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MULTILATERAL INVESTMENT FUND

**ECUADOR**

**COMPETITIVENESS OF MANGROVE CONCESSIONAIRE COMMUNITIES IN THE  
GULF OF GUAYAQUIL**

**(EC-T1370)**

**DONORS MEMORANDUM**

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**PROJECT SUMMARY**  
**COMPETITIVENESS OF MANGROVE CONCESSIONAIRE COMMUNITIES**  
**IN THE GULF OF GUAYAQUIL**  
**(EC-T1370)**

The Gulf of Guayaquil in Ecuador contains the largest estuary on the Pacific coast of South America and is home to 83% of the country's mangrove trees. Over the last 40 years, however, more than 70% of the mangrove forest has been lost due to urban growth, the development of tourism infrastructure and aquaculture (shrimp farming). It is estimated that there are still more than 156,000 ha of mangrove.

Mangroves provide a series of environmental services of importance for climate change adaptation and mitigation, as well as for preserving biodiversity. They are essential for maintaining global biodiversity and food security for coastal populations. They are a source of protein (fish, crustaceans and mollusks) and of income for the coastal communities that depend on them, harvesting **black clams** (*concha prieta*) and **red crabs** (*cangrejo rojo*) from the mud. In Ecuador, mangroves are deemed national goods belonging to the State, and in order to use their resources communities must have a concession contract with the government.

The problem facing clam and crab harvesting associations and coastal communities with mangrove concessions is to insert themselves into the value chain in a sustainable and lasting manner that will ensure their economic and financial integration, while at the same time preserving the mangrove ecosystem on which their economy and their resilience to climate change depend.

The use and exploitation of natural resources by the associations that harvest mangrove resources is regulated by the State, through the Subsecretaría de Gestión Marino Costera [Department of Coastal Marine Management] (SGMC). In order to halt deforestation in the country and to promote the conservation of natural woodlands and ecosystems, which include mangrove swamps, the government created the National Program of Incentives for Conservation and Sustainable Use of the Natural Heritage, the *Programa Socio Bosque* [Forestry partnership program]. As part of that program, the *Capítulo Socio Manglar* [mangrove partnership chapter] has been operating since 2014 as a pioneering endeavor in Latin America and the Caribbean to give communities an economic incentive to conserve mangroves.

To date, the concessions model has achieved security and certainty in the exclusive use of the resource and has promoted productivity gains in some communities, but it has failed to generate successful enterprises. This project will help to integrate harvesters under mangrove concessions into sustainable, collective ventures that will help to boost their incomes, while preserving the ecosystem on which they depend. The project will promote collective enterprises with a gender focus, geared to higher value markets; it will introduce crab meat as a new product focused on market differentiation; it will introduce the use of drones for monitoring and overseeing the ecosystem; and it will build the capacity needed to enter more promising markets. This initiative will provide information and a more effective mangrove conservation model with potential benefits in terms of reducing emissions from deforestation, and it will contribute to a forest investment program that, for the first time in the region, will address mangroves in its investment plan. The executing agency will be Fundación Heifer Ecuador. The total amount of the project is

US\$1,614,914, of which US\$795,000 will be in the form of nonreimbursable technical cooperation from the MIF.

## **ANNEXES**

Annex I	Results matrix
Annex II	Summary budget

## **APPENDICES**

Proposed resolution
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**INFORMATION AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF THE  
MIF PROJECT INFORMATION SYSTEM**

Annex III	Itemized budget
Annex IV	Diagnostic needs assessment of the executing agency, including due diligence and integrity analysis
Annex V	Project status reports and fulfillment of fiduciary agreements and milestones
Annex VI	Procurement plan
Annex VII	Operating Regulations for the innovation

## ABBREVIATIONS

CCP	Consejo Consultivo del Proyecto [Project Advisory Board]
CCS	Climate Change Division
CPUE	Catch per unit effort
CSA	Climate-smart agriculture
DNA	Diagnostic needs assessment [of the executing agency]
FHE	Fundación Heifer Ecuador
FIP	Forest Investment Program
GDI	Gender and Diversity Division
GEF	Global Environment Facility
ha	hectare
IEPS	Instituto Nacional de Economía Social y Solidaria [National Social Economy Institute]
IIC	Inter-American Investment Corporation
MAE	Ministry of the Environment of Ecuador
SGMC	Subsecretaría de Gestión Marino Costera [Department of Coastal Marine Management]
SM	Programa Socio Bosque – Capítulo Socio Manglar [Mangrove partnership chapter of the Forestry Partnership Program]
tCO <sub>2</sub> e	Ton of carbon dioxide equivalent
UOPPAO	Unión de Organizaciones de Producción Pesquera Artesanal de El Oro [Union of Artisanal Fishery Organizations of El Oro]

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**GUAYAQUIL**  
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**EXECUTIVE SUMMARY**

<b>Country and geographic location:</b>	Ecuador, the south portion of the Gulf of Guayaquil. Mangrove communities belonging to the canton of Naranjal in the Province of Guayas and the cantons of Arenillas and Huaquillas in the Province of El Oro.		
<b>Executing agency:</b>	Fundación Heifer Ecuador (FHE)		
<b>Area of focus:</b>	Climate-smart agriculture (CSA)		
<b>Coordination with other donors/ IDB Group operations:</b>	The project was designed in coordination with: (i) the Gender and Diversity Division (SLC/GDI) responsible for evaluating the <i>Socio Bosque</i> [Forestry partnership] <sup>1</sup> program; (ii) the Climate Change Division (CSD/CCS) responsible for managing the Forestry Investment Program (FIP); and (iii) the Inter-American Investment Corporation (IIC). <sup>2</sup> Specialists from those divisions are members of the project team. This initiative was also coordinated with Conservation International and HIVOS, coexecuting agencies of the Global Environment Facility (GEF) <sup>3</sup> operation.		
<b>Direct beneficiaries:</b>	Five concessionaire communities <sup>4</sup> organized in associations of black clam and red crab harvesters representing some 500 families (500 harvesters), 110 women, the Union of Artisanal Fishery Organizations of El Oro (UOPPAO) and 500 of its member harvesters, 2 new enterprises, and the mangrove ecosystem. These associations, together with the UOPPAO, manage 15,918 ha of mangrove (see Table 1).		
<b>Financing:</b>	Technical cooperation:	US\$ 795,000.00	52%
	Investment		
	Loan		
	<b>TOTAL MIF CONTRIBUTION:</b>	<b>US\$ 795,000.00</b>	<b>52%</b>
	Counterpart contribution:	US\$ 737,414.00	48%
	<b>TOTAL PROJECT BUDGET:</b>	<b>US\$ 1,532,414.00</b>	<b>100%</b>
<b>Execution and disbursement period:</b>	42 months for execution and 48 months for disbursement.		
<b>Special contractual conditions:</b>	Conditions precedent to the first disbursement will be: presentation to the Bank's satisfaction of: (i) the contracting of the project coordinator; (ii) letters of interest in project participation submitted by at least <b>two key market players</b> ; and (iii) agreement signed with the Ministry of the Environment of Ecuador indicating the role and responsibilities of the parties, including the commitment to pay the annual incentive to the beneficiary communities during		

<sup>1</sup> The final report will be delivered in June 2017 and will analyze the community enterprises, use of the resources, and the intervention model.

<sup>2</sup> The MIF operation will help to identify potential new clients for the IIC in the fisheries and aquaculture sectors.

<sup>3</sup> GEF ID 4770 <https://www.thegef.org/project/integrated-management-marine-and-coastal-areas-high-value-biodiversity-continental-ecuador>. This project does not include a business component.

<sup>4</sup> Four of the five organizations have been preselected, see Table 1. These associations manage 14.4% of all the mangroves in Churute.



**Environmental  
and social  
impact review:**

project execution, via the Programa Socio Bosque - Capítulo Socio Manglar. This operation was screened and classified in accordance with the requirements of the Bank's Environment and Safeguards Compliance Policy (OP-703) on 3 April 2017. Given its limited impacts and risks, this is classified as a category "C" operation.

**Unit with  
disbursement  
responsibility:**

Country Office in Ecuador.

## I. PROBLEM TO BE ADDRESSED

### A. Description of the problem

- 1.1 The Gulf of Guayaquil in Ecuador contains the largest estuary on the **Pacific coast** of South America and is home to 83% of the country's mangrove trees. Over the last 40 years, however, more than 70% of the mangrove forest has been lost due to urban growth, the development of tourism infrastructure and aquaculture (shrimp farming). It is estimated that there are still more than 156,000 ha of mangrove. In some protected areas and reserves, vegetation cover has been successfully increased, thanks to: (i) promulgation of decrees regulating the granting of **"agreements for sustainable use and custody of mangroves"** or temporary concessions (10 years, renewable) to ancestral communities that depend on this ecosystem for their subsistence; and (ii) regularization of shrimp farms, removing illegal aquaculture activity from protected areas and requiring reforestation plans. The provinces with the greatest mangrove losses are Manabí (70%), Esmeraldas (15%), and Guayas (13%).
- 1.2 Mangroves provide a series of environmental services of importance for climate change adaptation and mitigation, as well as for preserving biodiversity. They have a greater capacity for fixing carbon per hectare than do tropical forests,<sup>5</sup> protect coastlines from erosion and from rising sea levels, play a strategic role in regulating water quality and in the circulation of nutrients, and constitute habitats and breeding grounds for 80% of commercially valuable fisheries species. They are therefore essential for maintaining global biodiversity and food security for coastal populations. They are a source of protein (fish, crustaceans and mollusks) and of income for coastal communities that depend on them, digging and harvesting **black clams** (*concha prieta*) and **red crabs** (*cangrejo rojo*) from the mud. In Ecuador, mangroves are deemed national goods belonging to the State and, in order to use their resources, communities must have a concession contract with the government (see paragraph 1.9).
- 1.3 Climate change is having negative impacts on the coastal ecosystem, with rising sea levels, variations in water temperatures, increased precipitation, more frequent hot spells, more severe irregularities in the rainy season, gradual increases in precipitable water and runoff that increase sedimentation, desalination of the mangrove swamps, and increased instances of pests and ocean swells. It also produces beach erosion, flooding of coastal areas, and loss of habitat and species.<sup>6</sup> This climatic vulnerability poses a great threat to the local economy, which may affect productive infrastructure, access to marine resources and, in the end, people's incomes and subsistence.
- 1.4 According to one study,<sup>7</sup> there are at least 2,215 crab harvesters in the Gulf of Guayaquil, organized in approximately 41 associations and cooperatives, most of them located in the province of **Guayas**. The province of **El Oro** is one of the most

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<sup>5</sup> "Results of the national forestry evaluation," Ministry of the Environment of Ecuador (MAE) 2014. In Ecuador, the average rate of CO<sub>2</sub> capture per year is estimated at 37.02 tonnes.

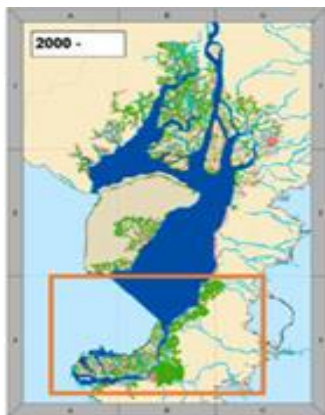
<sup>6</sup> <http://www.guayas.gob.ec/dmdocuments/medio-ambiente/publicaciones-ambientales/2013/2013-abril/cambio%20climatico.pdf>

<sup>7</sup> Value chain of the red crab of the Gulf of Guayaquil [http://pdf.usaid.gov/pdf\\_docs/PA00JNJ8.pdf](http://pdf.usaid.gov/pdf_docs/PA00JNJ8.pdf)

representative centers of **black clam** production, after the province of Esmeraldas. There are estimated to be around 3,000 clam harvesters in the country as a whole.

- 1.5 The **problem** facing clam and crab harvesting associations and coastal communities with mangrove concessions is difficulty inserting themselves into the value chain in a sustainable and lasting manner that will ensure their economic and financial integration, while preserving the mangrove ecosystem on which their economy and their resilience to climate change depend.

- 1.6 **Project location and beneficiaries.** The project will be focused on the Gulf of Guayaquil, specifically in the mangrove communities that belong to the canton of



Naranjal in the Province of Guayas and the cantons of Arenillas and Huaquillas in the Province of El Oro. The project will benefit: (i) five concessionaire communities<sup>8</sup> (500 families) or associations of black clam and red crab harvesters that meet the eligibility criteria (see paragraph 1.8); and (ii) the Red Unión de Organizaciones de Producción Pesquera Artesanal de El Oro [Union of Artisanal Fishery Organizations of El Oro] (UOPPAO),<sup>9</sup> which consists of 33 clam harvesting associations (22 of them with valid concessions). These beneficiaries will be located in the provinces of El Oro and Guayas; together they are currently managing 15,918 ha, and their economy depends on conservation of the mangroves for

the extraction and harvesting of marine resources.

- 1.7 It is estimated that harvesters' incomes amount to US\$4,000/year/family, which falls well short of the basic family shopping basket. Poverty levels among these populations average 83.5% in terms of unmet basic needs. The population of harvesters consists for the most part of men, while women handle the cleaning and occasionally depulping [i.e. removing the meat from] the crabs, a task that is difficult for them to do outside the home, as most of them have small children who would require daycare services. Some women occupy positions of leadership within the managing boards of the organizations. Most producers live within the mangrove ecosystem and travel by boat, leaving them vulnerable to interception and robbery of their merchandise or the money earned from the sale of the product. As well, these areas have a high incidence of encroachers who come to exploit the marine resources illegally.
- 1.8 **Eligibility criteria for associations of harvesters or producers participating in the project.** These must: (i) be legally established; (ii) have valid concessions or agreements for sustainable use and custody of the mangrove forest; (iii) receive economic incentives from the SM;<sup>10</sup> (iv) comply with regulations of the Vice Ministry

<sup>8</sup> During project preparation, four of the five organizations were preselected (see Table 1). These associations manage 14.4% of the mangroves in Churute. Nevertheless, at the outset of the project it will be necessary to ensure that these associations meet the selection criteria (see paragraph 1.8).

<sup>9</sup> It has a refrigeration center for storing the clams, provided by the provincial government of El Oro, and it recently began to market products as a group. UOPPAO will receive support to improve its marketing and the sustainability of its business.

<sup>10</sup> There are some concessionaire communities that do not receive the economic incentive.

of Aquaculture and Fisheries;<sup>11</sup> (v) provide evidence through semiannual reports that they have adopted good practices; (vi) have a minimum of 50 active members; (vii) preferably have a minimum of productive infrastructure; (viii) have significant levels of production; and (ix) provide evidence of collective practices and activities that facilitate group marketing. Table 1 presents four of the five preselected beneficiary associations. The UOPPAO will receive instruction in the new topics and will train 10 of its organizations, which will be selected in accordance with these same criteria.

<b>Table 1</b>			
Province	Organizations	Members	Hectares of mangrove
El Oro	Las Huacas - black clam	57	995.11
El Oro	Los Isleños - black clam	80	651.60
Guayas	6 de Julio - crab	149	2,036.27
Guayas	Nuevo Porvenir - crab	103	2,236.00
Guayas	UOPPAO (10 of the 22 concessionaire organizations)	500	10,000.00
	<b>Initial total</b>	<b>889</b>	<b>15,918.98</b>

### **Legal environment for sustainable use of the mangrove and exploitation of its resources**

- 1.9 The use and exploitation of natural resources by the mangrove harvesting associations is regulated by the State through the Department of Coastal Marine Management (SGMC). In order to halt deforestation in the country and to promote the conservation of natural woodlands and ecosystems, which include mangrove swamps, the government created the National Program of Incentives for Conservation and Sustainable Use of the Natural Heritage, the “*Socio Bosque*” program,<sup>12</sup> which to date has invested US\$50 million in the conservation of more than one million hectares (ha) of woodland, benefiting more than 120,000 families. As part of that program, the *Capítulo Socio Manglar* [mangrove partnership chapter], (SM)<sup>13</sup> has been operating since 2014 as a pioneering endeavor in Latin America and the Caribbean to give communities an economic incentive to conserve mangroves.
- 1.10 The SM is part of the government’s Strategy of Incentives for the Conservation and Sustainable Use of the Natural Heritage, the goal of which is to incorporate at least 100,000 ha over a period of four years ending in 2018.<sup>14</sup> The funds for paying the incentives were donated initially by international cooperation agencies and the government. The SGMC is responsible for monitoring compliance with the management plan associated with the agreements for each of the participants. To date, 58 concessions or agreements for sustainable use and safeguarding of

<sup>11</sup> To have credentials and registered vessels, among other things.

<sup>12</sup> Ministerial Order 169 of 14 November 2008:  
<http://sociobosque.ambiente.gob.ec/files/images/articulos/archivos/am169.pdf>

<sup>13</sup> Ibid.

<sup>14</sup> In the first half of 2017, the MAE signed a US\$7 million agreement with the Green Fund and the GEF for the “forests for good living” project, which covers actions under the *Socio Bosque* and *Socio Manglar* projects during 2016-2025.

mangroves have been granted, but only 20 of these include contracts with the SM to receive incentives.<sup>15</sup> There are estimated to be 22 mangrove-dependent communities in Ecuador (7,185 families) and only 23% of the total mangrove area (measures in ha) receives conservation incentives.

- 1.11 As a condition for obtaining the concession, beneficiaries must be organized, be committed to safeguarding the mangroves, be legally registered and have a management plan. The concession is granted to a limited number of families in order to avoid over-exploitation of the ecosystem. Once the concession is obtained, the recipient undertakes to deliver semiannual reports to the environmental authority, to comply with the work plan, and to fulfill the legal requirements of the agreement. The incentives, the amount of which depends on the number of hectares to be conserved, are used primarily for conservation and surveillance activities, for small production-related activities, and for the organizational strengthening included in the management plan. This has made it possible to boost levels of production and make substantial improvements in restoring the mangrove ecosystem and its environmental services.
- 1.12 The concession agreement consists of a legal instrument that guarantees concessionaires the exclusive right to make sustainable use of mangrove resources, within the limits of the concessioned area established by the agreement. Moreover, it seeks to conserve the mangrove ecosystem by rationing and husbanding the resource. Ministerial Order 169 made it possible to: (i) regulate use of mangrove areas that were previously exploited illegally; and (ii) restore degraded mangrove areas through reforestation and repopulation. The concessions are granted for 10 years. Some concessionaire communities have adopted self-regulation models that are more demanding than required by law, with fairly strict by-laws governing catch sizes and volumes and closed seasons and establishing penalties that have helped to conserve the ecosystem and boost productivity significantly. For example, the Las Huascas Association went from harvesting 200 clams per person per day to a maximum of 500 clams per person per day, after having successfully re-forested 200 ha of mangrove in two years and having adopted a self-regulation that requires a minimum size of clam greater than that required by law (4.7 cm instead of 4.5 cm) and a longer closed season. This has served to boost the ecosystem's regeneration and ensure more effective reproduction of the resource.

#### **Characterization of mangrove products and their value chain**

- 1.13 The **black clam** is harvested during 10 months of the year, allowing a closed season of a month and a half to two months for regeneration; the clams are sold nationwide either fresh (live and enclosed in bags of 100) or vacuum packed. The product can be kept in good condition and unrefrigerated (in the shade) for up to three days. Between 400 and 800 clams can be gathered in a day's work of four hours. In 2011<sup>16</sup> a total of around 30 million clams was sold on site, with a value of US\$1.8 million.<sup>17</sup> According to the National Fisheries Institute, average levels of clam sales have been maintained, and the price has risen from US\$7 per bag in 2011 to US\$11 today.

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<sup>15</sup> US\$317,801 has been invested in conservation and management of 30,000 ha of mangrove in coastal areas.

<sup>16</sup> Official data from the Ministry of Agriculture, Livestock, and Fisheries (MAGAP), 2016.

<sup>17</sup> Estimates range from US\$7 to US\$11 per bag of 100 clams.

- 1.14 The **red crab** is usually harvested during nine months of the year, with a closed season of two months. A person can collect between four and six bunches daily<sup>18</sup> (between 48 and 72 crabs), worth US\$66.<sup>19</sup> The sale of red crabs is estimated to generate incomes of US\$15.6 million a month<sup>20</sup> nationwide, of which only 15% remains within the communities; and the remainder is distributed over an extensive network of commercial intermediation with up to four levels. Crabs are also exported informally to bordering countries through larger-scale intermediaries, as it is these markets that pay the highest prices for the product. Most of the crab catch is sold live and very little as pulp or crab meat, as there is greater demand for live crabs. The digging and harvesting of crab is done by the men, while the cleaning and extraction of meat is handled by the women in an artisanal manner. Given the lack of proper industrial infrastructure for the depulping process, and the fact that the women doing the processing generally have small children, those women prefer to work at home and sell their product individually. The red crab has experienced significant price growth: in 2016 selling prices were 114% to 328% higher than those prevailing in 2009, but the return to the harvesters rose only by 9% to 15%.
- 1.15 The **value chains** for the black clam and the red crab are similar in structure, although that of the red crab is more complicated because crabs collected during the day (from 5:00 to 11:00 a.m.) are sold live on the same day. The value chain consists of: (i) the **primary chain**: harvesters (3,000 for clams and 2,725 for crabs) located in the mangrove zones or communities near the mangroves, organized in associations and having a valid user license or concession; (ii) the **intermediation chain**: the immediate buyer is typically a member of the association itself, or a boat owner who transports the harvesters to their work; they sell to retail and wholesale intermediaries (around 222 merchants in the crab chain, and 20% of the product is retained for own consumption by the harvesters); (iii) the **processors chain**: wholesale intermediaries who extract the meat or sell the clams. In all, 70% of crabs from the Gulf are sold through the Mercado Caraguay in the southern part of the city of Guayaquil, the delivery point for crabs coming from some 50 communities. The commercial transactions that take place between the primary chain and the intermediation chain are informal. The market includes specialized retail and wholesale buyers who have expressed interest in participating in the project.
- 1.16 Crabs from the municipio of El Naranjal<sup>21</sup> stand out for their size and properties, so the local authorities are exploring whether a “denomination of origin” should be developed that would help to promote crab as a symbolic product of the canton. They will investigate whether markets are willing to pay a premium price for this seal, and the province would help with its management.
- 1.17 **Limitations of the harvesters’ associations.** Their productivity is low, due to overexploitation of the species and the degradation of coastal ecosystems. Their principal productivity indicator, known as “catch per unit effort” (CPUE), has declined

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<sup>18</sup> A bunch consisting of 12 crabs is the normal marketing unit.

<sup>19</sup> Fundación Heifer Ecuador estimates. In the case of crabs, the number harvested is regulated and limited by each organization on a person-day basis. For some associations, a limit of 48 crabs per person per day is set.

<sup>20</sup> *Estudio Cadena del valor del cangrejo rojo del Golfo de Guayaquil*  
[http://pdf.usaid.gov/pdf\\_docs/PA00JNJ8.pdf](http://pdf.usaid.gov/pdf_docs/PA00JNJ8.pdf)

<sup>21</sup> Administrative seat of the canton of Naranjal.

in the case of crabs from 72 to 42 units per person per day over the period 2009-2016, and their incomes have fallen accordingly. Although most of the activities (preservation, setting standards and production activities) are agreed on collectively, individual marketing prevails to the point where harvesters will compete unfairly among themselves: at the extreme, this situation results in lower prices for the product (such as when it is sold at auction). Their by-laws are in competition with each other, affecting preservation of the resource. They lack a business model and a marketing strategy, and this prevents them from positioning themselves more effectively within the chain and linking with higher-value markets. There is limited logistical capacity (storage, refrigeration and transportation) for gathering and selling the product in bulk, and little access to finance to purchase equipment and form working capital. There have been some bad experiences with clients who have failed to pay for their orders. Hence it is important to strengthen and formalize the commercial relationship and support the producers in the process.

## II. THE INNOVATION PROPOSAL

### A. Description of the project

- 2.1 The **objective** is to help boost the competitiveness of black clam and red crab harvester associations with concessions under the *Socio Manglar* (SM) program so as to ensure their sustainable and environmentally responsible economic integration while preserving the mangrove ecosystem on which their economy and their resilience to climate change depend.
- 2.2 The project will explore more competitive marketing models, targeted at the local and domestic markets, of the kind that will shorten the intermediation chain, make the associations' business ventures more inclusive, fair and sustainable, and better position them in the value chain. Management of the mangrove ecosystem will be improved using a systemic approach with special attention to standardizing practices for biodiversity conservation, complying with the closed-season regime, strengthening systems for monitoring and surveillance of the ecosystem (mangrove conservation areas) and mechanisms for measuring the productivity of the associations and the profitability of their business model.
- 2.3 The project calls for adopting the recommendations flowing from the impact assessment<sup>22</sup> of the *Programa Socio Bosque* (for which GDI is responsible) as a way of making the ecosystem conservation incentives model more effective. The results of that assessment are expected to be available in the second half of 2017.
- 2.4 The project's **innovation** is that it will help harvesters participating in mangrove concessions to form sustainable collective enterprises that will boost their incomes while preserving the ecosystem on which they depend. To date, the concessions model has provided security and certainty in the exclusive use of the resource and has improved productivity in some communities, but it has not generated successful businesses that can be emulated. The project will focus on consolidating collective enterprises with a gender focus, geared to larger and higher-value markets; it will

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<sup>22</sup> The assessment covers three key aspects: (i) the program's socioeconomic impact; (ii) a qualitative evaluation; and (iii) two consulting contracts to identify marketing strategies for mangrove products, and to strengthen communities' ability to prepare business and investment plans.

introduce crab meat as a new product for the associations, focusing on market differentiation and incorporating a seal that reflects good environmental practices; it will employ drones to monitor the ecosystem and will create local capacities to build links to better markets. The project will help to ensure that, for the first time in Latin America, a Forest Investment Program will consider mangrove conservation as part of its investment plan.

- 2.5 The bulk of the funds that concessionaire communities receive from the SM is earmarked for monitoring and surveillance of the broad expanses of mangrove. To facilitate this activity, the project will introduce the use of drones (2), a technology that will yield more accurate and timely information and allow more efficient supervision of the ecosystem through geo-referenced photography. In addition, it will protect mangrove guardians from illegal incursions into the concession zones, and will strengthen the security of harvesters, their resources, products and funds. These data will be fed into the MAE's information system, where it will facilitate decision-making on sustainable management of the ecosystem, and maintain close coordination and communication with the local naval headquarters (the *Capitanía Naval*). To this end, it will train a group of young people with skills in the use of drones and the recording of data, and it will negotiate a communication and monitoring protocol between the association providing the service and the *Capitanía Naval*. The project will place the service-providing association on a sustainable footing so that it can continue its work after the project is completed. For this purpose, once the testing phase of the new surveillance system comes to an end, the association in charge will begin to pay for the service provided, as will other interested enterprises operating in the area. Fundación Heifer Ecuador (FHE) will provide oversight to ensure that the association is properly administering the resources, to ensure there is sufficient capacity to sustainably cover the service's operating costs. This system will replace the fuel and wage costs borne by the associations (now covered with funds from the incentives) for contracting and mobilizing mangrove guardians, who can devote their time to more productive activities.
- 2.6 **Component I. Conservation and sustainable management of mangroves (MIF: US\$141,841; counterpart contribution: US\$327,692).** The objective of this component is to build the associations' capacities to coordinate and comply with the SM in the management, control and surveillance of the ecosystem and to fulfill the agreements on mangrove use. The universities<sup>23</sup> that have agreements with the SM will sign an agreement with Heifer, stipulating the role and responsibilities of the parties. These universities will help to ensure that the associations adopt the approved system that the SM uses to prepare semiannual reports on environmental monitoring and compliance with the management plans, and to improve the internal regulations that ensure adoption of best harvesting practices. Coordination and dialogue sessions will also be organized with stakeholders, dealing with ecosystem management and the business model. They will be held in each area of intervention (2).
- 2.7 The component will also finance: (i) development of an information system on each member's catch; (ii) development of a mangrove control and surveillance system (equipment, training in the use of drones, and delivery of information to the MAE for

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<sup>23</sup> Universidad Técnica de Machala and Universidad Técnica Particular de Loja.



- analysis and interpretation); (iii) development of a computer system on mangrove management and conservation that will provide the SM with up-to-date information; (iv) preparation of a standardized package for monitoring, controlling and reporting on mangroves and their use; (v) setting of rates to be charged for the provision of surveillance services, and implementation of an accounting system; (vi) adoption of sound harvesting practices by 500 harvesters; and (vii) development of a strategy for internal project communication.
- 2.8 The following **outcomes** are expected: (i) a functioning information system on management and conservation of the ecosystem (to facilitate management with the SM); (ii) a functioning monitoring and surveillance system articulated with the MAE and other institutions; (iii) an operational information system on members' catches; (iv) a communication and monitoring protocol negotiated with the *Capitanía Naval*; (v) two sessions of organized and active dialogue; and (vi) a functioning monitoring and surveillance service.
- 2.9 **Component II. Integration of the value chain (MIF: US\$319,553; counterpart contribution: US\$111,827).** The objective of this component is to strengthen the internal capacities of the harvesters' associations and of the UOPPAO for improving their administrative and financial accounting and their marketing management. As well, only products that meet the sustainable management regulations for the species will be sold. The target market is the national market for clams and red crabs, which will be served through the establishment of two collective enterprises based on the social economy approach (one for black clams and the other for live crabs), to be generated and managed by the project's beneficiary associations. The enterprises will take care of storage, marketing, guaranteeing more secure markets, and formalizing business dealings. Greater participation by women will be encouraged in all activities financed.
- 2.10 As a **condition for execution of this component** (i.e. before committing funds or executing any activity in this component), the FHE will present to the Bank's satisfaction: (i) a letter of commitment to the effect that at least three participating associations are ready to undertake collective marketing; (ii) a written agreement with the municipio of El Naranjal, Province of Guayas, delivering two locales for free use of the two local associations, one for depulping and refrigeration, and the other for marketing and distribution; and (iii) an agreement with the UOPPAO to use its facilities for storing clams (see paragraph 2.11).
- 2.11 The products planned for sale are clams, live crabs<sup>24</sup> and, especially, crab meat. For the **clams**, the UOPPAO will provide facilities for **storing and refrigerating** the product and will serve as the warehousing and distribution center. To this end, a contract will be signed between the FHE and UOPPAO defining the role and responsibilities of each party. For cold **packaging** of the product and/or **marketing**, a marketing agreement will be signed with the packaging and marketing firm MAREMAR,<sup>25</sup> which may eventually provide packaging and marketing services to supermarkets, or only packaging services (to be determined). During project execution, the most appropriate business model will be negotiated, which may

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<sup>24</sup> The crabs are sold live: they may not be sold dead, unless their meat is refrigerated.

<sup>25</sup> MAREMAR is a shrimping company that provides services for seafood products. It rents out facilities and performs vacuum packing and refrigeration services.

involve MAREMAR (rental, subcontracting or partnership) or the installation of packaging in the UOPPAO center. Marketing will include delivery and distribution to the various provinces.

- 2.12 **Live crabs** will be sold and distributed in bulk, in facilities located in El Naranjal, where the depulping plant will also be located. Wholesale transactions will involve distribution to restaurants in Guayaquil, Machala, and Cuenca (talks have already been held with the largest restaurants in the area).<sup>26</sup> The crab meat will be marketed through the Fresh Fish company. The product will be delivered depulped and frozen, and suitable arrangements for processing and food safety have already been established. Fresh Fish will be responsible for packaging.
- 2.13 Women will be hired and trained in extracting and handling crab meat. One company<sup>27</sup> has expressed interest in helping with the design and management of the processing plant and in training and handling the product. The municipio of El Naranjal is interested in managing the “denomination of origin” of the clams from its territory. Project resources will finance the necessary upgrades to facilities and basic equipment. For packaging and freezing of the crab meat, a commercial agreement with MAREMAR will also be considered. FHE is financing a market study that will help identify the markets of greatest interest for the project. Cuenca, Loja, and Quito are markets where these products are in demand.
- 2.14 This component will also finance: (i) leadership and dispute settlement training for executive boards and members; (ii) training for associations to improve their accounting controls; (iii) establishment of sanitary and food safety processes and requirements for sales, as well as sanitary registration for the pulp processing plant; (iv) design of a product-by-product strategy for marketing and business operations; (v) design and implementation of three business plans (one per product); (vi) training for companies’ business management teams; (vii) participation in four national forums and one international event for publicizing the project’s achievements and experiences; and (viii) a value proposition for the “denomination of origin” of mangrove products.
- 2.15 The expected **outcomes** are: (i) storage, refrigeration, and distribution centers operating under the integrated marketing scheme; (ii) training for 50 persons (disaggregated by sex) in accounting and financial systems and business management; (iii) two businesses legally established and in operation; (iv) two businesses and six associations (including the UOPPAO) that have adopted accounting systems; (v) two businesses and six associations that have an inventory control system; (vi) 10 instructors trained in food safety and good processing practices (disaggregated by sex); (vii) 70 persons trained in food safety and good processing practices (disaggregated by sex); (viii) 20 persons hired in the businesses (disaggregated by sex); (ix) at least five sales contracts formally signed; and (x) sale of 27,400 bags of 100 clams per year, 211,800 bunches of crabs (on average) per year, and 14,400 half-pound tubs of crab meat per year,<sup>28</sup> to be corroborated against the baseline.

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<sup>26</sup> The biggest markets for live crabs are those of Guayaquil and La Troncal. Intermediaries are needed to participate in these markets, and this prevents access at a better price.

<sup>27</sup> PROMARISCO of the Grupo PESCANOVA, <http://www.promarisco.com/>

<sup>28</sup> This would mean gross revenues of US\$117,748 per year from the sale of these products.

- 2.16 **Component III. Access to finance (MIF: US\$56,600; counterpart contribution: US\$133,512).** The objective of this component is to build the capacity of the associations, their members and businesses to manage and access financing, and to provide banking access to the beneficiary population who adopt good ecosystem conservation practices. As the associations and businesses need working capital to ensure timely purchase of their members' product, FHE will donate to the project a **revolving fund that will be repayable** to the two businesses to be created, for a total of US\$45,000. These funds will be earmarked solely for product purchase and investment in the business. The MIF contribution will be used solely for training and monitoring the businesses and associations on handling and administering the resources.
- 2.17 To facilitate income generation during the closed seasons, FHE will make another grant to the project to create a **reimbursable revolving fund** for a total of US\$45,000, of which US\$150 per family will be earmarked for alternative activities (small animals and farming), and each association will be responsible for administering it and ensuring its repayment, under the FHE resource sharing mechanism. The associations will lend the money to the families in accordance with agreed regulations, and the families will repay the loan (without interest) so that the fund can serve more families.<sup>29</sup>
- 2.18 Both funds will be administered by a financial institution<sup>30</sup> that will disburse the resources to the businesses and to the associations in accordance with usage and operating regulations that include their commitment to repay. Agreements will be signed between the beneficiary entities and the financial institution for managing the funds and for giving the population access to banking services. At the end of the project, these funds may remain in operation, at the discretion of FHE. The establishment of the two funds will require training for personnel of the businesses and the associations in keeping accounts on the placement of the resources, management of the portfolio, and collection of loans to members, as well as management of cash flows and sales financed by the working capital.
- 2.19 In addition, opportunities will be explored for reforestation of mangroves during the closed season in areas of interest to the private sector and municipal governments, which would pay incentives to the families.
- 2.20 The expected **outcomes** are: (i) two firms, five associations and one network have an inventory control system; (ii) two revolving funds created (one for businesses, the other for associations); (iii) seven teams trained in accounting and financial management, with the capacity to manage cash flows and sales, as well as portfolio management; (iv) seven sets of regulations agreed on and implemented on the use of revolving funds; (v) 100% of product harvested by association members is purchased by the corresponding companies; (vi) 300 persons are using banking services; and (vii) the cooperative business model created by this project is systematized and documented.

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<sup>29</sup> There would initially be 300 beneficiary families, and an additional 200 upon repayment.

<sup>30</sup> Potentially CODESARROLLO, a bank belonging to the Fondo Ecuatoriano Populorum Progreso. It is dedicated primarily to supporting producer associations and has experience in the movement of funds via mobile telephone.

## 2.21 Key indicators for measuring expected project outcomes are as follows:

At the outcome level: <b>Indicator (CRF code)</b> <sup>31</sup>
330100 Number of firms with annual sales growth of at least 10% (target 2), 330101 Increase in average annual incomes of harvesters (target 25%) 330601 Number of associations selling their products in new markets (target 7), Increase in productivity during project execution (CPUE disaggregated by product) <sup>32</sup> 340100 Blue Carbon Capture (tCO <sub>2</sub> e) (target 323,517) <sup>33</sup>
At the component level: <b>Indicator (CRF code)</b>
240100 Hectares of mangrove sustainably managed (target 18,691 has) 110100 Number of producers trained in surveillance and conservation activities and business organization (target 1,000) 230100 Organizations adopting best practices for mangrove monitoring and surveillance (target 6) 230300 Companies legally established and operating (target 2) 230500 Number of companies or organizations with access to finance (target 2) Number of persons with jobs (disaggregated by sex and ethnicity) 230200 Number of companies with links to new strategic commercial partners (target 7)

- 2.22 The project will design and implement a **baseline and a monitoring and evaluation system** for semiannual measurement, and will record progress and fulfillment of the outcome indicators at the purpose and component level established in the Results Matrix.
- 2.23 The project will be subject to a **midterm evaluation** halfway through the execution period or when 50% of resources has been disbursed (whichever occurs first), and a **final evaluation** when 90% of the amount has been disbursed, in order to provide the government with the information needed for its scaling. FHE undertakes to cooperate by providing all the information requested, and to facilitate the required access for the Bank and the persons designated by it.
- 2.24 At least three months before the end of the project execution period, FHE and the Bank will hold a **closing workshop** to jointly evaluate the results achieved and identify additional tasks needed to ensure the sustainability of the activities financed by the project, as well as to identify lessons learned.

## III. ALIGNMENT WITH THE IDB GROUP, SCALABILITY, AND PROJECT RISKS

### A. Alignment with the IDB Group

- 3.1 The proposal is aligned with the Bank's current country strategy with Ecuador 2012-2017 (document GN-2680), specifically the priority crosscutting area of climate change and environmental sustainability, highlighting efforts to strengthen public and private players, to ensure sustainable management of agricultural and forest systems and biodiversity, to reinforce land-use management for purposes of climate

<sup>31</sup> The targets for the various indicators will be defined once the baseline is established.

<sup>32</sup> In terms of productivity, the expectation is to increase the percentage of clams and maintain the levels of crab harvesting, given the status of the resource.

<sup>33</sup> These mangroves are threatened with deforestation, hence the strategy for offering concessions for their protection and use. Otherwise they would be pillaged, and the carbon they store would be released.

- change mitigation and adaptation, and to comply with the country's contribution to carbon reduction. In addition, at the country level, the project is aligned with various objectives of the 2013-2017 "National Plan for Living Well": (i) guarantee better rural living conditions and overcome social and geographic inequalities; (ii) promote production and productivity in a sustained and sustainable manner, foster inclusion and redistribute the factors and resources of production in the agricultural, aquaculture and fisheries sector; (iii) understand, value, conserve and sustainably manage the natural heritage and its terrestrial, marine, coastal and inland aquatic biodiversity, while ensuring fair and equitable access to its benefits; and (iv) implement climate change mitigation and adaptation measures to reduce economic and environmental vulnerability. This operation represents an opportunity to create strategic partnerships with various shrimping companies that in the future could be a potential market for the Inter-American Investment Corporation (IIC).
- 3.2 Virtually all of the MIF resources for this project will go to financing agricultural activities and the ecological resources of ecosystems and biodiversity, supporting national plans with climate change adaptation and mitigation benefits in accordance with the joint [methodology](#) of the multilateral development banks for estimating climate financing. These resources will contribute to the IDB Group's goal of raising the proportion of finance for projects relating to climate change to 30% of all operations approved by the end of 2020. This reflects the pressing need to convert the concessions model to one that is more economically sustainable for communities participating in the National Program of Incentives for Conservation and Sustainable Use of the Natural Heritage, as an ecosystem conservation strategy.

## **B. Scalability**

- 3.3 Ecuador is one of the countries selected by the FIP,<sup>34</sup> and in 2017 the government will establish the investment plan for these funds, which could include the mangrove ecosystem. This is an opportunity for scaling up an improved concession model and making it sustainable for the concessionaire communities. The *Socio Bosque* program is a pioneering endeavor within the region and is the only one to include economic incentives for mangrove conservation. The MAE, the National Fisheries Institute and the Social Economy Department (*Subsecretaría de la Economía Social y Solidaria*)<sup>35</sup> will have an improved mangrove concession model, once it has demonstrated its operability, and can extend it into other mangrove areas in the country. Thus, participation by the MAE and SGMC on the Project Advisory Board is key to preparing them in this process, once the success of the model has been demonstrated (see paragraph 5.5).
- 3.4 FHE is promoting a strategy of interventions in ecosystems through its PROCOSTA program<sup>36</sup> which covers the mangrove, wetland and coastal ecosystems in seven countries of Latin America,<sup>37</sup> aimed at benefiting 200,000 families. Once this program is shown to be successful, FHE will share the knowledge and lessons

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<sup>34</sup> Program headed by the Climate Change and Sustainability Division (CCS). The amount allocated to Ecuador will be US\$24 million (US\$21 million in loans to the public and private sectors and US\$3 million in nonreimbursable technical cooperation).

<sup>35</sup> <http://www.economiasolidaria.gob.ec/>

<sup>36</sup> <http://www.heifer-ecuador.org/como-trabajamos/nuestros-programas/procosta/>

<sup>37</sup> Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, and Peru. Heifer International is committed to raising US\$105 million in its PROCOSTA program.

learned with its partner organizations for replicability. The Board of FHE International has an interest in bringing this experience to other continents.

### C. Project and institutional risks

- 3.5 **Market risk.** There is a risk that producer organizations will not be able to establish permanent links with higher-value markets. **Mitigation:** During the preparation phase, the project team met with companies that expressed interest in having the associations provide a high-quality product on an ongoing basis, and to this end discussions with specialized shops and restaurants are now at an advanced stage.
- 3.6 **Risk of lack of access to finance.** The harvesters' associations lack access to finance for running their businesses. **Mitigation:** FHE funds will be used to provide microfinancing to harvesters. This will be complemented with efforts to strengthen capacities to administer and manage these funds responsibly.
- 3.7 **Climate risks.** There is a probability of climatic events that could negatively impact the volume of the product catch. **Mitigation:** The dialogue sessions are expected to define and establish plans for managing environmental and climatic risks and for adapting the ecosystem and its population to climate change, in partnership with local governments. Faced with the desalination of mangrove swamps through the action of heavy rains, the associations will step up their efforts to expand clam and crab breeding nurseries in order to promote repopulation.

## IV. INSTRUMENT AND PROPOSED BUDGET

- 4.1 The project has a total cost of US\$1,532,414, of which US\$795,000 (52%) will be contributed by the MIF as nonreimbursable technical cooperation and US\$737,414 (48%) will be counterpart funding, consisting of contributions from: (i) FHE; (ii) MAE through the SM, representing annual payment of the incentive to communities to finance their management and operating plans for the concessions; and (iii) local governments, earmarked for refrigeration and marketing infrastructure. The instrument to be used is nonreimbursable technical cooperation.

Category	MIF	Counterpart	TOTAL
Component I: Mangrove conservation and management	141,841	327,692	469,533
Component II: Integration of the value chain	319,553	111,827	431,380
Component III: Access to finance	56,600	133,512	190,112
Project administration	163,061	125,888	288,949
Midterm and final evaluation	80,945	38,495	119,440
Ex post reviews	25,000		25,000
Audited financial statements (if applicable)			
Contingencies	8,000		8,000
<b>Grand total</b>	<b>795,000</b>	<b>737,414</b>	<b>1,532,414</b>
<b>% of financing</b>	<b>52%</b>	<b>48%</b>	<b>100%</b>

## **V. EXECUTING AGENCY AND IMPLEMENTATION STRUCTURE**

### **A. Description of the executing agency**

- 5.1 Fundación Heifer Ecuador (FHE) is a nonprofit NGO registered in 1993. It is linked to Heifer International, which has had a presence in Ecuador since 1954. Its mission is to work with indigenous, campesino, and Afro-descendent families and organizations, and mangrove forest dwellers, among other groups. One of its five flagship programs is PROCOSTA, which seeks to promote sustainable management of coastal and mangrove ecosystems. FHE has been working for 10 years with traditional mangrove forest populations, combining sustainable management of the ecosystem with economic development.
- 5.2 The strategic partners of the project are: (i) SM, a flagship program of the MAE that will provide incentives to beneficiary communities; (ii) SGMIC, a division of the MAE, which will assign a working team to co-supervise project execution in order to achieve the anticipated conservation and sustainability outcomes; and (iii) the National Social Economy Institute (IEPS) through its role in fostering income generation. These institutions will be working during execution on the new development model in order to refine and scale it once its success is demonstrated. Other partners are the provincial government of El Oro, which will contribute refrigeration chambers for storing the black clam, and the municipal government of El Naranjal, which will allocate physical space in the municipal market for the sale and processing of crabs, as well as other activities to promote the “denomination of origin” of the red crab. These commitments will be duly spelled out in signed agreements.
- 5.3 In addition, FHE is working on partnerships for selling the products through local and international chains and is hoping to establish agreements with companies such as Fresh Fish and MAREMAR for processing and selling the product.

### **B. Implementation structure and mechanism**

- 5.4 Project administration will be the responsibility of FHE, which will create an executing unit reporting to FHE’s program manager. It will comprise a project coordinator, a financial administration officer, a specialist in mangrove ecosystems, and a specialist in business and value chains. The unit will be located within the intervention territory, and the coordinator will have operational and administrative responsibility for the operation.
- 5.5 A Project Advisory Board will be established, headed by FHE, which will function as a technical dialogue and strategic coordination body and will provide feedback and reports on progress and results. The board will consist of a representative of each of the project’s strategic partners, namely FHE, the SM, the SGMIC, and the IEPS. Two representatives of the mangrove communities—one for the crab sector and the other for the clam sector—may be considered as invited members. A representative of the IDB/MIF may participate with voice but not vote. The project coordinator will act as secretary of the board. The board will be convened at least twice a year and may invite any other representative it deems appropriate. FHE will maintain close coordination with the executing agencies for related projects.

## **VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS**

- 6.1 **Disbursement by results and fiduciary arrangements.** The executing agency will commit to the standard MIF arrangements relating to disbursement by results, the Bank's procurement policies,<sup>38</sup> and its financial management policies<sup>39</sup> as specified in Annex V.
- 6.2 The diagnostic needs assessment of FHE found a medium risk in terms of administrative and financial management and procurement. The operation will therefore finance activities for semiannual monitoring and support for supervision of the procurement of goods and services, and disbursements.

## **VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY\*\***

- 7.1 **Access to information.** In accordance with the Bank's Access to Information Policy, this document is publicly available.
- 7.2 **Intellectual property.** All deliverables and results obtained under the project will be the intellectual property of the IDB. The Bank will grant a free, nonexclusive license to the executing agency that includes the rights of dissemination, reproduction, and publication of any product in any medium. The dissemination, reproduction, or publication must indicate that it was financed by the MIF. For these purposes, any use of the name or logo of the Inter-American Development Bank or the Multilateral Investment Fund by the executing agency, for whatever purpose, will require prior authorization in writing from the Bank.

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<sup>38</sup> Link to Policies for the Procurement of Works and Goods Financed by the IDB.

<sup>39</sup> Link to the Financial Management Operational Guidelines.