively participating in the CHO IP, will contribute to the cooperative management of the CLME, particularly with the followings Core Indicators:

- 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TAD/SAP) formulation and implementation: Although the Strategic Action Programme (SAP) for the CLME has been developed and endorsed by several countries, Venezuela has not yet completed the formal process to adhere to it. As a result, the country is not currently in the active implementation phase of the SAP. However, Venezuela has participated in preliminary activities under the PROCARIBE+ initiative and is in the

process of assessing formal adhesion, including the signing of the Memorandum of Understanding by relevant national institutions. The project will support Venezuela's progressive alignment with regional commitments under the CLME SAP and contribute to enabling conditions for future implementation.; C.I. 7.1 = 2 (TDA finalized).

- 7.2 Level of Regional Legal Agreements and Regional Management Institutions: The PROCARIBE+ project is currently underway, and Venezuela has participated in preliminary activities. At present, Venezuela is undergoing an evaluation process to formally join and sign the memorandum of understanding by the states involved in the PROCARIBE+ project.; C.I. 7.2 = 2 (Regional legal agreement under development).

- 7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees: Venezuela has the Zulia State Coastal Zone Committee, which operates under Decree Law No. 1.468 – Coastal Zone Law (2001). This committee will be strengthened through the project. C.I. 7.3 = 3 (National/local reforms and IMCs in place).

#### Core Indicator 11. People benefiting from GEF-financed investments disaggregated by sex (count) (100,000)

At least 100,000 people will directly benefit from the project (50,000 women and 50,000 men), as detailed in Table 2. The population of the Chama and Escalante sub-basins for 2023 is estimated at 728,686 people. The project will directly benefit at least 10% of this population through territorial planning processes, impacting at least 72,686 people, of which 36,434 are women. On the other hand, the Santa Rita, Baralt and Sucre municipalities in Zulia State had 105,951 inhabitants with access to the wastewater collection system by 2023 (50% of the total population), of which it is estimated that at least 21% (21,962) will benefit from the project's environmental sanitation actions. It is important to note that the remaining beneficiaries will directly benefit from the various project actions that will be developed throughout the MS. Additionally, it is estimated that 5,000,000 people will indirectly benefit throughout the MS from the project's actions.

## Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	High	According to climate models, there is a high probability of extreme temperature increases, intensification of extreme precipitation, and prolonged drought periods, increasing climate variability. This would have a direct impact on water availability and quality, soil stability, and biodiversity in the region. This constitutes one of the main risks to the harmonious development of the project, as these events exacerbate existing problems such as erosion, eutrophication, and the vulnerability of local communities, particularly those that rely on agricultural and fishing activities for their livelihood. The project incorporates mitigation measures aimed at strengthening climate resilience in the basin. These include the design of monitoring systems and early warning systems for extreme hydrometeorological events, the implementation of sustainable agricultural practices and sustainable land management, and the promotion of NbS such as improved mangrove forest and wetland management. Additionally, local capacity development for integrated climate

		<p>risk management is prioritized, with an emphasis on land-use planning tools that consider variability and climate change. The proposed strategy aims not only to mitigate the negative impacts of climate change but also to generate collateral benefits by improving water and food security for communities and promoting the sustainability of the basin's ecosystems. The details of the analysis and mitigation measures are available in Annex F of the Agency Project document with the Environmental and Social Management Framework (ESMF).</p>
Environmental and Social	Moderate	<p>The main environmental and social risks identified include potential impacts on local biodiversity, changes in land-use patterns, conflicts related to the participation of vulnerable communities, and the risk that, during the design and implementation of activities, gender approaches and the ancestral knowledge of indigenous peoples may not be incorporated into the global project plan. From an environmental perspective, the Environmental and Social Standards (ESS): 1, 3, 4, 6, 7, 8, and 9 have been activated. Risks include possible impacts on habitats and populations of sensitive fauna and flora during pilot testing activities due to inadequate resource management practices. On the social front, the project may face challenges related to conflicts with local actors over competition between proposed management activities and economic activities in the LMB. Additionally, conflicts may arise from the exclusion of vulnerable groups, such as indigenous communities and women, from consultation and decision-making processes. Potential conflicts may also stem from unequal access to project benefits or misalignment of activities with community priorities. To mitigate these risks, specific measures have been designed, including consultations, the incorporation of intercultural and gender approaches in all stages of the project, and the implementation of sustainable natural resource management practices through the inclusion of specialists in the Project Management Unit (PMU). The design of an anticipatory calendar process has been considered, which will take into account local productive dynamics and forecasted or expected climate events. This process will be developed not only based on climate alerts but also by considering significant historical events and moments in the intervention areas. Furthermore, local participation mechanisms and monitoring and evaluation systems will be strengthened to ensure that the project's actions generate equitable and sustainable benefits for all involved stakeholders. The full details of these measures can be found in Annexes F, J, and K of the ESMF of the Agency Project document.</p>
Political and Governance	Moderate	<p>Changes of government authorities at the national and local levels could affect the viability and continuity of the project in the LMB. These changes could include modifications to environmental legislation, land-use policies, or regulations on economic activities that directly impact the implementation of the project's activities. Furthermore, deficiencies in inter-institutional coordination between the national, regional and local levels, as well as between Venezuela and Colombia, may affect the implementation of solutions and reduce their effectiveness. Given the binational nature of the basin, interactions</p>

		<p>with Colombia’s policies add an additional layer of complexity, especially in areas where transboundary dynamics are significant. The lack of interinstitutional coordination and the divergence in priorities between both countries could pose a challenge to the implementation of the proposed actions. As mitigation strategies, continuous monitoring of possible regulatory changes will be established, allowing timely adjustments to the project. Additionally, multilevel coordination will be promoted through the active participation of national, regional, and local institutions at all stages of the project, strengthening the capacities of territorial institutions through training and coordination programs to ensure their active role in the implementation and sustainability of the actions. In the binational context, the project will provide technical inputs that will be available to the Technical Committee of the Catatumbo Watershed, supporting coordination of policies and strategies proposed by Venezuela for the Binational Technical Commission of Common Use Watersheds between Venezuela and Colombia, ensuring inclusive and sustainable management in the LMB.</p>
<p>INNOVATION</p>		
<p>Institutional and Policy</p>	<p>Low</p>	<p>The lack of political-institutional will to adopt and sustain the changes proposed within the framework of the project, including the implementation of information systems, the use of data for decision-making, environmental and social monitoring, and the insufficient allocation of public resources to ensure the continuity of necessary investments and the implementation of plans. The lack of alignment of legal instruments with the current needs of basin management may also pose a barrier to integrating advanced technologies and new governance models. Mitigation strategies include strengthening institutional capacities through technical training plans and the creation of information systems that promote informed decision-making. Innovation will be encouraged through financial incentives and the inclusion of monitoring and early warning systems. Furthermore, the project will establish public-private collaboration models and facilitate spaces for the exchange of experiences and best practices, both locally and internationally, to ensure the sustainability and scalability of the proposed innovations. In relation to financial incentives, a strategy will be developed to identify funding sources, including public and private contributions, through tools such as co-financing pilot projects for the adoption of NbS. Additionally, savings and credit mechanisms will be designed to strengthen the capacity of local communities to invest in sustainable practices, promoting their access to financial resources on favorable terms.</p>
<p>Technological</p>	<p>Moderate</p>	<p>The project’s implementation includes the integration of advanced technologies, including hydrological and hydrodynamic models, to improve water resource management and informed decision-making. However, there are risks associated with limited access to advanced technologies, lack of adequate technological infrastructure, and insufficient technical capacities at the institutional level to operate and maintain these tools. The technical complexity of the models could hinder their effective adoption, particularly in</p>

		<p>local institutions with limited human and financial resources. Additionally, the dependency on high-quality data for model calibration and validation represents a challenge, as there may be deficiencies in the availability, frequency, or accuracy of hydrological and meteorological data in the basin. There is also the risk of technological obsolescence and the inability to update systems due to budgetary or access restrictions. Another risk factor is resistance to the adoption of innovative technologies by local or sectoral stakeholders, which could hinder the uptake of innovative and sustainable practices aimed at NbS. Technological risks are also related to external impediments imposed on the country in the international financial system. Lack of access to international credit affects the country's ability to invest in technological upgrades. To mitigate these risks, the project will include an intensive training program for local technicians and institutions on the use, interpretation, and maintenance of hydrological and hydrodynamic models. Collaboration agreements will be established with research centers, universities, and the private sector to access cutting-edge technologies and quality data. A maintenance and technological update plan will also be designed to ensure the long-term sustainability of the tools. Furthermore, local ownership will be encouraged through active participation of communities and institutions in the design and operation of the models, ensuring that the implemented technologies address local needs and capacities. To minimize resistance to change, the project will approach actions in a participatory manner with a gender and intercultural approach, considering the needs and potentials of local stakeholders for the implementation of NbS, reinforced with outreach and communication actions about the benefits, costs, and specific uses of NbS. Additionally, cost-benefit assessments of NbS will be carried out to ensure their adoption by producers. These measures will ensure that technological innovations effectively contribute to the sustainable management of water resources in the LMB, supported by land-use planning and sanitation processes.</p>
Financial and Business Model	High	<p>The project implementation includes innovative components that require a solid financial model to ensure the long-term sustainability of the interventions. However, there are risks associated with mobilizing sufficient financial resources to maintain the proposed innovations. These risks are increased due to the exclusion imposed on Venezuela from the international financial system, limiting the country's economic capacities and generating a difficult financial environment. The lack of mechanisms and viable financial incentives suitable for the Venezuelan context could limit the impact and scalability of the project's actions. Additionally, designing sustainable business models to integrate NbS into productive systems faces challenges related to the initial resistance of local and industrial stakeholders to adopt innovative practices due to perceptions of high initial costs, low immediate profitability, or lack of knowledge about the medium- and long-term economic and environmental benefits. To mitigate these risks, the project will prioritize creating a financial framework that includes specific incentives for adopting sustainable practices and incorporating NbS. Furthermore, a training program</p>

		will be implemented for producers and key stakeholders to strengthen their capabilities in financial and business management, promoting cost-efficiency knowledge of the proposed investments.
EXECUTION		
Capacity	Low	The execution of the project largely depends on the technical, administrative, and institutional capacities of the involved stakeholders. However, there are risks associated with limitations in the operational capacity of local, regional, and national institutions, including a lack of trained personnel, insufficient technical resources, and deficiencies in modern tools and methodologies for the effective implementation of the planned activities. These issues could delay execution and compromise the quality of the project's outcomes. Additionally, active participation from local communities, including indigenous peoples and other key actors, may be limited by logistical, methodological, and cultural barriers, affecting the implementation of project components that require direct collaboration in activities such as resource management, environmental monitoring, and the adoption of technological innovations. To mitigate these risks, the project includes a robust capacity-building program through technical, administrative, and methodological training for the involved stakeholders. The project will also support capacity strengthening with technical assistance and mechanisms for monitoring and evaluating the processes of adaptation, adoption, and knowledge transfer. Additionally, the approach of Field Schools for implementing sustainable practices and Nature-based Solutions (NbS) pilots is considered. Strategies will prioritize training government staff, community organizations, and private actors in key areas such as sustainable natural resource management, innovative technologies (e.g., hydrological and hydrodynamic models), financing mechanisms, and pilot implementation. These strategies will be developed with an intercultural and gender-focused approach, ensuring equitable inclusion and respecting the cultural diversity present in the basin.
Fiduciary	Low	Financial management and procurement in the project could be exposed to risks such as fraud, mismanagement, or inefficiencies if solid controls are not established and rigorously applied. To mitigate these risks, the project will prepare an operational manual that implements clear, transparent, and robust policies and procedures for financial management and procurement, through a procurement plan, aligned with international standards and FAO's fiduciary guidelines. At the request of the GEF operational focal point, and taking into account the external circumstances imposed on the country, FAO will provide support in the execution of fiduciary responsibilities, managing the project's budget and overseeing procurement processes. This will ensure compliance with the established institutional controls and procedures, reducing the risk of financial mismanagement and fraud. Regular audits, capacity-building activities for implementing partners, and continuous monitoring of financial operations will further strengthen fiduciary safeguards, ensuring the effective and efficient use of project resources.

Stakeholder	Moderate	<p>The lack of active and committed participation from stakeholders, including local communities, government actors, the private sector, and non-governmental organizations, could hinder the effective implementation of the project. This risk includes the possibility of disagreements, misinformation, or insufficient participation, which could delay the implementation of activities or limit their impact. To mitigate this risk, a comprehensive stakeholder engagement plan will be implemented to ensure the inclusion and equitable representation of all key actors, especially local and indigenous communities. The project will have mechanisms to monitor agreements with implementing partners. Additionally, the support of the Steering Committee and the Advisory Committee will be utilized to contribute to achieving active stakeholder participation. Early and ongoing consultation processes will be developed during the planning and execution of the project, with an emphasis on transparency, cultural respect, and effective communication. Furthermore, regular feedback mechanisms and clear channels will be established to address concerns, fostering trust and collaboration. Continuous monitoring of participation and adapting strategies as necessary will ensure that the project maintains an inclusive and participatory approach throughout all stages of implementation.</p>
Other	Moderate	<p>Territorial Security and Accessibility Limited accessibility to certain areas due to geographical conditions, insufficient infrastructure and unsafe border areas pose significant risks to the team and the implementation of project activities. These conditions may hinder the development of pilot practices, monitoring tasks, and other key interventions, potentially delaying the projected timelines and compromising expected results. To mitigate these risks, strategies will be prioritized, such as identifying safe and accessible routes in coordination with local and national authorities, as well as scheduling activities in areas with more favorable logistical conditions. Robust security protocols will be developed, and staff will be trained in field protection measures. Additionally, collaboration with local communities will be fostered to build trust and better understand territorial dynamics, while promoting a participatory approach that respects the sociocultural conditions of the environment. This adaptive approach will ensure that critical activities can be carried out while minimizing risks to both the project staff and resources.</p>
Overall Risk Rating	Moderate	<p>Considering a comprehensive analysis of categories, among the main risks are the effects of climate change, which could exacerbate issues of erosion, sedimentation, and eutrophication, as well as create critical conditions for the implementation of NbS related to the increase in climate extremes, such as droughts and floods. Mitigation measures and compliance with the NAS ensure management aligned with sustainability principles. Additionally, challenges related to institutional capacity, access to technology, and territorial security are addressed through the strengthening of technical and logistical capacities, constant monitoring, and strategic collaboration with communities</p>

and partners. Together, these actions ensure adaptability, operational continuity, and the inclusive approach needed to achieve the project's objectives sustainably.

### C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies, including the specific integrated program priorities, and country and regional priorities, Describe how these country strategies and plans relate to the multilateral environmental agreements, such as through NDCs, NBSAPs, etc.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

(max. 500 words, approximately 1 page)

The project “Conservation and Sustainable Development of the Lake Maracaibo Basin as a Contribution to the Wider Caribbean Large Marine Ecosystem” is part of the GEF-8 Clean and Healthy Oceans Integrated Program (CHO IP). This program aims to accelerate global efforts to address marine hypoxic zones by curbing coastal pollution from agriculture, industrial and municipal sources through policy and regulatory measures and infrastructure investments combined with nature-based solutions. In this context, the Venezuelan project actions to reduce pollution and marine hypoxic in the MS are a direct contribution to the conservation of the Caribbean Large Marine Ecosystem.

At the national level, this project aligns with the MPLM. The project's most relevant contributions to the MPLM are linked to Vertex 1 (strengthening the monitoring network, developing early warning systems, and restoring and sustainably managing ecosystems), Vertex 2 (engaging and training various stakeholders in sustainable management and risk prevention), Vertex 3 (defining recovery actions), Vertex 4 (ecosystem restoration and nutrient reduction in the lake), and Vertex 5 (enhancing training, research, and dissemination).

Similarly, the update of the National Biodiversity Strategy and Action Plan (NBSAP) under the UNCBD framework is underway and aligned with the global action-oriented goals for 2030 in the Kunming-Montreal Global Biodiversity Framework. In this regard, the project directly relates to Target 1: Participatory planning and management process addressing land and sea use change to reduce loss of areas of high biodiversity importance, while respecting the rights of indigenous peoples and local communities. The Outputs 2.2.1, and 3.2.1 includes participatory planning for sustainable management of sub-basins, action plans for sustainable soil management and action plans for sustainable management of mangroves, taking into account the active participation of local communities and indigenous peoples. Target 7: Reduce pollution risks and the negative impact of pollution to levels not harmful to biodiversity and ecosystems functions and services, including reducing nutrient loads and risks from pesticides. The outputs 2.2.1 and 2.2.2 includes planning for integrated pest management and for the wastewater pollution reduction of the MS. Target 10: Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry. The Outputs 3.2.1, 3.2.2, and 3.2.3 includes pilot tests for agroecological production. Target 11: Restore, maintain, and enhance nature's contributions to people. The Outputs 2.1.1, 3.1.1, 3.2.1, 3.2.2 and 3.2.3 will promote the implementation of NbS for sustainable production, basin conservation and for supporting sanitation actions. Target 20: Strengthen capacity-building, technology transfer, and scientific and technical cooperation on biodiversity. The Outputs 3.2.2 includes a key strategy for this project that goes beyond technology transfer, the FFS combined with the Doctor Soil Programme. With this approach, this project will provide a participatory knowledge cocreation and cooperation to promote and implement agroecological practices. Additionally, the output 4.1.1 includes mechanisms for knowledge management and the exchange of best practices and lessons learned. Target 21: Ensure the best available data and information are accessible to decision makers, practitioners and the public to achieve inclusive governance and participatory management of biodiversity. The Outputs 1.1.1, 1.1.2, 1.1.3, 1.1.4, and 1.2.1 will generate updated data and information to support the informed decision-making

process for the conservation and sustainable development of the MS. Target 22: Ensure gender equality and a gender-responsive representation and participation in decision-making process regarding biodiversity by indigenous peoples and local communities. This project was designed with a gender and intercultural approach to ensure gender and indigenous peoples equality and participation, including products and actions to contribute with this target.

Venezuela has committed to voluntary targets to reduce land degradation through the “National Strategy for Land Degradation Neutrality” (LDN), in line with Global Goal 15.3, which seeks to combat desertification, restore degraded land and soil—including areas affected by desertification, drought, and floods—and strive to achieve a land degradation-neutral world. Based on the SDG Indicator 15.3.1 at the national level, Venezuela identified degraded areas in the Lake Maracaibo Basin. Through the implementation of measures for sustainable land management, agroecological transition pilot projects, capacity-building, public policy strengthening, and more, the project will contribute to achieving the national LDN targets and associated actions. Specifically, it will contribute to the following targets: 1) By 2030, forest cover will have increased by 262,361 hectares (0.53%); 3) By 2030, 100,000 hectares of agricultural land will be recovered and maintained annually; 6) By 2030, the integration of the LDN into land-use planning will have been promoted and supported, particularly in areas with critical levels of land degradation; and 7) By 2020, coordination among institutions, civil society, and organizations will have improved, fostering participatory mechanisms.

At the regional level, Venezuela is a signatory to the Cartagena Convention, which emerged as an initiative within the framework of UNEP's Caribbean Environment Programme (CEP) created in 1981. Its area of application is the CLME. It is the first and only binding regional treaty of its kind, which promotes the protection and development of the region's marine environment and provides a legal framework for the CEP. Venezuela ratified two of the three protocols: Oil Spills and Specially Protected Areas and Wildlife (SPAW).

As part of the application of the Ecosystem Based Management (EBM) principle promoted by the Marine and Coastal Ecosystems focal area of the SPAW protocol, the PROCARIBE+ Project is implemented. This project seeks to protect, restore and leverage the coastal and marine natural capital of the Caribbean Large Marine Ecosystems and the Northern Shelf of Brazil (CLME+ region) to catalyze investments in a sustainable and climate-resilient blue economy, through strengthened regional coordination and collaboration and wide-ranging partnerships. In this sense, the Venezuelan Child Project will contribute with this initiative through the improvement of the environmental conditions in the MS, which is part of the CLME. Venezuela is one of the countries and territories that are eligible to receive direct financial support from the GEF and are full participants in PROCARIBE+. The project will be executed for 5 years (2023-2028), with an allocated amount of US\$15 million provided by the GEF. Implementation is the responsibility of UNDP and execution is the responsibility of UNOPS.

### **Alignment to FAO Strategic framework, SDGs and Country Programming Framework**

This project will contribute to FAO's new strategic framework for the 2022-2031 period, particularly to Global Goal No. 3: “Sustainable management and use of natural resources, including land, water, air, climate, and genetic resources, for the benefit of present and future generations.” Similarly, the objective of the Integrated Programme and this national project emphasizes contributing to SDG 14, specifically target 14.1: “Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.” This establishes a direct link between the project and SDG 14, which is transversal to the four improvements in FAO's strategic framework. Additionally, the project's outputs contribute to the four objectives of FAO's Strategy on Mainstreaming Biodiversity across Agricultural Sectors. These priorities and outputs are also linked to several Sustainable Development Goals, such as: 2) Zero Hunger, 5) Gender Equality, 6) Clean Water and Sanitation, 13) Climate Action, 14) Life Below Water, and 15) Life on Land. It is important to highlight that the objectives and targets of the 2030 Agenda have been incorporated as part of the national development plan.

At the national level, the project aligns with FAO's Country Programming Framework (CPF). Particularly noteworthy are the contributions to Priority 2, “Sustainable Food Systems,” and Priority 3, “Biodiversity and

Climate Change.” The outputs of Component 1 of the project contribute to Output 3.1 of the CPF by developing information systems that support the sustainable management of natural resources in the MS. The rest of the project’s outputs contribute directly and indirectly to Outputs 1.1, 1.2, 2.1, 2.2, and 3.2 of the CPF, through policy proposals, plans, and actions that promote sustainable and climate-resilient agricultural production.

#### **D. POLICY REQUIREMENTS**

Gender Equality and Women’s Empowerment:

**We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the child Project Description (Section B).**

Yes

**1) Does the project expect to include any gender-responsive-measures to address gender gaps or promote gender equality and women's empowerment?**

Yes

If the child project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

**Closing gender gaps in access to and control over natural resources;**

Yes

**Improving women's participation and decision-making; and/or**

Yes

**Generating socio-economic benefits or services for women.**

Yes

**2) Does the child project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### **Stakeholder Engagement**

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Child Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

**Select what role civil society will play in the Project:**

Consulted only;

Member of Advisory Body; Contractor; **Yes**

Co-financier; **Yes**

Member of project steering committee or equivalent decision-making body ; **Yes**

Executor or co-executor; **Yes**

Other (Please explain)

**Private Sector**

Will there be private sector engagement in the Child project?

**Yes**

And if so, has its role been described and justified in section B “Child project description”?

**Yes**

**Environmental and Social Safeguards**

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed child project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

**Yes**

Please provide overall Project/Program Risk Classification

**Overall Project/Program Risk Classification**

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

**E. OTHER REQUIREMENTS**

**Knowledge management**

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted and an anticipated timeline for delivery of relevant outputs has been provided. This includes budget for linking with and participation in knowledge exchange activities organized through the coordination platform.

**Yes**

**Socio-economic Benefits**

We confirm that the child project design has considered socio-economic benefits to be delivered by the project and these have been clearly described in the Project Description and will be monitored and reported on during project implementation (at MTR and TER).

**The project will address eutrophication and hypoxia in the MS, improving water quality by reducing nutrients and pollutants, thus contributing to the health of the CLME, aligning with the objectives of the GEF Trust Fund to**

conserve biodiversity and ecosystems, contributing to the protection of marine species and critical habitats. This will directly benefit public health, livelihoods, and biodiversity, providing a healthier environment for local communities and contributing to environmental sustainability. In addition, it will strengthen food security and help communities become more resilient to adapt to changing climatic conditions, through the implementation of monitoring systems and early warning systems for harmful algal blooms, agroclimatic risks, and floods. The creation of sanitation plans in prioritized sub-basins of the MS, based on updated data and hydrological models, will support the sustainable management of water resources, impacting improvements in production and the well-being of the population.

In this framework, the population will receive financial incentives to adopt NbS in productive processes, sanitation, and watershed conservation. This will generate economic benefits, increasing agricultural and fisheries productivity, strengthening the regional and national economy. Moreover, the improvement of the lake ecosystem will attract ecotourism and promote sustainable fishing, creating new economic opportunities and jobs in the region. Strengthening institutional and community capacities will enable more efficient and sustainable resource management. The promotion of NbS and the implementation of sustainable Biotrade models will improve livelihoods and food security for local communities.

The project has been designed and developed considering the four fundamental pillars of the concept of decent rural employment promoted by FAO. These pillars are essential for promoting dignity and well-being in rural areas. The project aligns with FAO's initiative to promote decent rural employment in the agricultural, livestock, fisheries, ecotourism, and other sectors. Through training and awareness-raising at both institutional and community levels, the aim is to improve the working conditions of local producers, indigenous people, and officials and strengthen their technical and management skills related to the reduction of nutrients discharged into the MS.

Under this approach, the project is structured around four pillars: i) job creation and business development; ii) social protection; iii) labor standards and rights; and iv) governance and social dialogue. This is carried out, for example, through training directed at local communities, who will acquire new skills in sustainable practices, value chains for indigenous products, and economic sustainability mechanisms to finance strategies aimed at reducing nutrient inputs to the MS, promoting decent work in local communities.

## ANNEX A: FINANCING TABLES

### GEF Financing Table

#### Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
FAO	GET	Venezuela	Biodiversity	BD STAR Allocation: IPs	Grant	2,401,958.00	216,176.00	2,618,134.00
FAO	GET	Venezuela	Land Degradation	LD STAR Allocation: IPs	Grant	746,676.00	67,200.00	813,876.00
FAO	GET	Venezuela	Climate Change	CC STAR Allocation: IPs	Grant	1,349,415.00	121,447.00	1,470,862.00

FAO	GET	Venezuela	International Waters	International Waters: IW IP Contributions	Grant	1,574,318.00	141,688.00	1,716,006.00
FAO	GET	Venezuela	Biodiversity	BD IP Matching Incentives	Grant	800,652.00	72,058.00	872,710.00
FAO	GET	Venezuela	Land Degradation	LD IP Matching Incentives	Grant	248,892.00	22,400.00	271,292.00
FAO	GET	Venezuela	Climate Change	CC IP Matching Incentives	Grant	449,805.00	40,482.00	490,287.00
CAF	GET	Venezuela	Biodiversity	BD STAR Allocation: IPs	Grant	2,401,958.00	216,176.00	2,618,134.00
CAF	GET	Venezuela	Land Degradation	LD STAR Allocation: IPs	Grant	746,676.00	67,200.00	813,876.00
CAF	GET	Venezuela	Climate Change	CC STAR Allocation: IPs	Grant	1,349,415.00	121,447.00	1,470,862.00
CAF	GET	Venezuela	International Waters	International Waters: IW IP Contributions	Grant	1,574,318.00	141,688.00	1,716,006.00
CAF	GET	Venezuela	Biodiversity	BD IP Matching Incentives	Grant	800,652.00	72,058.00	872,710.00
CAF	GET	Venezuela	Land Degradation	LD IP Matching Incentives	Grant	248,892.00	22,400.00	271,292.00
CAF	GET	Venezuela	Climate Change	CC IP Matching Incentives	Grant	449,805.00	40,482.00	490,287.00
<b>Total GEF Resources (\$)</b>						<b>15,143,432.00</b>	<b>1,362,902.00</b>	<b>16,506,334.00</b>

### Project Preparation Grant (PPG)

Was a Project Preparation Grant requested? true

PPG Amount (\$) 300000

PPG Agency Fee (\$) 26991

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
FAO	GET	Venezuela	Biodiversity	BD STAR Allocation: IPs	47,584.00	4,282.00	51,866.00

FAO	GET	Venezuela	Land Degradation	LD STAR Allocation: IPs	14,793.00	1,331.00	16,124.00
FAO	GET	Venezuela	Climate Change	CC STAR Allocation: IPs	26,733.00	2,405.00	29,138.00
FAO	GET	Venezuela	International Waters	International Waters: IW IP Contributions	31,188.00	2,806.00	33,994.00
FAO	GET	Venezuela	Biodiversity	BD IP Matching Incentives	15,861.00	1,427.00	17,288.00
FAO	GET	Venezuela	Land Degradation	LD IP Matching Incentives	4,931.00	444.00	5,375.00
FAO	GET	Venezuela	Climate Change	CC IP Matching Incentives	8,911.00	801.00	9,712.00
CAF	GET	Venezuela	Biodiversity	BD STAR Allocation: IPs	47,584.00	4,282.00	51,866.00
CAF	GET	Venezuela	Land Degradation	LD STAR Allocation: IPs	14,793.00	1,331.00	16,124.00
CAF	GET	Venezuela	Climate Change	CC STAR Allocation: IPs	26,733.00	2,405.00	29,138.00
CAF	GET	Venezuela	International Waters	International Waters: IW IP Contributions	31,188.00	2,806.00	33,994.00
CAF	GET	Venezuela	Biodiversity	BD IP Matching Incentives	15,861.00	1,427.00	17,288.00
CAF	GET	Venezuela	Land Degradation	LD IP Matching Incentives	4,930.00	443.00	5,373.00
CAF	GET	Venezuela	Climate Change	CC IP Matching Incentives	8,910.00	801.00	9,711.00
<b>Total PPG Amount (\$)</b>					<b>300,000.00</b>	<b>26,991.00</b>	<b>326,991.00</b>

Please provide Justification

#### Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
FAO	GET	Venezuela	Biodiversity	BD STAR Allocation	2,670,000.00
FAO	GET	Venezuela	Land Degradation	LD STAR Allocation	830,000.00

FAO	GET	Venezuela	Climate Change	CC STAR Allocation	1,500,000.00
CAF	GET	Venezuela	Biodiversity	BD STAR Allocation	2,670,000.00
CAF	GET	Venezuela	Land Degradation	LD STAR Allocation	830,000.00
CAF	GET	Venezuela	Climate Change	CC STAR Allocation	1,500,000.00
<b>Total GEF Resources</b>					<b>10,000,000.00</b>

### Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
Oceans IP	GET	15,143,432.00	119154475
<b>Total Project Cost</b>		<b>15,143,432.00</b>	<b>119,154,475.00</b>

### Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Civil Society Organization	National Center for Fisheries and Aquaculture Research - CENIPA	In-kind	Recurrent expenditures	900000
Civil Society Organization	National Reforestation Company - CONARE	Public Investment	Investment mobilized	1850000
Civil Society Organization	CONARE	In-kind	Recurrent expenditures	650000
Civil Society Organization	Institute for the Control and Conservation of the Maracaibo Lake Basin - ICLAM	In-kind	Recurrent expenditures	4500000
Civil Society Organization	ICLAM	Public Investment	Investment mobilized	3500000
Civil Society Organization	National Foundation for Parks, Zoos and Zoo farms and aquariums - FUNPZZA	In-kind	Recurrent expenditures	2000000
Civil Society Organization	FUNPZZA	Public Investment	Investment mobilized	2000000
Recipient Country Government	National Observatory for the Climate Crisis - ONCC	In-kind	Recurrent expenditures	1750000

Recipient Country Government	ONCC	Public Investment	Investment mobilized	250000
Recipient Country Government	Presidential Commission for the Conservation and Sustainable Development of Lake Maracaibo (PCLM)	In-kind	Recurrent expenditures	42261196
Recipient Country Government	Presidential Commission for the Conservation and Sustainable Development of Lake Maracaibo (PCLM)	Public Investment	Investment mobilized	57238804
Civil Society Organization	Civil Association SOCIONATURA	In-kind	Recurrent expenditures	400000
Civil Society Organization	Civil Association +CACAO	In-kind	Recurrent expenditures	350000
Civil Society Organization	National council of agri-food workers of the homeland Foundation - FUNDACONTAP	In-kind	Recurrent expenditures	200000
Private Sector	Bolivarian Federation of Agricultural Producers of Zulia State - CONFAGAN	In-kind	Recurrent expenditures	800000
GEF Agency	Food and Agriculture Organization of the United Nations - FAO	In-kind	Recurrent expenditures	504475
<b>Total Co-financing</b>				<b>119,154,475.00</b>

#### Please describe the investment mobilized portion of the co-financing

The cofinancing will be made through the PCLM of which MINEC is the Technical Secretariat. The MINEC will coordinate cofinancing actions during Project implementation with the entities that are part of this commission; and will participate directly with investment from the central level, regional units, Missions, foundations and specialized institutes. Within this cofinancing scheme, MINEC convened relevant actors from different sectors who ratified their commitment with cofinancing letters, attached in this document. As indicated in the table above, this project included the following cofinancing actors:

CENIPA: is the national center for fishing and aquiculture, they will contribute with their expertise in scientific research, innovation and advising in sustainable fishing and aquiculture. Their cofinancing activities includes technical support for biomonitoring in the MS, technical advising for design and implementation of pilot test for sustainable fishing, among others.

CONARE: is the national company for reforestation, their cofinancing activities includes reforestation of degraded areas in prioritized sub-basins in the MS.

ICLAM: is the Institute for the control and conservation of Lake Maracaibo Basin, their cofinancing activities includes environmental monitoring, water quality monitoring, environmental awareness activities, among others.

FUNPZZA: is the national foundation of parks, zoos, zoo farms and aquariums. their cofinancing activities includes: generation of data and information regarding flora and fauna in the MS, technical support in participative biomonitoring, environmental awareness activities, among others.

ONCC: is the national observatory for climate change crisis, their cofinancing activities includes updating climate information, technical support for setting up Technical Agroclimatic Committees, technical support for producing community-based risk maps, among others.

SOCIONATURA: this NGO will provide technical support for environmental monitoring of the MS, environmental awareness activities, among others.

+CACAO: this NGO is focused in generating innovative solutions for sustainable cocoa production with positive impacts in biodiversity and ecosystems. +CACAO Will provide advising and technical support for sustainable agriculture, technical advising for small cocoa producer in agroecological techniques, technical support for ecosystems restauration, among others.

FUNDACONTAP: is a Civil Society Organization of small-scale farmers, focused on agroecological production. They Will provide technical support for the implementation of agroecological pilot test.

CONFAGAN-ZULIA: is a Farmer and ranchers' organization with presence in all municipalities in Zulia state. They will provide technical support for the implementation of pilot test for sustainable agriculture and livestock production, logistic support for project fieldworks, among others.

More details regarding the cofinancing activities of these actors are indicated in the cofinancing letters attached.

220. According to the attached letter, MINEC as the executor agency has confirmed that the Ministry and its 8 bodies have accepted co-financing this project. Furthermore, MINEC has indicated that the PCLM will contribute to the co-financing of the project according to its specific mandate as an advisory body to the President of the Bolivarian Republic of Venezuela to promote climate resilience in the main development and livelihood sectors that support the communities of the MS, through the implementation of solutions to the Climate Crisis, which directly affects the largest body of water in the Bolivarian Republic of Venezuela, which is a part of the CLME.

221. The PCLM is composed of 15 state organizations, as follows:

- Sectoral Vice Presidency of Public Works and Services, who will chair it
- The Ministry of Popular Power for Ecosocialism
- The Ministry of Popular Power for Petroleum
- The Ministry of Popular Power for Fisheries and Aquaculture
- The Ministry of Popular Power for Water Resources
- The Ministry of Popular Power for Science and Technology
- The Ministry of Popular Power for Education
- The Ministry of Popular Power for University Education
- The Ministry of Popular Power for Transportation
- The Ministry of Popular Power for Industries and National Production
- The Ministry of Popular Power for Indigenous Peoples
- The Ministry of Popular Power for Communes and Social Movements
- The Ministry of Popular Power for Planning

- The Ministry of Popular Power for Defense

- The National Army

222. In the table 4 is indicated the activities of each member of the PCLM regarding In-kind and public investment in co-financing, through the implementation of the Master Plan.

Table 4. Activities in the project of the Presidential Commission members.

Member of the PCLM	In-kind co-financing	Public investment
MINEC	Supporting the implementation of the MS Information Management System; environmental information of River basins, knowledge management products. Environmental surveillance in industries for wastewater discharges	Reforestation and implementation of NbS for basins conservation
	Water quality monitoring in MS, socioecological monitoring of the MS	
	Evaluation of environmental quality of mangrove forests and wetlands	
Ministry of Popular Power for Petroleum	Generation of environmental information in MS	
	Management system for oil spills control	Reforestation of basins in the MS
	Water quality monitoring in MS	
	Oil pipeline replacement	
	Design and implementation of plan for rehabilitation of wastewater treatment systems of the oil industry in the MS	
Ministry of Popular Power for Fisheries and Aquaculture	Collection of plastic waste in Lake Maracaibo, biomonitoring in the MS, surveillance and control of aquaculture production, fish fauna information	Water quality monitoring
Ministry of Popular Power for Water Resources	Generation of information for the sanitation plan in the MS, water quality monitoring	Rehabilitation of WWTP in Zulia State
Ministry of Popular Power for Science and Technology	Water quality monitoring, satellite images for environmental analysis, technical support for farmers in sustainable production	
	Scientific research applied to specific solutions to improve the environmental quality of the MS	Surveillance of algal blooms in the MS
	Remote sensing applied to the environmental monitoring of the MS	
Ministry of Popular Power for Education	Environmental education	Awareness program about environmental impacts in the MS
Ministry of Popular Power for University Education	Environmental education	
	Technical support for designing new environmental policies	Environmental monitoring
	Database of applied research related to the MS	
Ministry of Popular Power for Transportation	Logistic support for the environmental monitoring in the MS	
Ministry of Popular Power for Industries and National Production	Technical support for sustainable production	
	Update the inventory of industrial activities in the MS	
Ministry of Popular Power for Indigenous Peoples	Technical support for indigenous people for sustainable production	
	Participation mechanism in decision-making process regarding the sustainable management of the MS	Updating socio-environmental information about indigenous people
Ministry of Popular Power for Communes and Social Movements	Coordination with grassroots movements and community organizations to participate in planning and implementation of actions for the sustainable management of the MS	
	Capacitation programs for the environmental governance of the MS	

Support the development of early warning systems and action plans for flooding in communities

Ministry of Popular Power for Planning.

Guidelines for the design and implementation of environmental plans in the MS

The Ministry of Popular Power for Defense Planning and implementation of actions for the environmental security of the MS

Logistic support for environmental monitoring of the MS

223. The PCLM, among other actions, is in charge of promoting the strengthening of regional, state, and municipal monitoring, reporting, and verification capacities for the conservation and sustainable development of MS, as well as setting adaptation policies that contribute to protecting biodiversity and its ecosystems.

224. MINEC, as PCLM technical Secretary, will ensure co-financing of the entities that are part of this commission, and will coordinate joint actions with the local governments and other entities, as stated in the letter. Furthermore, MINEC have already secured cofinancing compromise from 11 actors including public companies and institutes, 2 NGO, 1 CSO, and the largest association of farmers in Zulia state, CONFAGAN-ZULIA, as representative from private sector.

## ANNEX B: ENDORSEMENT

### GEF Agency(ies) Certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
GEF Agency Coordinator	2/7/2025	Lorenzo Campos		lorenzo.camposaguirre@fao.org

### Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Please attach the Operational Focal Point endorsement letter(s) with this template.

Name of GEF OFP	Position	Ministry	Date (MM/DD/YYYY)
Miguel Serrano	Director of Integration and International Affairs	Ministry of People's Power for Ecosocialism	10/11/2023

## ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document. For the Integrated Programs' global/regional coordination child project, please include the program-wide results framework, inclusive of results specific to the coordination child project. For any country child project, please ensure that relevant program level indicators are included.

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R f C
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**Project Objective and Objective Indicators:** To address eutrophication and marine hypoxia in the Caribbean Large Marine Ecosystem (C... reducing the flow of nutrients and contaminants to the Maracaibo System (MS) from agroproductive activities and untreated wastewater dis... order to contribute to the socio-environmental sustainability of the marine-coastal area and to increase regional environmental benefits

**Component 1: Strengthening institutional and community capacities for informed decision-making in the integrated management**

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R
<p><u>Outcome 1.1:</u></p> <p>Regional public institutions and communities have updated information with a gender and intercultural approach to promote the conservation and sustainable development of the MS</p>	<p>Number of public institutions, by type and level, integrated and articulated into a system for informed decision-making, including socio-environmental variables, ecological status, and conservation for the management of the MS.</p>	<p>The institutions responsible for the management of the MS lack updated and systematized data and information for the proper planning and management of the watershed and its river, lake, and underground hydrosystems</p> <p>MPLM</p> <p>includes a program to strengthen the monitoring and evaluation network for environmental variables, to which this outcome will contribute.</p>	<p>At least 3 national institutions have updated information on the MS.</p> <p>At least 3 state, municipal, and local institutions have updated information on the MS.</p>	<p>At least 5 national institutions have updated information on the MS.</p> <p>At least 5 state, municipal, and local institutions have updated information on the MS.</p>	<p>Technical documents prepared and delivered to MS managing institutions.</p> <p>MS information management system.</p> <p>Attendance lists for scheduled events (differentiated by age, gender, institution, and indigenous community).</p>	<p>The institutions and individuals involved commit to assuming their roles in coordination processes, using the information collected within the framework of the project for better management of the MS.</p>	
<p><u>Output 1.1.1:</u></p> <p>MS Information Management System established that</p>	<p>Number of regional institutions adopting the MS information management system for</p>	<p>The MS institutions do not have effective mechanisms for data collection, information generation, and</p>	<p>At least 02 regional institutions adopt the MS information management system for</p>	<p>At least 4 regional institutions adopt the MS information management system for</p>	<p>Platform created, affiliated institutions. Attendance lists for training sessions</p>	<p>The institutions have dispersed mechanisms but are willing to create networks for knowledge</p>	

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
contributes to the Global GO2DAT System and national platforms (intervention area level 1)	informed decision-making	information flow to support informed decision-making. In fact, the most recent data on nutrient pollution date back more than 10 years. Within the framework of the Decade of Ocean Science, a platform is being developed that includes a database and a global ocean oxygen atlas (GO2DAT). The CHO IP will adopt this platform, and it is expected that national projects will contribute to it while receiving technical support for its strengthening.	informed decision-making.	informed decision-making.	(differentiated by age, gender, indigenous community, institution).  Implementation report for the MS information management system.	sharing and information dissemination.	M I R
	Number of individuals from public institutions trained with a gender and intercultural focus in information management and monitoring technologies feeding the global GO2DAT system and national platforms (disaggregated by age, gender, Indigenous peoples, and institution) (Core indicator 11)		At least 20 individuals from public institutions trained to implement effective mechanisms for data collection, information generation, and flow for decision-making, with at least 30% women participation.	At least 40 individuals from public institutions are trained to implement effective mechanisms for data collection, information generation, and information flow for decision-making, with at least 30% being women.			
<u>Output 1.1.2:</u>  Socio-Environmental Information Subsystem for Sustainable Planning and Land Management of the MS developed (intervention area level 1)	Number of micro-watersheds with periodic information on ecosystem services, livelihoods, ecological status, and conservation.	Limited access to information that is neither standardized nor updated.	At least 05 micro-watersheds generating periodic information on ecosystem services, livelihoods, ecological and conservation status.	At least 10 micro-watersheds periodically generate information on ecosystem services, livelihoods, ecological status, and conservation status.	Baseline socio-environmental characterization report of micro-watersheds. Databases. Attendance lists for training sessions (differentiated by age, gender, indigenous community).	Regional institutions managing the conservation of the MS and local human groups take ownership of the monitoring of micro-watersheds and use the information for territorial planning and management. There is interest from the population, including indigenous communities, in participating in the monitoring. There is broad participation of women in technical training in rural and urban sectors.	P S S S S S  M I R
	Number of individuals trained (public officials and members of local communities) with a gender and intercultural focus in participatory environmental monitoring (disaggregated by age, gender, Indigenous peoples, and institution)		At least 100 individuals trained in participatory environmental monitoring, of which at least 30% are women.	At least 200 individuals trained in participatory environmental monitoring, of which at least 30% are women.			

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
	(Core indicator 11). Number of thematic maps on socio-environmental characteristics of the MS.	Socio-environmental information on the MS exists; however, most of it is neither updated nor available in spatial databases. The available information is at a generalized scale and lacks detail.	At least 12 thematic maps on the socio-environmental characteristics of the MS.	At least 24 thematic maps on the socio-environmental characteristics of the MS.	Descriptive reports of cartographic products. Cartographic outputs integrated into the MS information management system.		
<b>Output 1.1.3:</b> Information on Subsystem on nutrients, and the quantity and quality of water in fluvial, lacustrine and marine environments within the MS implemented (intervention area level 1)	Number of hydrological units with established or strengthened water quality and quantity monitoring networks generating periodic information.  Number of individuals from public institutions trained with a gender and intercultural focus in water quality and quantity monitoring (disaggregated by age, gender, Indigenous peoples, and institution) (Core indicator 11).	Information is outdated and not standardized. There are limited initiatives for monitoring water quality and quantity.  Institutions with relevant capacities, such as universities and ICLAM, are not coordinated to systematize, analyze, and disseminate information.  There is no updated characterization of the quality and quantity parameters for wastewater discharges.	At least 03 hydrographic units have standardized periodic monitoring networks for water quality and quantity.  At least 20 individuals from public institutions trained in water quality and quantity monitoring.	At least 05 hydrographic units with standardized periodic monitoring networks for water quality and quantity.  At least 40 individuals from public institutions trained in monitoring water quality and quantity.	Annual hydrological reports on nutrient dynamics in monitored water bodies within the MS.  List of participants in training sessions conducted, differentiated by age, gender, and institution.	National and regional institutions managing the conservation of the MS develop monitoring systems and use the information for territorial planning and management.  There will be sufficient information to define the maximum allowable discharge loads into water bodies	
<b>Output 1.1.4:</b>  Environmental Risk Management Subsystem to promote sustainability and resilience in the MS developed (intervention area level 2)	Number of Early Warning Systems (EWS) designed and articulated into the environmental risk management subsystem.	The MPLM includes a program for managing cyanobacteria proliferation in the lake, which proposes establishing alert thresholds for cyanobacteria blooms (Vertex 1). FAO-IOC-IAEA (2003) provides technical guidelines on the implementation of EWS for harmful algal blooms.	At least three EWS designed for integration into the environmental risk management subsystem (EWS for harmful algal bloom risk; EWS for agroclimatic risk; EWS for flood and inundation risk).	At least three EWS systems designed and integrated into the environmental risk management subsystem (EWS for harmful algal bloom risk; EWS for agroclimatic risk; EWS for flood and inundation risk).	Technical reports on the design and implementation of EWSs. EWS bulletins. List of participants in the agroclimatic technical working groups created (differentiated by age, gender, indigenous community, and institution).	There is good institutional and community willingness for the establishment of EWSs. Local communities understand the importance of EWSs and actively participate in monitoring and response initiatives.	

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R f C
	Number of agroclimatic technical roundtables (ATR) in operation representing the upper, middle, and lower basins of the LMB.  Number of people participating in the agroclimatic technical roundtables (differentiated by age, sex and indigenous people) ( <i>Core Indicator 11</i> )	There is experience in forming agroclimatic technical tables as the basis for EWS under the GEF ID 1678 project.	At least 01 ATR (Management and Technical Assistance) in operation.  At least 20 people participate in the ATR, of which 30% are women.	At least 03 ATR systems functioning, representing the upper, middle, and lower parts of the LMB.  At least 60 people participate in the ATR, of which 30% are women.	Semi-annual technical report on findings.  Reports on scheduled dissemination events.	Data generated in the ATR is linked to scenario modeling of floods and inundations.  Women are interested in participating in ATR.	
<u>Outcome 1.2:</u>  Public institutions and grassroots organizations strengthened with updated information on wastewater generation and treatment in the MS.	Number of regional, national institutions, and grassroots organizations with updated information on wastewater generation and treatment in the MS.	The institutions and grassroots organizations related to the sanitation services do not have updated information on the generation and treatment of wastewater in the MS.  The MPLM includes a program with actions for controlling discharges, which includes actions such as analyzing the characteristics of effluents generated in the MS.	At least 03 regional institutions and 03 grassroots organizations have updated information that allows addressing the sanitation of the basin (characteristics and volumes of municipal wastewater generated in the MS and the existing systems for its treatment).	At least 05 regional institutions, 03 national institutions, and 05 grassroots organizations have updated information that allows addressing the sanitation of the basin (characteristics and volumes of municipal wastewater generated in the MS and the existing systems for its treatment).	Technical documents on the current status of the collection system, wastewater treatment, and monitoring prepared and delivered to the organizations responsible for the matter.	Institutional support is available for the visit and collection of existing information for each plant. The specifications generated will be taken into account for future rehabilitation projects of the various WWTPs.	P S S M a R V T P (S  R o M I
<u>Output 1.2.1:</u> WWTPs in the MS characterized to support a sanitation plan (intervention area level 1)	Number of WWTPs in the MS characterized (type of treatment process, current condition of the plants, nutrient removal capacity, quality of influents and effluents from the WWTP, and possibilities for	There are weaknesses in the available information about the current situation of the treatment systems and the wastewater to be treated.	At least 10 WWTPs characterized, incorporating the type of purification process, current status of the plants, nutrient removal capacity, quality of influents and effluents of the WWTP, and possibilities for adaptation for nutrient removal.	At least 30 WWTPs characterized, incorporating the type of purification process, current status of the plants, nutrient removal capacity, quality of influents and effluents from the WWTP, and possibilities for adaptation for nutrient removal.	Meeting minutes. Diagnostic reports of each WWTP	Institutional support is available for the visit and collection of existing information for each plant.	P S S  R o M I

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
	adaptation for nutrient removal).						

**Component 2: Strengthening the public policy framework to encourage and finance actions that mitigate the problems of eutrophication and hypoxia in the CLME**

<p><b>Outcome 2.1:</b></p> <p>Local producers, indigenous communities, CSOs, NGOs, and businesses have financial incentives to adopt Nature-based Solutions (NbS) to reduce nutrient contamination.</p>	<p>Number of financial instruments formulated for the adoption of NbS with a gender and interculturality approach.</p> <p>Number of people trained with a gender and interculturality approach (differentiated by age, sex, and indigenous people) on financial mechanisms for NbS-based projects</p> <p><i>(Core indicator 11).</i></p>	<p>There are financing needs for sustainable production incorporating NbS in the MS and for the promotion of productive projects in local communities.</p> <p>There is a need to strengthen knowledge of the potential for ecosystem service valuation, indigenous products, and ancestral knowledge.</p>	<p>At least 01 pre-feasibility study for the design of a financial instrument for the adoption of NbS.</p> <p>At least 100 people trained on financial mechanisms for NbS-based projects with participation of at least 30% women.</p>	<p>At least 01 financial incentive instrument formulated for the adoption of NbS in production processes.</p> <p>At least 180 people trained on financial mechanisms for NbS-based projects with participation of at least 30% women.</p>	<p>Periodic progress reports on the development of financial instruments</p> <p>Periodic progress reports on the identification and establishment of community savings and loan organizations</p> <p>Attendance list for training sessions (differentiated by age, sex, indigenous group, institution).</p>	<p>Exist interest from the stakeholders for the implementation of financial instruments that promote the sustainability of MS.</p>	
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Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	F
<p><u>Output 2.1.1:</u></p> <p>Strategy on financial Instruments to promote the adoption of nature-based solutions (NbS) in the productive systems of the southern lake region developed (intervention area level 3)</p>	<p>Number of technical documents formulated with proposals for financial instruments to promote the adoption of NbS in the productive systems in the South of the Lake region presented to the competent authorities for approval.</p>	<p>It is necessary to design new proposals adapted to the current conditions in the country to promote productive activities under a sustainable approach in the Lake Maracaibo basin. There are previous experiences with agricultural credit insurance in financing programs for small and medium producers implemented by the Socialist Agricultural Development Fund (FONDAS), an entity attached to the Ministry of Productive Agriculture and Lands, but with limited reach.</p>	<p>At least 01 technical document formulated with a diagnosis of existing conditions for the application of financial instruments that promote the adoption of NbS in productive systems.</p>	<p>At least 01 technical document formulated with recommendations and proposals for the implementation of financial instruments that promote the adoption of NbS in production systems in the South Lake region, presented to the competent authorities for approval.</p>	<p>Periodic progress reports on the documents formulated for the implementation of financial instruments that promote the adoption of NbS in the productive systems in the South of the lake region</p> <p>Attendance list for participatory diagnostic workshops (differentiated by age, sex, indigenous group, institution).</p>	<p>There is political will to achieve sustainability in the productive processes in the MS. The authorities of the Ministry of Productive Agriculture and Lands, MINEC, and ICLAM adopt the proposal.</p> <p>The authorities are committed to implementing measures to achieve this goal.</p> <p>Women demonstrate interest in participating.</p>	F S S S S S E L F ( F o M I
	<p>Number of participatory diagnostic workshops held with key actors for the formulation of proposals for financial instruments to promote the adoption of NbS in the productive systems in the SL region.</p>		<p>At least 03 participatory diagnostic workshops with key stakeholders from the SL region.</p>				
<p><u>Output 2.1.2:</u></p> <p>Community-based savings and credit system with a gender and interculturality approach implemented to promote resilience and sustainable production (intervention area level 3)</p>	<p>Number of community savings and credit organizations established with a gender and interculturality approach.</p>	<p>There is previous experience in the development of community savings and credit organizations in the state of Zulia with the support of FAO.</p>	<p>At least 05 community savings and credit organizations established with a gender and interculturality approach.</p>	<p>At least 08 community savings and credit organizations established with a gender and interculturality approach.</p>	<p>Attendance list for training sessions (differentiated by age, sex, indigenous group, institution). Periodic progress reports on the community pilot projects identified to be financed with seed capital from the project and using the established model of the community savings and credit organization. Periodic progress reports on the community pilot projects</p>	<p>There is political willingness to adopt the local savings and credit system. The authorities are committed to the implementation of the local savings and credit system.</p>	F S S S S S E L F ( F o M I
	<p>Number of people from the communities trained with a gender and interculturality approach on the development of value chains for products and in sustainable financial management (differentiated by age, sex, and indigenous</p>		<p>At least 40 people trained on value chain development and sustainable financial management with participation of at least 40% women.</p>				



Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
	hypoxia ( <i>Core Indicator 5.2</i> )  Number of codes of practice and/or standards adopted to address nutrient pollution	0		1			
<u>Output 2.2.1:</u>  Land Use Planning and Regulation Plans (PORU) for the Chama and Escalante rivers sub-basins designed, incorporating guidelines for the implementation of NbS in production systems, nutrient management, and integrated pest management (intervention area level 2)	Number of PORUs <sup>118</sup> incorporating guidelines for the implementation of NbS in productive practices, nutrient management, and integrated pest management  ( <i>Core indicator 11</i> )	There is no PORU in the sub-basins of the Chama and Escalante rivers, which contribute significant amounts of nitrogen and phosphorus to Lake Maracaibo. Both basins were incorporated into Decree 978 as part of the critical areas with priority for treatment.	At least 02 PORU with 100% progress in Stage 1 of the formulation and design of the PORU for the sub-basins of the Chama and Escalante rivers.	At least 02 PORU of the Chama and Escalante river subbasins (stages 1,2,3, and 4), incorporating guidelines for the implementation of NbS in productive practices, nutrient management, and integrated pest management presented to MINEC authorities.	List of participants in the development process of the PORU (by age, sex, indigenous group, and institution as applicable). Documents with consolidated PORU proposals submitted to authorities.	The residents and institutions of the MS actively participate in the design process of the PORUs. The competent authority adopts the designed PORUs and replicates the approach in other sub-basins of the LMB.  Women demonstrate interest in participating in dialogue and decision-making forums.  Decision-makers are willing to address gender gaps.	

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
<p><u>Output 2.2.2:</u></p> <p>Environmental Sanitation Plan for the MS with an emphasis on nutrient reduction and the rehabilitation and management of WWTPs designed (intervention area level 1)</p>	<p>Number of people participating in the environmental sanitation plan design process for the MS (disaggregated by age, sex, and indigenous community). (Core indicator 11)</p>	<p>Currently, there is no plan for the environmental remediation of the MS that integrates the needs and characteristics of each sub-basin, aimed at nutrient reduction and the rehabilitation and management of WWTPs.</p>	<p>At least 1,000 people participate in the environmental sanitation plan design process for the MS, of which at least 30% are women.</p>	<p>At least 3,000 people participate in the environmental sanitation plan design process for the MS, of which at least 30% are women.</p>	<p>Minutes of meetings with specialists, project groups, grassroots organizations, and institutions. List of participants by age, sex, and indigenous group of working meetings with institutions. Document with the consolidated proposal of the MS sanitation plan submitted to authorities.</p>	<p>The interest of the institutions and communities in developing an environmental sanitation plan for the MS remains.</p> <p>Women demonstrate interest in participating in dialogue and decision-making forums.</p> <p>Decision-makers are willing to address gender gaps.</p>	<p>Risks</p> <p>o</p> <p>o</p>
<p><b>Component 3: Implementation of innovative models and practices to mitigate pollution in the MS, strengthening livelihoods and food security</b></p>							
<p><u>Outcome 3.1:</u></p> <p>Public institutions and organized communities implement NbS as part of the solutions for wastewater treatment</p>	<p>Number of people benefited by the implementation of NbS in wastewater treatment (Core Indicator 11).</p>	<p>Technical personnel and public and private institutions with highly heterogeneous knowledge in the use of NbS for wastewater treatment.</p>		<p>At least 22,282 people benefit from the implementation of NbS in wastewater treatment.</p>	<p>Report on the results of measurements of sustainably removed organic and nutrient loads. Report on the population benefiting from improved wastewater treatment.</p>	<p>There will be a good capacity for organic matter removal with the incorporation of NbS as a complement to existing treatment systems. The predominant climate of the MS favors water purification processes.</p>	<p>Risks</p> <p>o</p> <p>o</p>
<p><u>Output 3.1.1:</u></p> <p>Pilot tests with NbS implemented for wastewater treatment (intervention area level 3)</p>	<p>Number of pilot tests with NbS implemented in agricultural areas, urban centers, and indigenous communities as a complement to plant-based treatment for nutrient removal.</p> <p>Number of people trained with a gender and intercultural approach from the public</p>	<p>The WWTPs owned by public and private companies are mostly designed for the removal of organic load rather than nutrients. Most WWTPs of public companies require rehabilitation. The personnel of public institutions and community organizations lack the capacity to incorporate NbS for the treatment of industrial, municipal, and</p>	<p>At least 03 pilot tests with NbS implemented in agricultural, livestock, urban areas, and indigenous communities as a complement to plant treatments for nutrient removal.</p> <p>At least 50 people trained from the public sector, private sector, and organized communities in</p>	<p>At least 05 pilot tests with NbS implemented, operational, and monitored in agricultural, livestock, urban, and indigenous community areas as a complement to treatment plants for nutrient removal.</p> <p>At least 100 people trained from the public sector, private sector, and organized community in</p>	<p>Execution contract for the pilot plant. Photographic evidence of the work. Progress reports on the execution of the works.</p> <p>'As-built' plans of the natural-scale pilot test. Project plans Attendance lists for training programs (age, gender, and indigenous community). Report on the</p>	<p>There is at least one WWTP in the MS that is operational and whose treatment can be complemented with NbS.</p> <p>Public and/or private institutions facilitate the implementation of the pilot test at their WWTP.</p> <p>Stakeholders commit to assuming their</p>	<p>Risks</p> <p>o</p> <p>o</p>

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
	sector, private sector, and organized communities in NbS applied to wastewater treatment ( <i>Core indicator 11</i> ).	agricultural effluents.	NbS applied to wastewater treatment, with at least 30% participation of women.	NbS applied to wastewater treatment, with at least 30% women participation.	results of the training program evaluation.	roles in MS sanitation activities.	
<p><u>Outcome 3.2:</u></p> <p>Good practices implemented by local producers for the sustainable management of the MS incorporating NbS</p>	<p>Area (ha) of mangrove forests in Lake Maracaibo (intervention level 2.3) under improved management (<i>Core indicator 4.1</i>).</p> <p>Area (ha) under sustainable soil management in agricultural production areas located in the intermontane valleys of the upper and middle basins of the Andean region that drain into LM (intervention level 2.1) (<i>Core indicator 4.3</i>).</p> <p>Area (ha) under sustainable soil management in agricultural and livestock production areas in the Andean piedmont and the southern lake plain (intervention level 2.2) (<i>Core indicator 4.3</i>)</p> <p>Metric tons of carbon dioxide equivalent</p>	<p>There is no plan for sustainable soil management in the South of the Lake Maracaibo region, where the greatest nutrient input from diffuse sources is generated, nor in the lake's coastal mangrove forests.</p>	<p>≥ 5,000 ha of mangrove forests in the MS under improved management.</p> <p>≥ 10,000 ha under sustainable soil management in agricultural production areas located in the intramontane valleys of the upper and middle basins of the Andean region that flow into the LM.</p> <p>5,000 ha under sustainable soil management in agricultural and livestock production areas in the Andean foothills and the southern lake plain.</p>	<p>≥ 10,000 ha of mangrove forests in the MS area under improved management.</p> <p>≥ 20,000 ha under sustainable soil management in agricultural production areas located in the intermontane valleys of the upper and middle watersheds of the Andean region tributaries to LM.</p> <p>≥ 10,000 ha under sustainable soil management in agricultural and livestock production areas in the Andean foothills and the southern lake plain.</p> <p>≥ 2,180,736 metric tons (CO<sub>2</sub>e) sequestered</p>	<p>Action plan for sustainable soil management in agricultural production areas located in the high and mid-mountain zones of the southern LM region.</p> <p>Progress reports on the implementation of best practices.</p> <p>Technical documents with proposed action plans for sustainable management of mangrove forests in MS.</p> <p>Results of studies conducted using the NEXT tool.</p> <p>Technical document on the action plan for sustainable soil management in agricultural and livestock production areas located in the Andean foothills and the SL plain.</p>	<p>There are motivated agricultural producers interested in implementing agroecological practices. Authorities promote the implementation of NbS in basin conservation efforts.</p>	<p>F S S S S E R ( )  F o I</p>

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R f C
	<p>(CO<sub>2</sub>e) sequestered or emissions avoided in the agricultural, forestry, and other land use (Core indicator 6)</p> <p>Number of private organizations adopting nutrient pollution reduction solutions</p>	0	<p>≥300,000 metric tons (CO<sub>2</sub>e) sequestered.</p> <p>1</p>	2			

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	F
<p><u>Output 3.2.1:</u></p> <p>Pilot tests for sustainable agriculture incorporating NbS for nutrient load reduction into the MS (intervention area level 3)</p>	<p>Number of pilot tests for sustainable management of mangroves and agricultural areas implemented with local actors as part of action plan execution.</p>	<p>There are experiences of participation by local actors in mangrove conservation and sustainable soil management (GCP/VEN/011/GF F)</p> <p>Mangrove ecosystems show signs of degradation, evidenced by the loss of natural coverage and the eutrophication of the lake.</p> <p>The MPLM, in its first pillar, includes a program for reducing nutrient inflows into the lake, including mangrove rehabilitation and the implementation of sustainable agricultural practices.</p>	<p>At least 01 pilot test of sustainable mangrove management implemented.</p>	<p>At least 03 pilot tests of sustainable mangrove management implemented.</p>	<p>Technical documents with proposed action plans for sustainable management of mangrove forests and implementation reports.</p>	<p>Local actors have the willingness to execute action plans to incorporate NbS for nutrient reduction in agricultural and livestock production. Women are interested in participating.</p>	F S S  F o l
	<p>Number of women participating in pilot tests for the sustainable management of mangroves and agricultural areas implemented with local actors as part of action plan execution. (Core indicator 11)</p>		<p>At least 02 pilot tests of sustainable soil management implemented in agricultural production areas located in the intramontane valleys of the upper and middle basins of the Andean region.</p> <p>At least 02 pilot tests for sustainable soil management in the Andean foothills and the SL plain.</p>	<p>At least 04 pilot tests of sustainable soil management implemented in agricultural production areas located in the intermontane valleys of the upper and middle watersheds of the Andean region.</p> <p>At least 04 pilot tests for sustainable soil management in the Andean foothills and the SL plain</p>	<p>Technical documents with proposed action plans for sustainable soil management and implementation reports.</p> <p>Technical documents with proposed action plans for sustainable soil management and implementation reports.</p>		
<p><u>Output 3.2.2:</u> Farmer Fields Schools (FFS) established, to promote the</p>	<p>Number of people trained as promoters in the Global Soil Doctors Programme (differentiated</p>	<p>The Global Soil Doctors Programme was launched in Venezuela with the project (GEF ID 10678).</p>	<p>At least 20 people trained as promoters of the Global Soil Doctors Programme, with at least</p>	<p>At least 60 people trained as promoters of the Global Soil Doctors Programme, with at least 30%</p>	<p>Attendance lists for training programs (differentiated by age, gender, indigenous community, and</p>	<p>Producer organizations are motivated to join CoPs and implement NbS in</p>	F S S F o l

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
adoption of NbS in productive processes with a gender and intercultural approach (intervention area level 3)	by age, sex, and indigenous group).  (Core indicator 11)	Various experiences have been developed under the FFS.	30% women participation.	women participation.	institution). Report on training results. Report on participation in international CHO IP workshops on FFS/CoP.  Technical documents with formulated work plan for FFS	productive processes.	
	Number of FFS established, implementing pilot tests of sustainable soil and mangrove management with a gender and intercultural approach.		At least 04 FFS established, implementing pilot tests of sustainable soil and mangrove management.	At least 08 FFS established, implementing pilot tests of sustainable soil and mangrove management.			
	Number of people participating in the FFS established (differentiated by age, sex, and indigenous group).  (Core indicator 11)		At least 160 people  participating in the FFS established, with at least 30% women participation.	At least 320 people  participating in the FFS established, with at least 30% women participation.			
	Number of attendees at international CHO IP workshops on communities of practice (FFS/CoP).		Participation of at least 01 project member in two international workshops.	Participation of at least 01 project member in four international workshops.			
<u>Output 3.2.3:</u>  Biotrade models developed in agropecuary and aquatic production areas, mainly for coffee and cocoa, promoting sustainable production practices with a gender and intercultural approach (intervention area level 3).	Number of pilots biotrade projects for cacao and coffee implemented in the southern region of Lake Maracaibo.  Number of financial and/or market instruments designed to promote biotrade initiatives addressing the	Coffee is the crop with the highest demand for fertilizers in the South of Lake Maracaibo region. It is estimated that 60,000 hectares are cultivated in the intramontane valleys of the upper and middle basins of the Andean region. The Andean foothills in the South of Lake Maracaibo concentrate more than half of Venezuela's fine aromatic cocoa varieties. Venezuela selected cocoa as a special agricultural product	At least 01 pilot biotrade project implemented, adding value to the production of fine aromatic cocoa in the SL region.  At least 01 financial and/or market instrument designed to promote biotrade initiatives addressing the	At least 01 pilot biotrade project implemented to add value to coffee production in the SL region.  At least 02 financial and/or market instruments designed to promote biotrade initiatives addressing the financial needs of women	Progress reports on biotrade pilot projects.  Record of participants in training activities.  Market study reports.  Reports on sectoral analysis of biotrade.	There is willingness among actors in the coffee and cacao value chains to promote biotrade strategies.	

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risks
	financial needs of women	in the FAO's Global Action on Green Development of Special Agricultural Products: One Country, One Priority Product (OCOP).	financial needs of women				
	Number of public officials trained in public management on biotrade (Core indicator 11)		At least 20 public officials trained in biotrade public management of which at least 30% are women	At least 30 officials trained in biotrade public management of which at least 30% are women			
<b>Component 4: Knowledge Management and Learning (KML) and Monitoring and Evaluation with a gender and intercultural approach</b>							
<b>Outcome 4.1:</b> Stakeholders across sectors and levels apply knowledge management strategies with a gender and intercultural approach to disseminate results, exchange lessons learned, and scale up innovative solutions to address nutrient pollution, marine hypoxia, and implement NbS	National communication and dissemination plan with a gender and intercultural approach aligned with the communication and dissemination strategy of the GCP, developed and periodically updated.  Plan for promoting the sustainability and scalability of project results (exit strategy of the project).	0%	National Communication and Dissemination Plan aligned with the Communication and Dissemination Strategy of the GCP developed.  Promotion plan for the sustainability and scalability of project results (project exit strategy) developed.	National Communication and Dissemination Plan aligned with the Communication and Dissemination Strategy of the GCP, developed and updated periodically.  Plan for promoting the sustainability and scalability of the project's results (project exit strategy) developed and implemented.	Document of the National Communication and Dissemination Plan aligned with the Communication and Dissemination Strategy of the GCP Document of the Promotion Plan for the sustainability and scalability of the project results Technical documents Publications on social media Brochures Videos Website Meeting minutes Press releases Project management reports	The strategy facilitates the appropriation of knowledge and the exchange of information related to the project's scope. Members of the local communities, including indigenous peoples, are encouraged to implement the project activities and exchange their experiences. Institutional actors have strengthened their capacities and share their knowledge.	P S in C S K M (S S M E (S

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R f C
<p><u>Output 4.1.1:</u></p> <p>Mechanisms Implemented for knowledge management and the exchange of best practices and lessons learned with a gender and interculturality approach, aligned with the CHO IP</p>	<p>Number and type of mechanisms for the dissemination and exchange of best practices and lessons learned for the replicability and scalability of project results with a gender and intercultural approach.</p>	Not applicable	<p>At least 04 publications systematizing experiences and lessons learned disseminated with a gender and interculturality focus.</p>	<p>At least 08 documents and publications systematizing experiences and lessons learned disseminated with a gender and interculturality focus.</p>	<p>Technical documents Published publications</p>	<p>Decision-makers and local inhabitants are sensitized and improve their practices to reduce eutrophication and hypoxia in the CLME. The CHO IP provides a favorable framework for the exchange of experiences and the enrichment of learning with a gender and intercultural focus.</p>	<p>P S S G (S</p>
	<p>Number of national and international exchanges of knowledge from local and indigenous populations for the dissemination and feedback of experiences in NbS that contribute to reducing nutrient</p>	Not applicable	<p>At least 02 national and international knowledge exchanges of local and indigenous populations for the dissemination and feedback of NbS experiences that help reduce nutrient pollution</p>	<p>At least 04 national and international exchanges of knowledge from local and indigenous populations for the dissemination and feedback of NbS experiences that help reduce nutrient pollution and marine hypoxia.</p>	<p>Meeting minutes List of meeting participants registered by sex, indigenous group, and age Photographs Videos</p>		

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions
	pollution and marine hypoxia of the CLME.		and marine hypoxia.			
	Percentage of development of the project website accessible from the MINEC web portal with updated information, results, experiences, and lessons learned generated by the project online with GCP KML and CHO IP communication and dissemination strategies.	0%	Project website designed, developed, and fully operational (100%) in line with GCP KML and the communication and dissemination strategies of the CHO IP.	Project website developed and functioning at 100%, accessible from the MINEC web portal online with GCP KML and the communication and dissemination strategies of the CHO IP.	Operational project website Technical documents	
	Number of participations in learning exchanges and other exchanges per year to foster the socialization of knowledge with a gender approach between the CHO IP regions and the South-South and North-South regions.			At least one participation in learning partnerships and other exchanges per year to foster the socialization of knowledge with a gender focus between the regions of the CHO IP and south-south and north-south regions.	Meeting minutes List of meeting participants registered by sex, indigenous group, and age Photographs Videos	
	Number of contributions with content production (multimedia materials) quarterly to the CHO IP knowledge portal online with global and national KML strategies and its graphic image.		At least one contribution with content production (multimedia materials) per quarter to the knowledge portal of the CHO IP online with the global and national KML strategies and its graphic image.	At least one contribution with content production (multimedia materials) quarterly to the knowledge portal of the CHO IP online with global and national KML strategies and its graphic identity.	Technical documents  Publications	

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	Risk
	Number of newsletters and publications with best practices and lessons learned related to the project systematized and published.	0%	At least 05 newsletters and publications with best practices and lessons learned related to the project systematized and published.	At least 10 newsletters and publications with best practices and lessons learned related to the project systematized and published.	Newsletters published Posts on social media Press notes		
<u>Outcome 4.2:</u> Established coordination mechanisms with the GCP ensure that the project results contribute to the global objectives of the CHO IP	Number of reports on oxygen and nitrogen concentrations in the CLME submitted to the GCP for integration into GO2DAT	Not applicable	Not applicable	Not applicable	Reports  Databases	Not applicable	F S S
<u>Output 4.2.1:</u> Regular submission of project reports to the GCP contributes to the effective implementation of the CHO IP's M&E strategy	Number of project progress reports delivered to the GCP, providing information and data to contribute to programmatic indicators	Not applicable	Not applicable	Not applicable	Periodic reports delivered to the GCP	Not applicable	F S S
<u>Outcome 4.3:</u> Project implementation is supported by a Monitoring and Evaluation System with a gender and intercultural approach based on measurable and verifiable results through adaptive management	Number of monitoring reports containing progress towards achieving results and products, incorporating the monitoring of Gender, Indigenous Peoples, and Social and Environmental Safeguard Plans with disaggregated data by sex, age, and indigenous people.	Not applicable	08 monitoring reports (5 PPR and 03 PIR) including gender considerations, indigenous peoples, and environmental safeguards	15 monitoring reports (10 PPR and 05 PIR), including considerations of gender, indigenous peoples, and environmental safeguards	Periodic reports from the monitoring tool, integrating gender elements, indigenous peoples, and social and environmental safeguards plans. Reports and maps generated from the Geomatics tool for the project (monitoring and tracking of surface variables and other spatial variables) PIR, PPR.	Not applicable	F S S
<u>Output 4.3.1:</u>  Output 4.3.1. Independent mid-term and final	Number of objective and independent evaluations conducted during the Project.	Not applicable	01 mid-term review	01 mid-term review  01 final review	Mid-term evaluation report. Final evaluation report.	Not applicable	F S

Chain of Results	Indicators	Baseline	Medium-term Objectives	Final Objective	Verification Measures	Assumptions	R f C
reviews are conducted to inform project implementation through an adaptive management approach							

<sup>[1]</sup>Phases in the design and formulation of the PORU for Areas Under Special Management Regime (ABRAE), including Critical Area with Priority for Treatment (ACPT): PHASE I: Involves institutional arrangements and the definition of objectives and goals that will guide the management process based on existing baseline information and field verifications. It addresses aspects such as cartography, physical-natural, socioeconomic, legal, institutional, and administrative information; community participation in the management process; the general structure of the information; basic concepts; as well as the identification and analysis of central problems (resource assessment, socioeconomic dynamics, target image of ACPT, and the status of conservation objects, which feed into the technical support document of the PORU). PHASE II: Involves the systematization and analysis of information, the definition of criteria for zoning (management units), territorial evaluations, conservation options, and management of the ACPT; guidelines for regulating the area (permitted, restricted, and prohibited activities), as well as other regulatory elements in accordance with the legislation and management objectives of each ACPT. PHASE III: Involves the generation of the draft decree of the PORU, which must be socialized and publicly consulted following legal guidelines and the CPLI process. PHASE IV: Involves the preparation of the decree draft with the corresponding adjustments, the final zoning map, and the final technical report (conclusion of the PORU Project formulation process).

## ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount (\$)		
	Budgeted Amount	Amount Spent To date	Amount Committed
National Consultancies which provided the following deliverables: - Project Coordination and expertise in water resources management to deliver the ProDoc. - Inputs on Agroecology, Sustainable livelihoods and NbS to design outputs in Components 2 and 3, along with an analysis of land use change and soil degradation processes in the watersheds that flow into the Maracaibo System. - Mathematical models applied to hydrology and hydrodynamic analysis, to provide inputs to design outputs in Components 1 and 2. - Integration of gender and intercultural approach during project design, ensuring compliance with GEF requirements and strategies. - Project's cartography and its corresponding analysis focused on the environmental characterization of the Maracaibo System. - Assessment of ichthyofauna and its main threats in the MaracaiboSystem to determine the ecological status of the basin, providing inputs to design outputs in Components 1 and 2. - Technical support and solutions to the rehabilitation process of wastewater treatment plants located in the Maracaibo System, including the incorporation of NbS as strategy for curbing nutrient flows to the water bodies, providing inputs to outputs in Components 1, 2 and 3. - Socio-economic analysis of the study area to determine baseline conditions, perform economic and financial analysis for the design of new interventions and	93,998.00	77,116.00	0.00

investments to promote bio-businesses and NbS in the project intervention area; identify and analyze opportunities for co-financing or synergistic contributions to the project; and analyze the financial and economic sustainability of the proposed project components, providing inputs to outputs in Components 1, 2 and 3.			
International Consultancies which provided the following deliverables: - Expertise on definition of the theory of change, Logical Framework and Project Document (PRODOC) Design. - Assessment of the current state of the project area based on the eco-hydrological analysis, providing alternatives for interventions and NbS to be proposed and adopted by the project that promote a holistic management of the MaracaiboSystem. - Assessment of the current conditions in cocoa and coffee productions and market, to establish a baseline and guidelines to develop a biocommerce platform in the project area.	44,000.00	37,600.00	8,400.00
Free prior and informed consent and related consultations		8,974.80	0.00
Local workshops to discuss a project concept and provide a platform for divergent views on its efficacy	20,000.00	26,000.00	
Inception workshop	15,000.00	59,721.00	
Validation workshop	15,000.00	50,000.00	
Assessing capacity of executing partners	50,839.00		
Spanish-English Translation	3,027.00	8,864.20	
Travel cost for local experts for consultations with stakeholders	28,136.00	23,324.00	
International travels	30,000.00		
<b>Total</b>	<b>162,002.00</b>	<b>32,188.20</b>	<b>8,400.00</b>

## ANNEX E: PROJECT MAP AND COORDINATES

Please provide geo-referenced information and map where the project interventions will take place

Location Name	Latitude	Longitude	GeoName ID
Lake Maracaibo Basin	9.3331	-72.0541	

Location Description:

Intervention Area Level 1: corresponds to the entirety of the LMB, including the LM and the Gulf of Venezuela

Activity Description:

Transboundary Basin Limit of the LM for hydrographic and hydrodynamic models and monitoring activities

Location Name	Latitude	Longitude	GeoName ID
Gulf of Venezuela	11.4900	-71.2300	

Location Description:

Intervention Area Level 1: corresponds to the entirety of the LMB, including the LM and the Gulf of Venezuela

Activity Description:

Coastal Unit Limit of the Gulf of Venezuela for hydrographic and hydrodynamic models and monitoring activities

Location Name	Latitude	Longitude	GeoName ID
Escalante River Sub-basin	8.5861	-71.9794	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Escalante River for defining intervention level 2.1 and 2.2, Development of the PORU

Location Name	Latitude	Longitude	GeoName ID
Chama River Sub-basin	8.5326	-71.3247	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Chama River for defining intervention level 2.1 and 2.2, Development of the PORU

Location Name	Latitude	Longitude	GeoName ID
Motatán River Sub-basin	9.4877	-70.5623	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Motatán River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Misoa River Sub-basin	10.0395	70.7396	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Misoa River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Pueblo Viejo River Sub-basin	10.2416	-71.0109	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Pueblo Viejo River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Catatumbo River Sub-basin	8.8362	-72.4001	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Catatumbo River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Limón River Sub-basin	10.9101	-72.2268	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Limón River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Concha River Sub-basin	8.9675	-71.7442	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limit of the Concha River for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Southern System Sub-basin	8.9397	-71.2326	

Location Description:

Intervention Area Level 2: includes 09 prioritized sub-basins

Activity Description:

Sub-basin limits of the South System for defining intervention level 2.1 and 2.2

Location Name	Latitude	Longitude	GeoName ID
Cabimas Municipality	10.4058	-71.2308	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Colón Municipality	8.8902	-71.9570	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, considered for the Indigenous Peoples Plan, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Francisco Javier Pulgar Municipality	8.9101	-71.5624	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Mara Municipality	10.9072	-72.1268	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary of the Mara municipality in the Zulia state, considered for the Indigenous Peoples Plan

Location Name	Latitude	Longitude	GeoName ID
Maracaibo Municipality	10.6310	-71.7157	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, considered for the Indigenous Peoples Plan, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Sucre Municipality	9.0908	-71.2065	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Santa Rita Municipality	10.5246	-71.3655	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Alberto Adriani Municipality	8.6169	-71.7599	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
García de Hevia Municipality	8.3172	-72.2517	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

Location Name	Latitude	Longitude	GeoName ID
Simón Rodríguez Municipality	8.3351	-71.8205	

Location Description:

Intervention Area Level 3: includes 10 municipalities.

Activity Description:

Official municipal boundary, activities related to the WWTPs, in addition to potential pilots for the adoption of NbS

**Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.**

The geographic coordinates (latitude, longitude) of the centroids of the polygons of the potential intervention areas of the project are presented at various levels: Intervention Area Level 1: corresponds to the entirety of the MS, including the LM and the Gulf of Venezuela. Intervention Area Level 2: includes 09 prioritized sub-basins of the following rivers: El Limón, Catatumbo, Escalante, Concha, Chama, Motatán, Misoa, Pueblo Viejo, and the Southern Sub-basin System. Intervention Area Level 3: includes 10 municipalities: Cabimas, Colón, Francisco Javier Pulgar, Mara, Maracaibo, Santa Rita, Sucre (Zulia State), Alberto Adriani (Mérida State), García de Hevia and Simón Rodríguez (Táchira State). For Levels 2 and 3, prioritization is carried out based on a multicriteria analysis to define the intervention areas, as detailed in Annex P. of the Agency Project document.

At the beginning of the project implementation, a systematic process will be carried out to identify and delimit the specific intervention areas within each of the defined sublevels. This process will be based on the coordinates of the centroids of the polygons representing the potential intervention areas indicated in Table 5. In the Intervention Area Level 1, modeling will be conducted across the entire MS, including the LM and the Gulf of Venezuela. In the Intervention Area Level 2, the nine main subbasins will be prioritized, ensuring the identification of critical areas for the implementation of sustainable practices, such as soil management in the intramontane valleys (Level 2.1), agricultural and livestock activities in the piedmont and plain of the southern lake (Level 2.2), and improved mangrove forest management in the LM (Level 2.3). In parallel, in the Chama River and Escalante River subbasins, a Land Use Planning and Regulation Plan (PORU) will be developed, including guidelines for implementing NbS. In Level 3, specific areas will be identified in 10 prioritized municipalities: Cabimas, Colón, Francisco Javier Pulgar, Mara, Maracaibo, Santa Rita, Sucre (Zulia State), Alberto Adriani (Mérida State), García de Hevia and Simón Rodríguez (Táchira State); with special attention to Maracaibo, Mara, and Colón, which will be key for the Indigenous Peoples Plan and activities related to wastewater treatment plants (WWTP), as well as pilots for the adoption of NbS, ensuring an intervention adapted to the local bio-physical and socio-economic characteristics.

Figures 14, 15, and 16 show the geographical location of the intervention areas at different levels.

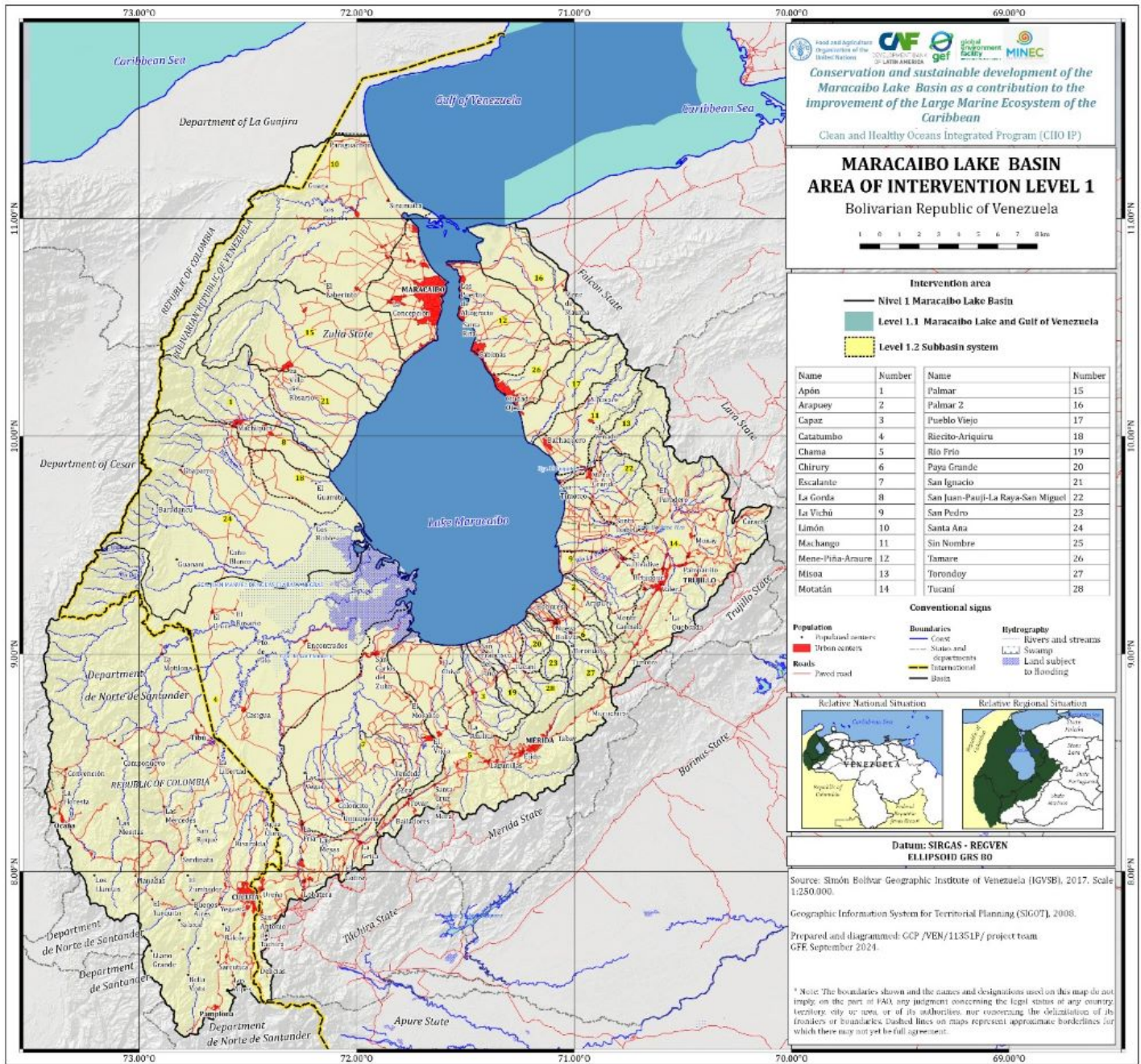


Figure 14. Potential intervention area level 1

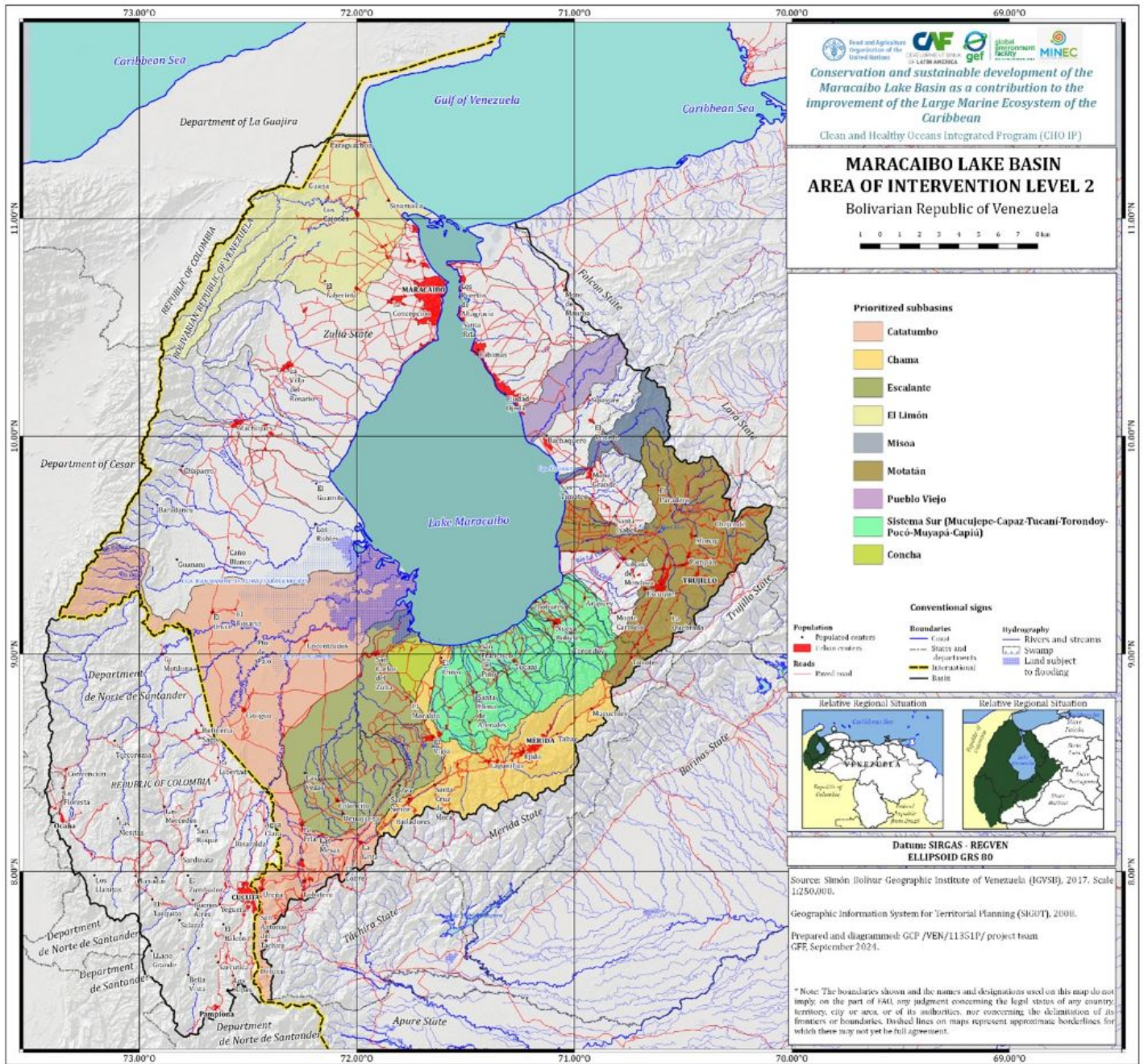


Figure 15. Potential intervention area level 2

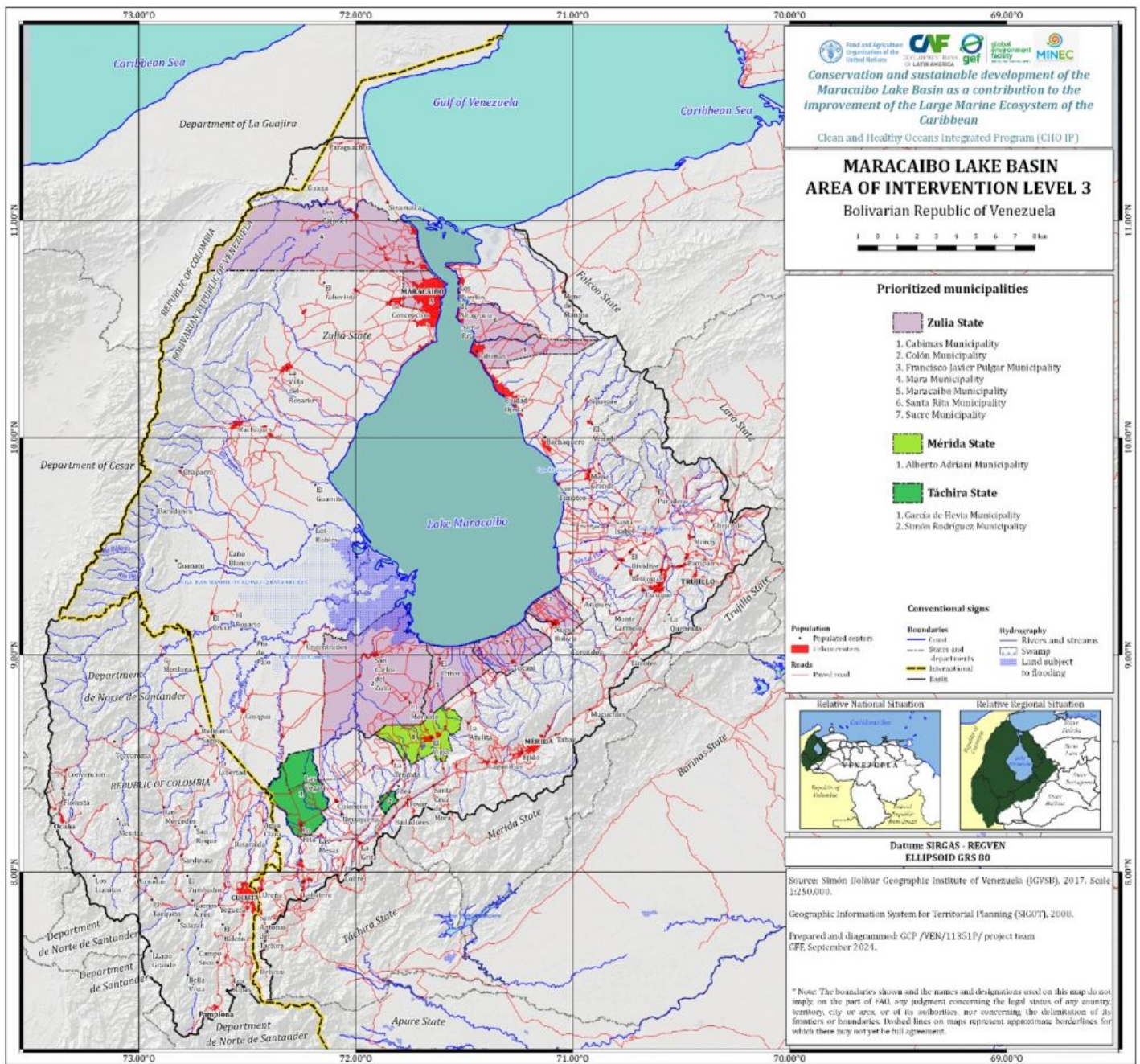


Figure 16. Potential intervention area level 3

## ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS DOCUMENTS INCLUDING RATING

Attach agency safeguard datasheet/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts (as applicable).

Title

Annex F-2 IP

Annex F-1

## ANNEX G: BUDGET TABLE

Please upload the budget table here.

FAO Cost Category	Component 1		Component 2		Component 3		Component 4		M&E 4.3	PMC	Responsible Entity	Total GEF
	1.1	1.2	2.1	2.2	3.1	3.2	4.1	4.2				
<b>5013 Consultants</b>												
International Specialist in NbS Implementation for Wastewater Treatment			0	12,823	53,177	0					MINEC	66,000
<b>Sub-total international Consultants</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,823</b>	<b>53,177</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>66,000</b>
Specialist in Information Systems and Generative AI	53,263										MINEC	53,263
Specialist in Information Management	64,883										MINEC	64,883
Specialists in Land Use Planning and Management	24,865	1,440	4,887	5,651	1,109	2,630					MINEC	40,582
Specialist in Environmental Law and Public Policy			18,069	21,011		16,119					MINEC	55,199
Specialist in Governance, Sustainable Development, and Value Chains			5,735	16,641		26,329					MINEC	48,705
Specialist in Sustainable Finance, Economic Analysis, and Auditing			33,552	16,998		14,332					MINEC	64,882
Specialist in financial strategies for sustainable local development projects			41,777	2,401	9,062	8,453					MINEC	61,693
Specialist in Ecological Restoration						51,381					MINEC	51,381
Specialist in Fisheries	55,778			3,158							MINEC	58,936
Specialist in Development and Digital Design	1,855	1,855					61,174				MINEC	64,884
Specialist in Mathematical Modeling of Wastewater Treatment Systems		29,366		6,983	28,534						MINEC	64,883
Specialist in Graphic Design and Document Editing							40,581				MINEC	40,581
Project Coordinator (PMU)										217,115	MINEC	217,115
Specialist in Mathematical Models Applied to Hydrology and Hydrodynamics	88,375			29,458	62,458						MINEC	180,291
Specialist in Communication Strategy and Knowledge Management	23,596	2,916	11,666	14,847	17,157	37,247	45,160	27,703			MINEC	180,292
Specialist in Gender and Indigenous Peoples	46,191	943	23,095	18,146	20,182	49,641	22,094				MINEC	180,292
Specialist in Environmental Analysis, Geomatics, and Safeguards	72,099	8,911	9,397	23,007	16,839	50,038					MINEC	180,291

Specialist in Biodiversity and Environmental Monitoring	60,752		0	18,029		101,511					MINEC	180,292
Specialist in Sustainable Agriculture and Livelihoods	19,832		35,468	5,774	30,269	88,950					MINEC	180,293
Specialist in the Design and Rehabilitation of Domestic and Industrial Wastewater Treatment Plants		38,296	0	35,350	106,646						MINEC	180,292
Financial and operations administrative assistant (PMU)									180,292		MINEC	180,292
Specialist in Monitoring and Evaluation									180,292		MINEC	180,292
Specialist in Stakeholder Engagement and Institutional Arrangements									180,292		MINEC	180,292
Specialist in Financial/Economic Analysis			63,925	27,396	33,291	55,681	0	0			MINEC	180,293
Support Consultant for Recruitment and Staff Management (PMU)									48,180		MINEC	48,180
Translator							0	35,000			FAO	35,000
Mid-Term Review							0		50,000		FAO	50,000
Final Report							0		6,550		FAO	6,550
Independent Terminal Evaluation							0		80,000		FAO	80,000
<b>Sub-total national Consultants</b>	<b>511,489</b>	<b>83,727</b>	<b>247,571</b>	<b>244,850</b>	<b>325,547</b>	<b>502,312</b>	<b>169,009</b>	<b>62,703</b>	<b>497,134</b>	<b>445,587</b>		<b>3,089,930</b>
<b>5013 Sub-total consultants</b>	<b>511,489</b>	<b>83,727</b>	<b>247,571</b>	<b>257,673</b>	<b>378,725</b>	<b>502,312</b>	<b>169,009</b>	<b>62,703</b>	<b>497,134</b>	<b>445,587</b>		<b>3,155,930</b>
<b>5650 Contracts</b>												
Hydraulic and water quality simulation in sub-basins of the LMB	230,000	0										230,000
Simulation for determining nutrient and organic matter loads in a sub-basin of the LMB to contribute to new discharge regulations	100,000	0									MINEC	100,000
Hydrodynamic and water quality simulation in Lake Maracaibo	116,087	0									MINEC	116,087
Characterization of wastewater discharges in the MS	0	232,174									MINEC	232,174
Inventory of relevant industrial activities in the MS	0	25,000									MINEC	25,000
Characterization of the MS WWTPs to support a sanitation plan	0	180,000									MINEC	180,000
Monitoring of flood areas	20,796	0									MINEC	20,796
Monitoring of riparian zones	68,840	0									MINEC	68,840
Monitoring of water quality in rivers	141,402	0									MINEC	141,402
Monitoring of fisheries	72,554	0									MINEC	72,554
Early warning systems	214,761	0									MINEC	214,761
Thematic maps of the MS	25,075	0									MINEC	25,075
Agroclimatic Technical Tables with a gender and intercultural approach	28,673	0									MINEC	28,673
Flow measurements in major rivers	290,217	0									MINEC	290,217
Information management system for the MS that contributes to the global GO2DAT system and national platforms	250,000	0									MINEC	250,000

Monitoring of water quality in Lake Maracaibo and the Gulf of Venezuela	87,065	0								MINEC	87,065
Assessment and strengthening of meteorological stations	41,458	0								MINEC	41,458
Monitoring of ecosystem services, livelihoods, ecological status, and conservation status	66,750	0								MINEC	66,750
Review and proposal to strengthen the public policy framework to encourage and finance actions that mitigate eutrophication and hypoxia problems in CLME			50,000	50,000						MINEC	100,000
Financial strategy to promote the adoption of nature-based solutions in productive systems in the SL region			171,272	0						MINEC	171,272
Land Use Planning and Regulation Plan (PORU) for the sub-basins of the Chama and Escalante rivers			0	300,000						MINEC	300,000
Integrated wastewater management plan and proposals for the redesign and rehabilitation of the MS WWTPs			0	1,141,814						MINEC	1,141,814
Pilot projects for the establishment of community savings and credit organizations with a gender and intercultural approach			114,181	0						MINEC	114,181
Strengthening of community savings and credit organizations with a gender and intercultural approach			171,272	0						MINEC	171,272
Technical assistance to established community savings and credit organizations with a gender and intercultural approach			108,527	0						MINEC	108,527
Implementation of pilot projects for sustainable mangrove management with a gender and intercultural approach					0	373,949				MINEC	373,949
Implementation of pilot projects for sustainable soil management with a gender and intercultural approach					0	210,346				MINEC	210,346
Implementation of biotrade models for cacao, coffee, and other strategic products in the Sur del Lago region					0	467,436				MINEC	467,436
Implementation of pilot projects for the adoption of NbS in effluent treatment, preferably in small farming communities and/or indigenous communities.					116,087	0				MINEC	116,087
Implementation of pilot projects for modification or adaptation of existing lagoon systems for the removal of nutrients in municipal wastewater, preferably in SBN					1,160,870	0				MINEC	1,160,870
Rehabilitation of high Andean wetlands: Chama and Capaz river basins					0	261,316				MINEC	261,316
Wetland improvement actions: Laguna de Las Peonias					0	424,106				MINEC	424,106

Mangrove rehabilitation: Puerto Mara and Caño La O					0	179,921						MINEC	179,921	
Rehabilitation and restoration actions in Caño Maroma					0	369,843						MINEC	369,843	
Establishment of Farmers Fields Schools to promote the adoption of NbS in productive processes with a gender and intercultural approach					0	422,171						MINEC	422,171	
Technical assistance for nature-based solutions incorporated as part of productive systems through the implementation of pilot tests for nutrient reduction					0	98,527						MINEC	98,527	
Technical assistance for established Farmers Fields Schools to promote the adoption of NbS in productive processes with a gender and intercultural approach					0	98,527						MINEC	98,527	
Technical assistance for biotrade models in agricultural production areas promoting sustainable production practices with a gender and intercultural approach					0	98,527						MINEC	98,527	
National Communication and Dissemination Plan aligned with the GCP Communication and Dissemination Strategy										185,545		MINEC	185,545	
Design, editing, and publication of documents										58,043		MINEC	58,043	
Promotion plan for the sustainability and scalability of project results (project exit strategy)										100,000		MINEC	100,000	
Project website developed										57,091		MINEC	57,091	
Vehicle rental service contract												80,000	MINEC	80,000
<b>5650 Sub-total Contracts</b>	<b>1,753,679</b>	<b>437,174</b>	<b>615,252</b>	<b>1,491,814</b>	<b>1,276,957</b>	<b>3,004,669</b>	<b>342,635</b>	<b>58,043</b>	<b>0</b>	<b>80,000</b>			<b>9,060,222</b>	
<b>5021 Travel</b>														
International travel (1 mission per year considering a project duration of 5 years / 12 days per mission, each at a rounded cost of 127 USD/day and 254 USD/day + airfare - CAF personnel and International Consultant)	7,556	7,556	17,001	7,556	9,445		7,556					MINEC	56,670	
National travel (3 missions per month considering a project duration of 60 months / 5 days per mission, each at a rounded cost of 127 USD/day)	84,263	84,263	70,781	70,781	121,338	121,338	60,669	60,669				MINEC	674,100	
Travel for training/workshops and meetings (LMB IP) (22 trips, 6 participants on average including technicians, counterparts, and beneficiaries per activity)					0	100,000	48,191	51,809				MINEC	200,000	
<b>5021 Sub-total travel</b>	<b>91,819</b>	<b>91,819</b>	<b>87,782</b>	<b>78,337</b>	<b>130,783</b>	<b>221,338</b>	<b>116,416</b>	<b>112,478</b>	<b>0</b>	<b>0</b>			<b>930,770</b>	
<b>5023 Training</b>														
Workshop for the transfer of management and communication technology aimed at technicians from public institutions with a	17,413											MINEC	17,413	

gender and interculturality focus (at least 40 officials).												
Strengthening local capacities for participatory environmental monitoring of riverside areas with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring of aquatic environments with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring of terrestrial and aquatic biodiversity with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring of water quality with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring using quantitative techniques for water quantity with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring of ecosystem services and livelihoods with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening local capacities for participatory environmental monitoring of fisheries with a gender and interculturality focus (including a module on gender equality and interculturality) (at least 40 people trained).	17,413										MINEC	17,413
Strengthening the capacities of officials and local communities in early warning systems for algal blooms (at least 40 people trained).	17,413										MINEC	17,413

Strengthening the capacities of officials and local communities in early warning systems for flood risks (at least 40 people trained).	17,413										MINEC	17,413
Strengthening the capacities of officials and local communities in early warning systems for agro-climatic risks (at least 40 people trained).	17,413										MINEC	17,413
Workshop on piloting and sampling using unmanned aerial vehicles.		17,413									MINEC	17,413
Training on gender equality and interculturality aimed at staff from public institutions managing information from the LMB (at least 40 people trained).	17,413										MINEC	17,413
Training for the establishment of agro-climatic tables (including a module on gender equality and interculturality) aimed at regional institution staff and prioritized communities in the project's intervention area.	17,413										MINEC	17,413
Training workshops on gender equality and interculturality aimed at staff from regional and national institutions participating in the LMB information management system contributing to the global GO2DAT system and national platforms.	17,413										MINEC	17,413
Training for institutional members in water quality and quantity monitoring.	21,609										MINEC	21,609
Participatory diagnostic workshops with key actors from the Sur del Lago region to identify needs, strengths, opportunities, barriers, and challenges for producers adopting NbS, with a gender and interculturality focus (at least 160 participants).			23,217								MINEC	23,217
Comprehensive training program for producers, technicians, officials, and other relevant actors on financial instruments promoting the adoption of NbS in production systems in the Sur del Lago region, with a gender and interculturality focus (at least 200 people trained).			46,435								MINEC	46,435
Training for project implementers (project team and executing partners) on gender equality and interculturality, emphasizing addressing gender and intercultural gaps.			23,217								MINEC	23,217
Free, prior, and informed consultation (FPIC) workshops with communities and indigenous peoples in selected intervention areas for the establishment of a community savings and loan system.			29,022								MINEC	29,022

Training on value chain development for native products, sustainable financial management, and operation of the Savings and Credit System (including a module on gender equality and interculturality) (at least 40 people trained).			23,217								MINEC	23,217
Free, prior, and informed consultation (FPIC) workshops with communities and indigenous peoples in selected intervention areas for the Chama and Escalante river sub-basin community.			29,022								MINEC	29,022
Workshops on NbS in productive practices for the communities of the Chama and Escalante river sub-basin (at least 200 people trained).			58,043								MINEC	58,043
Free, prior, and informed consent (FPIC) workshops with communities and indigenous peoples in selected intervention areas for the LMB environmental remediation plan.			29,022								MINEC	29,022
Workshops to promote community participation in the surveillance and protection of water resources and to raise awareness on sanitation and pollution reduction with a gender and interculturality focus.			29,022								MINEC	29,022
Training with a gender and interculturality focus for public, private, and organized community sectors on NbS applied to wastewater treatment (at least 100 people trained).				18,078	0						MINEC	18,078
Free, prior, and informed consultation (FPIC) workshops with communities and indigenous peoples in selected intervention areas for pilot sustainable mangrove management projects.				0	21,452						MINEC	21,452
Training for stakeholders involved in improved mangrove forest management and sustainable land management (including a module on gender equality and interculturality).				0	32,256						MINEC	32,256
Free, prior, and informed consultation (FPIC) workshops with communities and indigenous peoples in selected intervention areas for pilot sustainable land management projects.				0	24,022						MINEC	24,022
Training for the formation of promoters for the Doctor Soil program (including a module on gender equality with a gender and interculturality focus) (at least 60 people).				0	20,647						MINEC	20,647
Training of officials in public management of biotrade (public policies, environmental legislation, and sustainable				0	27,256						MINEC	27,256

development) (including a module on gender equality and interculturality).												
Training coffee and cocoa producers in sustainable practices (including a module on gender equality and interculturality). These programs should reach at least 120 people in the communities.					0	53,043					MINEC	53,043
Free, prior, and informed consent (FPIC) workshops with communities and indigenous peoples in selected intervention areas for pilot coffee and cocoa projects.					0	21,452					MINEC	21,452
Workshops on monitoring and evaluation of the implementation of the Gender Plan and Indigenous Peoples Plan as a contribution to the project's exit strategy design.							11,609	0			MINEC	11,609
Continuous training for the team to stay updated on best practices and new methodologies.							5,804	0			MINEC	5,804
Project Inception workshop							0	60,000			MINEC	60,000
Annual workshops for strategy and action evaluation and planning for results-oriented management.							0	45,000			MINEC	45,000
Project closure workshop							0	60,000			MINEC	60,000
Project Steering Committee (PSC) meetings (this includes airfare, accommodation, meeting room rentals, refreshments, among other expenses)							0	60,000			MINEC	60,000
<b>5023 Sub-total training</b>	<b>265,391</b>	<b>17,413</b>	<b>145,109</b>	<b>145,109</b>	<b>18,078</b>	<b>200,128</b>	<b>17,413</b>	<b>225,000</b>	<b>0</b>	<b>0</b>		<b>1,033,641</b>
<b>5024 Expendable procurement</b>												
Design, editing, printing of technical documents							35,682	52,254			MINEC	87,935
Shortwave radio equipment for the UGP	1,000										MINEC	1,000
Participatory monitoring kit	23,217										MINEC	23,217
Laboratory utensils and supplies	6,250	6,249									MINEC	12,499
Office maintenance supplies and minor repairs necessary for the workspace of the PMU (construction equipment and materials )										100,000	MINEC	100,000
Field gear and personal protective equipment (PPE) for the technical team, including clothing, goggles, gloves, helmets, and other safety items.										60,000	MINEC	60,000
Office supplies										10,000	MINEC	10,000
Supplies and tools for the savings and credit system			100,000								MINEC	100,000
Supplies required for the establishment of at least 4 FFS					0	40,000					MINEC	40,000

<b>5024 Sub-total expendable procurement</b>	<b>30,467</b>	<b>6,249</b>	<b>100,000</b>	<b>0</b>	<b>0</b>	<b>40,000</b>	<b>35,682</b>	<b>52,254</b>	<b>0</b>	<b>170,000</b>		<b>434,652</b>
<b>5025 Non-expendable procurement</b>												
Computing equipment for the Project Management Unit										25,528	MINEC	25,528
Computing equipment, servers, and software (for Output 1.1.1)	17,413	0									MINEC	17,413
Equipment for surface water characterization	307,050	0									MINEC	307,050
Drone for monitoring flood areas	17,413	0									MINEC	17,413
Electrofishing equipment	9,287	0									MINEC	9,287
Portable multiparameter probe	9,287	0									MINEC	9,287
Accesorios for the PMU (printers, UPS, external drives, among others)	23,217	0									MINEC	23,217
Videography equipment	16,252	4,063									MINEC	20,315
Outboard motor	8,707	0									MINEC	8,707
Required technological equipment for the operation of the local community savings and credit system			50,000								MINEC	50,000
Acquisition of mathematical simulation software for wastewater treatment systems						40,000					MINEC	40,000
<b>6100 Sub-total non-expendable procurement</b>	<b>408,626</b>	<b>4,063</b>	<b>50,000</b>	<b>0</b>	<b>0</b>	<b>40,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25,528</b>		<b>528,217</b>
<b>TOTAL</b>	<b>3,061,471</b>	<b>640,445</b>	<b>1,245,713</b>	<b>1,972,932</b>	<b>1,804,542</b>	<b>4,008,447</b>	<b>681,155</b>	<b>510,478</b>	<b>497,134</b>	<b>721,115</b>		<b>15,143,432</b>

Please explain any aspects of the budget as needed here

## ANNEX I: RESPONSES TO PROJECT REVIEWS

From GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF.

GEF SEC Comment	Agency Response
<p><i>Comment to Global Coordination Project-Clean and Healthy Ocean Integrated Program</i></p> <p><b>2. Project Summary.</b></p> <p>2nd of December 2024 (thenshaw):</p> <p>Please include that the GCP will represent the CHO-IP in terms of engagement with IW:LEARN.</p> <p>Therefore, the GCP should target Core Indicator 7.4 <u>and the 14 national child projects should not.</u></p>	<p>Core indicator 7.4 was not included in the Child project as requested.</p>

The child projects should provide inputs to the GCP to engage/liaise with IW:LEARN. Please provide this guidance to the 14 national child projects accordingly.

### **5.3 Core indicators**

Please discuss Core Indicator 7 target program approach with GEF Sec. For streamlining/efficiency, the GCP should target CI7.4 on behalf of the program. National child projects should provide information to GCP for IW:LEARN engagement but not have direct engagement with IW:LEARN.