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United Nations Development Programme

Project title: "Towards the transboundary Integrated Water Resource Management (IWRM) of the Sixaola River Basin shared by Costa Rica and Panama". PIMS ID: 6373		
Country(ies): *Costa Rica*	**Implementing Partner (GEF Executing Entity):** Organisation for Tropical Studies (OET)	**Execution Modality***: NGO Implementation*
Contributing Outcome (UNDAF/CPD, RPD, GPD)*:* Output 1.4.1 Solutions scaled up for sustainable management of natural resources, including sustainable commodities and green and inclusive value chains		
UNDP Social and Environmental Screening Category: High risk	**UNDP Gender Marker:** *2*	
Atlas Award ID: 00118025	**Atlas Project/Output ID:** 00115066	
UNDP-GEF PIMS ID number: 6373	**GEF Project ID number:** 10172	
LPAC meeting date:		
Latest possible date to submit to GEF: 13 December 2020		
Latest possible CEO endorsement date: 13 June 2021		
Planned start dat 07/01/2021	**Planned end date:** 06/30/2025	
Expected date of posting of Mid-Term Review to ERC: *30 November 2022.*	**Expected date of posting Terminal evaluation report to ERC:** *30 September 2024*	
Brief project description: This project seeks to create long-term conditions for an improved shared river basin governance, with timely information for the Integrated Water Resources Management in the Sixaola River Binational Basin between Costa Rica and Panama, and will contribute to reducing agrochemical pollution and the risks associated with periodic flooding in the basin. The project will allocate GEF resources strategically to (i) develop a participatory process to generate an integrated diagnosis on the current situation of the binational basin (i.e.		

Transboundary Diagnostic Analysis - TDA) and a formal binding instrument adopted by both countries (i.e. Strategic Action Programme - SAP), (ii) implement three pilot projects to generate learning on key issues (sustainable agricultural practices, restoration of banks to reduce erosion, multistakeholder platform to reduce pollution in the river basin), (iii) build a binational early warning and monitoring system, with innovative approaches and citizen participation to strengthen the capacity of local communities and organizations to respond to flood risks on the banks of the basin, and (iv) generate IWRM-relevant information to all stakeholders.

Without a coordinated multinational management framework, Panama and Costa Rica will continue to manage their resources and activities without considering global environmental benefits and/or adaptation benefits, leading to an increased loss of biodiversity and climate-related risks. In the longer term, the project will contribute to integrated soil and water management, such as by advancing the nexus approach in watersheds and drainage basins, contributing to reducing water pollution, reducing land-based sources of marine pollution and contributing to ecosystem-based adaptation of vulnerable human populations. The overall benefits will be demonstrated through (i) increased regional cooperation, (ii) enhanced protection of globally important biodiversity, (iii) reduction of transboundary and terrestrial pollution of marine ecosystems, and (iv) flood risk reduction and ecosystem-based adaptation to climate change.

• Financing Plan (only cash transferred to UNDPs bank account and included in the TBWP for this specific GEF project should be included under this section (1), all others should be included under section (2).	
GEF Trust Fund	USD 4,386,210
(1) Total Budget administered by UNDP	**USD 4,386,210**
Confirmed Co-Financing (all other co-financing that is not cash co-financing administered by UNDP)	
Comisión Nacional de Emergencia (CNE) de Costa Rica; Costa Rica's National Emergency Response and Disaster Risk Management Agency	USD 5,000,000
Instituto Nacional de Acueductos y Alcantarillados (AyA) de Costa Rica / Costa Rica's National Institute for Acueducts and Sewerage	*USD 5,000,000*
Municipalidad de Talamanca, Costa Rica / Municipal Government, Talamanca Costa Rica	*USD 1,000,000*
Sistema National de Protección Civil (SINAPROC)/ National Civil Protection System of Panama	*USD 558,151.44*
Ministerio de Ambiente de Panamá, (MiAmbiente) / Environmental Ministry, Panama	*USD 1,295,440*

Municipal Government, Changuinola, Panama	*USD 1,000,000*
(2) Total confirmed co-financing	**USD 13,853,591.44**
(3) Grand-Total Project Financing (1)+(2)	**USD 18,239,801.44**

SIGNATURES		
Signature: print name below	**Agreed by Government Development Coordination Authority**	**Date/Month/Year:** *within 25 days of GEF CEO endorsement*
Signature: print name below	**Agreed by Implementing Partner**	**Date/Month/Year:** *within 25 days of GEF CEO endorsement*
Signature: print name below	**Agreed by UNDP**	**Date/Month/Year:** *within 25 days of GEF CEO endorsement*

Key GEF Project Cycle Milestones:

- **Project document signature**: within 25 days of GEF CEO endorsement
- **First disbursement date**: within 40 days of GEF CEO endorsement
- **Inception workshop date**: within 60 days of GEF CEO endorsement
- **Operational closure:** within 3 months of posting of TE to UNDP ERC
- **Financial closure:** within 6 months of operational closure

ACRONYMS AND ABBREVIATIONS

AAUD	National Sanitation Authority (Autoridad Nacional de Aseo, in Spanish)
ABS	Access and Benefit-sharing Agreements
ACBTC	Biological Corridor Association of Talamanca (Asociación Corredor Biológico Talamanca-Caribe in Spanish)
ACODAAC	Artisanal and Cultural Agricultural Development Conservation Association
ACOMUITA	Talamanca Indigenous Women's Commission Association
ADITIBRI	Indigenous Development Association of the Talamanca Bribri Territory
ADITICA	Indigenous Development Association of the Talamanca Cabecar Territory
ADIKEKÖLDI	Indigenous Development Association of Kéköldi
ADITELIRE	Indigenous Development Association of the Telire Territory
AECID	Spanish Agency for International Development Cooperation
ANTAI	Panama's National Authority for Transparency and Access to Information
APPTA	Association of Small Producers of Talamanca (Asociación de Pequeños Productores de Talamanca in Spanish)
AYA	Institute of Aqueducts and Sewers (Instituto Costarricense de Acueductos y Alcantarrillados)
CBCRS	Binational Commission for Sixaola River Basin (Comisión Binacional de Cuenca del río Sixaola)
BMU	Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
BMWP	Biological Monitoring Working Party
CABEI	Central American Bank for Economic Integration
CATIE	Center for Tropical Agricultural Research and Teaching (Centro Agronómico Tropical de Investigación y Enseñanza in Spanish)
CCAD	Central American Commission for Environment and Development
CIGEFI-UCR	Centro de Investigaciones Geofisicas Universidad de Costa Rica
CLME	Caribbean Large Marine Ecosystem
CNE	National Emergency Commission
COCABO	Artisanal Fishermen Union from Bocas del Toro(Cooperativa de Servicios Múltiples y Cacao de Bocatoreño IN Spanish)
COMCURE	Commission for Planning and Management of the Reventazón River Basin
CONAVI	National Road Council
CONCUTEM	Comprehensive Management of the Tempisque River Basin
COONAPIP	National indigenous organization
CORBANA	National Banana Corporation
DRR	Disaster Risk Reduction
EbA	ecosystem-based adaptation
ECADERT	Cooperation Project to support the Central American Strategy for Rural Area-based Development 2010-2030
ECG-UNA	Escuela de Ciencias Geograficas
EIA	environmental impact assessment
ENCC	Costa Rica's National Climate Change Strategy
ENCCP	Panama's National Climate Change Strategy
ERDS	Regional Strategy for the Sustainable Development of the Binational Sixaola River Basin (Estrategia Regional de Desarrollo Sostenible de la Cuenca Binacional del río Sixaola)

ETESA	Electric transmission company (Empresa de Transmisión Eléctrica en Panamá)
EWS	Early Warning Systems
FONAFIFO	National Fund for Forest Financing (Fondo Nacional de Financiamiento Forestal)
FPIC	Free, Prior and Informed Consent
GCP	Green Commodities Program
GDP	Gross Domestic Product
GEF	Global Environment Facility (Fondo para el Medio Ambiente Mundial)
GEFTF	Global Environment Facility Trust Fund
GIZ	German Corporation for International Cooperation GmbH
IBA	Important Bird Area
IMN	National Meteorological Institute of Costa Rica (Instituto Meteorológico Nacional, in Spanish)
IPCC	Indigenous Peoples Consultative Commission
ICOMOS	International Council on Monuments and Sites
IDAAN	National Institute of Aqueducts and Sewers (Instituto de Acueductos y Alcantarillados Nacionales in Spanish
IDB	Inter-American Development Bank
IDIAP	Instituto de Investigaciones Agropecuarias de Panamá
IKI	International Climate Initiative
ILO	International Labor Organization
IMN	National Meteorological Institute of Costa Rica
NDC	Intended Nationally Determined Contribution
INDER	Institute of Rural Development
INEC	National Statistics and Census Institute
IUCN	International Union for the Conservation of Nature
IWRM	Integrated Water Resources Management
JAPDEVA	Administration and Economic Development Board of the Atlantic Coast
KBA	Key Biodiversity Area
LIDAR	Light Detection and Ranging o Laser Imaging Detection and Ranging
MAG	Ministry of Agriculture and Livestock of Costa Rica (Ministerio de Agricultura de Costa Rica)
MAREA	USAID Regional Program for Aquatic Resources Management and Economic Alternatives
MEF	Ministry of Economy and Finance
MiAmbiente	Ministry of Environment of Panama
MIDA	Ministry of Agricultural and Livestock Development of Panama (Ministerio de Desarrollo Agropecuario de Panamá IN SPANISH)
MINSA	regional offices of the Ministry of Health
MINAE	Ministry of Environment and Energy of Costa Rica (Ministerio de Ambiente y Energía de Costa Rica)
MNICR	National Indigenous Organization (Mesa Nacional Indígena de Costa Rica in Spanish)
MOP	Ministry of Public infrastructure
MOPT	Ministry of infrastructure
NAP	National Adaptation Plan
NGO	Non Governmental Organization

OACG-UCR	Water and Global Change Observatory University of Costa Rica (Observatorio del agua y Cambio Global Universidad de Costa Rica in Spanish)
ODESEN	Naso Touristi Develoment Organization (Organización de Desarrollo Turístico Naso
OET	Organization for Tropical Studies
OMUB	United Woman from Bonyic Organization (Organización de Mujeres Unidas de Bonyic in Spanish)
ORMACC	Mexico, Central America and the Caribbean Regional Office
PCGIR	Central American Policy on Integrated Risk Management
PBC	Permanent Binational Commission
PES	Payments for Environmental Services
PILA	La Amistad International Park (Parque Internacional La Amistad)
PNGIRH	National Plan for IWRM (Plan Nacional de Gestión de Recurso Hídrico in Spanish)
PNCB	National Biological Corridor Program
PPG	Project Preparation Grant
REGAMA	Refugio Nacional de Vida Silvestre de Gandoca - Manzanillo
SAP	Strategic Action Program
SBRB	Sixaola Binational River Basin
SDC	Swiss Agency for Development and Cooperation
SENARA	National Irrigation and Drainage Service of Costa Rica
SGP	GEF Small Grants Program
SGP	Strategic Government Plan
SICA	Central American Integration System
SIDEA	SIDEA Integrated System of Agricultural Extension and Innovation (Sistema Integrado de Extensión e Innovación Agropecuaria in Spanish)
SINAC	National System of Conservation Areas
SINAPROC	National System for Civil Protection (Sistema Nacional de Protección Civil in Spanish)
SSC	South-south cooperation
STIBRAWPA	Asociación STIBRAWPA Personas Artesanas de Yorkín
ToR	Terms of Reference
TDA	Transboundary Diagnosis Analisis
TNC	The Nature Conservancy
UNDAF	United Nations Sustainable Development Assistance Framework
UNDP	United Nation Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNOPS	United Nations Office for Project Services
UPESABO	Unión de Pescadores Artesanales Bocatoreños
U-POP	Unintentional Persistent Organic Pollutants

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II. Development Challenge

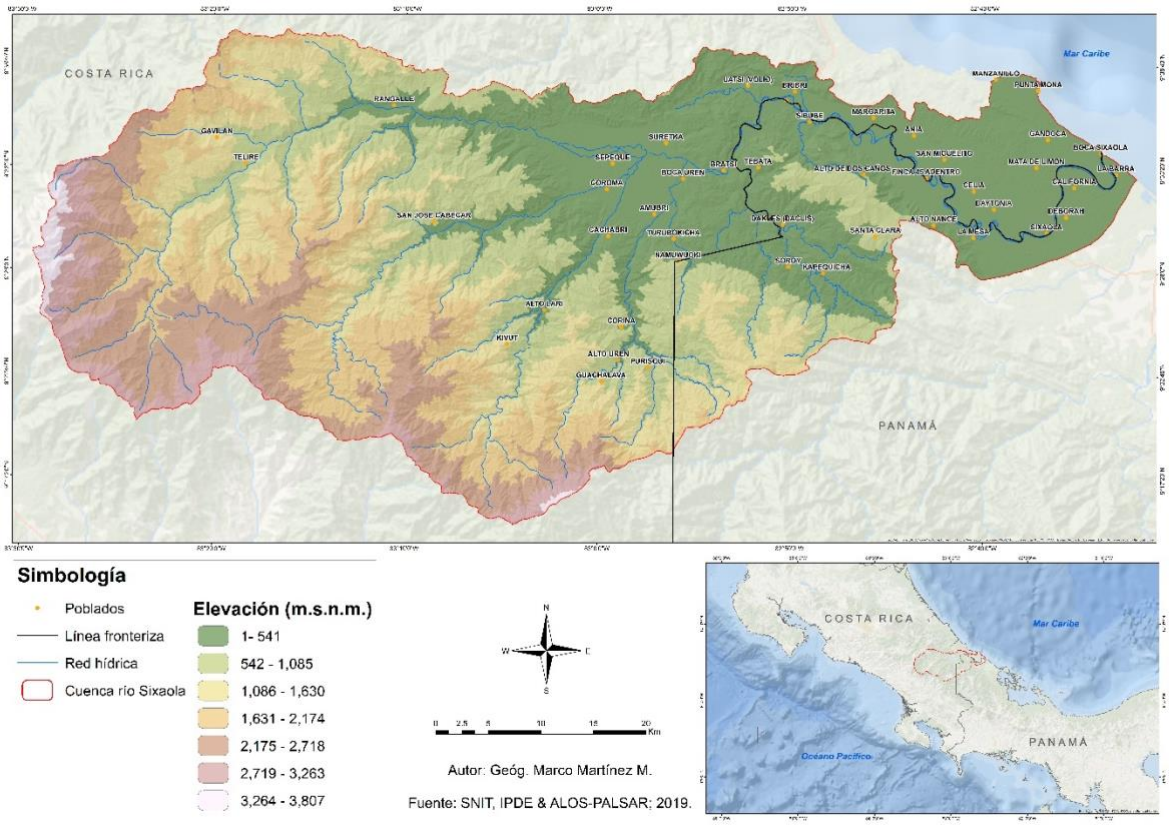
General context

1. The Sixaola Binational River Basin (SBRB) is located in the border area between Costa Rica and Panama, covering an area of 2,848.3 km²; 19% of this territory is located in Panama and 81% in Costa Rica (Figure 1). The basin can be divided into three main areas: a larger, sparsely populated and mostly forested upper sub-basin (204,000 ha); a middle sub-basin composed of the Talamanca Valley, mostly populated by Indigenous Peoples (51,000 ha); and the smallest and most developed sub-basin of the Sixaola Valley (34,000 ha) containing the largest portion of the basin's population, estimated at 33,500 inhabitants. The basin includes mainly portions of the Canton of Talamanca (Costa Rica) with an area of 2,809.93 km²; Bocas del Toro and Changuinola (Panama) with 430.7 km² and 4,016.5 km², respectively.

Environmental context and global significance

2. The SBRB contains several ecosystems ranging from the Caribbean coast up to 3,820m in the foothills of the Cordillera de Talamanca.

Figure 1. Elevation map showing the delimitation of the SBRB.



Source: Project preparation documentation. [1]

3. The SBRB has exceptional biodiversity and a terrestrial ecosystem of global importance. The central Cordillera de Talamanca contains at least 10% of the main habitat types on the planet. The mountainous region has been classified as one of the world's 200 ecological priority regions, as defined by the World Wildlife Fund. The ecosystems found here include tropical forests, pre-montane forests, cloud forests and high mountain wetlands (paramo, in Spanish). This area has a high percentage of endemism and endangered species, which includes 975 plant species and 1,077 higher vertebrates (birds, mammals, amphibians and reptiles). The SBRB is

[1] Martínez. M. 2019. Geographical data analysis. Consultant hired during project preparation phase (PPG).

part of the Caribbean freshwater ecoregion of the isthmus. The Sixaola River drains from the Cordillera de Talamanca (3,821 m.a.s.l.) with three large tributaries: the Telire River, the Coen River and the Yare River. These three rivers converge and intertwine in an internal delta in the upper valley of Talamanca, creating unique conditions that foster high freshwater biodiversity. Despite the global environmental benefits provided by the terrestrial and marine ecosystems which are part of the Caribbean Large Marine Ecosystem (CLME), this project focuses on terrestrial and freshwater ecosystems, in order to reduce impacts from land-based sources of marine pollution. These terrestrial and freshwater ecosystems are partially protected through different categories of biodiversity conservation, including La Amistad International Park (PILA), World Heritage Site and Biosphere Reserve due to their biodiversity and unique cultural values. It is also recognized as an Important Bird Area (IBA) and Key Biodiversity Area (KBA). The San San Pond Sak wetland in Panama and the Gandoca-Manzanillo coastal lagoon in the National Wildlife Refuge in Costa Rica are both listed in Ramsar Sites. The national parks Cahuita in Costa Rica and Isla Bastimentos in Bocas del Toro, as well as the Palo Seco Protected Forest in Changuinola, both in Panama, are protected areas.

Social context

4. The population in the SBRB has been estimated in 33,650 inhabitants, including the population from both, Costa Rica and Panama.[2] The Costa Rican census information is almost a decade old, so data could suffer variations in the updated population census to be carried out in 2021.

5. Administratively, in Costa Rica the territory of the SBRB overlaps with the majority of the canton of Talamanca (2307,57 km^2), except for a very small portion in in the upper basin belonging to the cantons of Limón (1,33 km^2), Buenos Aires (0,27 km^2), and Pérez Zeledón (0,04 km^2).[3] The Sixaola River Basin is integrated also within the Huetar Caribe development region. The Huetar-Caribe region covers the entire Caribbean coastline with a total area of 9,198 km^2; it is comprised of six cantons: Limón, Pococí, Siquirres, Talamanca, Matina and Guacimo. The region holds a population of 386,862 people,[4] which corresponds to 4.35% of total population of Costa Rica. Talamanca shares social indicators within this region.

6. In Panama, the SRB is geographically located in the Changuinola District. Changuinola is located within the Bocas del Toro province, comprised also of the Districts of Bocas del Toro, Chiriquí Grande and Almirante. Changuinola has a total population 98,310 people, according the 2010 national census. In Panama, the basin covers 509.4 Km^2, (12,75%) out of 3,995km^2 of this district.[5]

7. In the 2014 Cantonal Human Development Index, the canton of Talamanca ranked No. 80 (out of 82 cantons) with an HDI of 0.634. Talamanca is a canton of contrasts, as it has one of the highest rates of poverty but has a high cultural and biological diversity. In Panama, the 2010 Human Development Index for the Changuinola district was 0.658.[6]

8. The basin's low-ranking social and economic indicators, compared to other regions of the rest of Costa Rica and Panama, are the result of decades of limited public investment and insufficient political attention.

9. The majority of the population of the basin is of indigenous origin. There are also migrant populations of Jamaica, China and the Arabian Peninsula mixed with local indigenous peoples. The basin is inhabited by four Indigenous Peoples: Ngäbe, Naso, Bribri, and Cabécar, whose territories cover 36.2 percent of its surface (Table 1) (see other details in Annex 4e: draft Indigenous Peoples Planning Framework, IPPF).

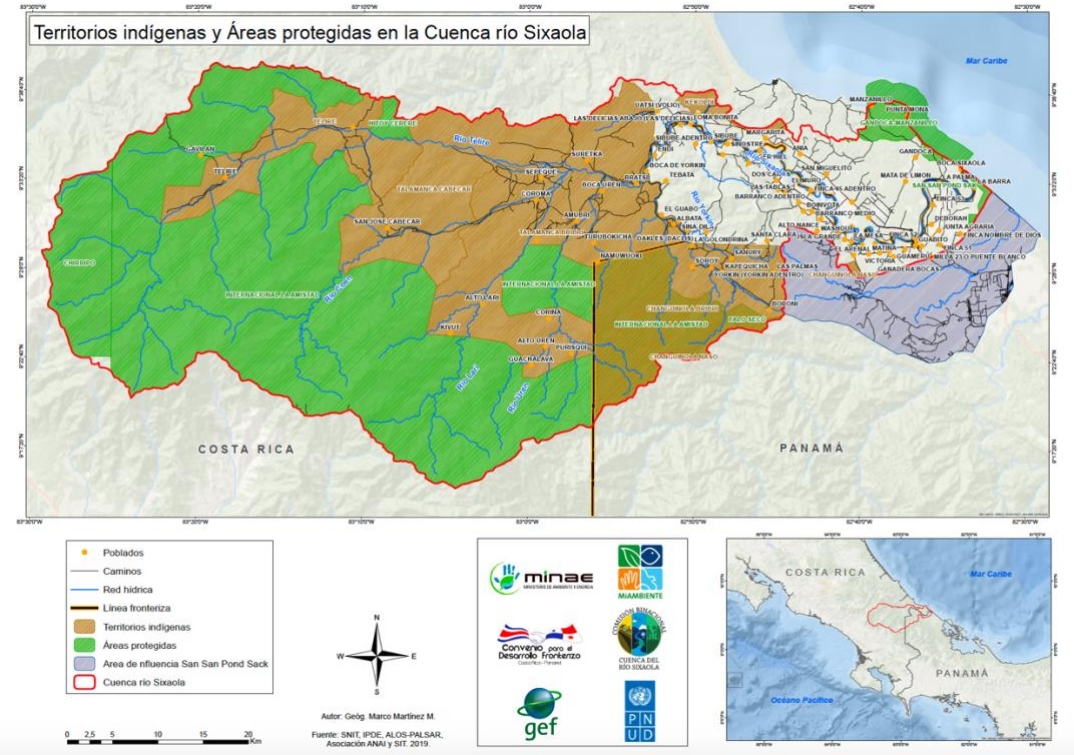
10. Indigenous Peoples are mainly found in the middle and upper part of the SBRB. Indigenous Peoples face lower social indicators compared to other populations; recent studies on food security showed that 60% of households in indigenous territories live in food-insecure conditions for 3 months of the year. Most households find it difficult to access food because of the scarcity of income sources.

11. Transboundary indigenous peoples are increasingly vulnerable because of their spatial location: clandestine activities, trafficking in goods and people, trafficking in illicit substances and arms are some of the factors that should be carefully considered, particularly in areas where the border has not been physically delimited. The

2UICN, 2012 Mapeo y análisis de actores de la cuenca binacional del Río Sixaola, Solano F.y Zúñiga P. Informe de consultoría.
3 IMN, 2010. Atlas de cuencas hidrográficas. Cuenca del Sixaola.
4 National Statistics and Census Institute (INEC) 2011, National Population Census, San José, Costa Rica.
5 A District in Panama is an administrative division equivalent to a Canton in Costa Rica. A corregimiento in Panama is equivalent to a district in Costa Rica.
6 UNDP Panamá, 2019, Informe Nacional de Desarrollo Humano Panamá 2019, Ciudad Panamá: UNDP

fact that the borderline limits spaces of transit and ancestral use, which exist well before the border treaties, can constitute an important barrier to traditional exchanges and land management, thus increasing their vulnerability to risk. Other details are described in annex 4e.[7]

Figure 2. Map showing Indigenous territories and protected areas in the SBRB.



Source: Project preparation documentation. [8]

Table 1. Indigenous territories and protected areas.

Type of space	Country	Name and Territory	Area in km²	Percentage (%)
Indigenous Territories	Panama	Naso	3.34	0.1
	Panama	Bribri Panama	257.5	8.9
	Costa Rica	Kéköldi	14.2	0.5
	Costa Rica	Talamanca Bribri	388.6	13.4
	Costa Rica	Talamanca Cabécar	228.9	7.9
	Costa Rica	Telire	154.3	5.3
		Subtotal	**1,047.0**	**36.2**
Protected Areas	Panama	San San Pond Sak	4.16	0.1
	Panama	Palo Seco Protected Forest	9.0	0.3
	Panama-CR	La Amistad International Park	1,384.1	47.9
	Costa Rica	Gandoca-Manzanillo	56.2	1.9
	Costa Rica	Chirripo National Park	124.6	4.3
	Costa Rica	Hitoy Cerere	12.7	0.4
		Subtotal	**1,590.7**	**55.1**
Other			250.3	8.7
		Total	**2,888.0**	**100.0**

[7] International Labour Organization (ILO) Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries states in article 32 that "Governments shall take appropriate measures, including through international agreements, to facilitate contacts and cooperation between indigenous and tribal peoples across borders, including activities in the economic, social, cultural and environmental fields".

[8] Martínez. M. 2019. Geographical data analysis. Consultant hired during project preparation phase (PPG).

Source: draft Indigenous Peoples Planning Framework. Camacho, C. 2019.[9]

12. As detailed and described in the Gender Analysis (Annex 4d), gender gaps persist in Panama and Costa Rica for indigenous, afro-descendant and rural women living around the SBRB.

13. In Costa Rica, the following issues are relevant to understand women and gender situation in the basin.

- Out of 10,775 indigenous population in the SRB (Costarrican side), 5,307 are women.
- More than a quarter of agriculture farmers in Costa Rica are women: in Talamanca (32.5%). The distribution of permanent payment for agriculture producers is approximately 70% of men; against 30% women; while for temporary work only 40% of women are paid.
- The women's unemployment rate is increasing in the Huetar-Caribbean region, where the percentage reached 12.8% above male unemployment in 2015; and is the second highest in the country. Huetar Caribe ranks one of the highest percentages of households in extreme poverty (11.1%) during 2015, a situation that has been increasing by 1.1 and 2.8 percentage points, respectively, in relation to 2010.
- Women are more vulnerable than men (especially pregnant women) when exposed to pesticides, widely used in the Sixaola basin. Being Costa Rica one of the countries with highest indexes of pesticides use, this issue needs particular attention. More research is needed to understand this impact.
- Indigenous women's forms of political organization are different from the country's traditional forms, and although they participate actively in the Indigenous Development Associations (ADIs in Spanish), the world view of the indigenous peoples has cultural limitations on women's participation, which show a gap in the political organization of indigenous women.
- The situations relating to violence against women are worse in the areas around the SRB, 9% in the Atlantic Area and 12% in the southern area of the country. In addition, the 15.1% of women admit to having accepted unwanted sex for fear of reprisals; nearly 21% say they have been offered something in exchange for sex; 6.3% have received threats as a way of coercing them to have sex; 8% of women were assaulted during a sexual relationship and 12.3% were forced to have sex against their will, in other words, they have been raped. These data are undoubtedly also reflected in the rural, Afro-Caribbean and indigenous women living in the SRB in Costa Rica.

14. In Panama the following issues are relevant to understand women and gender situation in the basin.

- In Panama there are three Indigenous Peoples living around the SRB (Panamenian side): Naso, Bribri and Ngäbe. Of those are 1,966 Ngäbe women, 1,963 Naso women and 531 Bribri (a total estimate of 4,460 women out of 9,144 people).
- In Panama, in 2014 and 2015, 85 out of every 100 indigenous people were living in poverty, with the Ngäbe-Buglé Comarca having the highest poverty level. Although there are no data disaggregated by gender on poverty levels, the qualitative studies refer to the impact that poverty has on women in particular, because of the important role they play within their community.
- Women living in the Ngäbe-Buglé Comarca has less social protection; the levels of dependence and submission they suffer with the departure of their spouses make them more defenceless. The ages to start married life is 12 years, which shows a severe violation of their human rights. Bribri women start motherhood at 16 years of age and the average number of children ranges from 3 to 5. Naso women begin their sexual life between the ages of 12 and 15, some leave their children in the care of their mothers and other relatives, especially those whose partners migrate, and, when abandoned, must seek work to support themselves outside of their families and communities.
- The problems of inequitable distribution and insecurity of land tenure impact women and indigenous Peoples differently from the rest of the rural population. In the case of women, they had - and still have - limited access to land.

9 Camacho, C., 2019 draft Indigenous Peoples Planning Framework, see Annex 4d. Consultant hired during project preparation phase (PPG).

- The gender economic gap by 72%, and while women represent 70% of university graduates, the labour participation rate of Panamanian women is still 21 points below that of men, and 71% of companies in the country have no female representation at the highest executive level.

- indigenous women have limited access to health attention. The access to hospitals or health centres is difficult them due to the lack of adequate roads, the long distances and the scarcity of economic resources that prevent them from moving.

- The maternal mortality rate remains stagnant, especially because of continuing high rates in the Indigenous regions ("comarcas"), with a significant disparity in access to obstetric services and skilled birth attendance.

- Women are more vulnerable than men (especially pregnant women) when exposed to pesticides, widely used in the Sixaola basin. More research is needed to understand this impact.

15. In relation to access the drinking water supply, Costa Rica and Panama have had a longstanding public policy of investment in the provision of drinking water to communities.

16. A quarter of Costa Rican households are supplied by rural aqueducts administered by communal associations (called ASADAS in Spanish). In Talamanca, there are 15 ASADAS registered, although not all of them are fully operating. Even so, the ASADAS in Talamanca continue to present problems regarding the quality and reliability of the water service, particularly in Indigenous Territories. For instance, the Talamanca Cabécar has less than 20% of drinking water coverage, and less that 10% in the Telire Territory. More research is needed to understand the situation of drinking water in indigenous territories. A proper study should note the sources used, the management modality, the local water administration systems.[10]

Table 2. List of ASADAS in Talamanca, Costa Rica. Source: PNUD[11]

Name of the ASADA	District
1. MANZANILLO DE CAHUITA	Cahuita
2. SAN RAFAEL EL NO.1 DE SIXAOLA	Sixaola
3. PARAISO DE SIXAOLA	
4. GANDOCA DE SIXAOLA	
5. ANNIA DE SIXAOLA	
6. MARGARITA DE SIXAOLA	
7. CATHARINA DE SIXAOLA	
8. BAJO BLEY DE DE BRATSI	Bratsi
9. ADI YORKIN DE BRATSI	
10. AKBERIE Y PIEDRA GRANDE DE BRATSI	
11. GABILAN CANTA DE BRATSI	
12. ADI SEPECUE Y MOJONCITO DE BRATSI	
13. ADI KATSI DE BRATSI	
14. ADI AMUBRI-CACHABRI-SUIRRI DE BRATSI	
15. DURURPE Y SANTA ELENA DE BRATSI	
16. BRI BRI DE BRATSI	
17. ADI SHIROLES DE BRATSI	
18. SAND BOX DE BRATSI	
19. OLIVIA DE BRATSI	
20. ADI SURETKA DE BRATSI	
21. CHASE DE BRATSI	
22. RANCHO GRANDE DE BRATSI	
23. BAMBU DE BRATSI	
24. PUEBLO NUEVO Y OLIVA DE BRATSI	

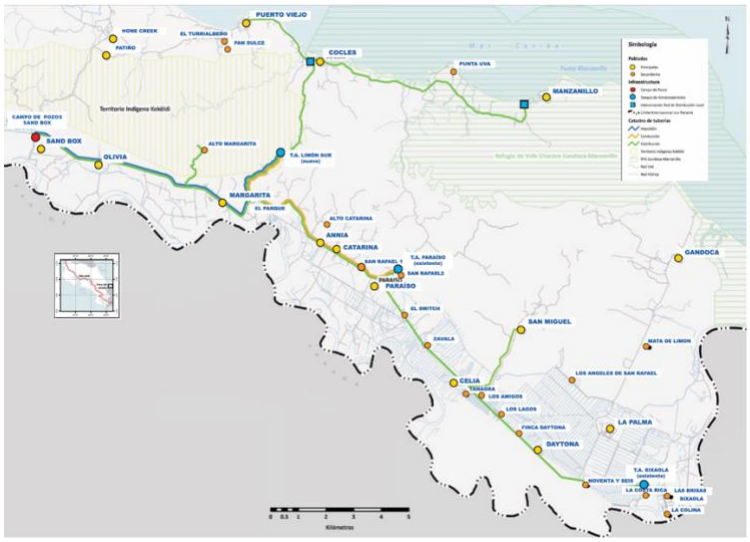
10 Camacho Nassar, C. 2018. Elements on the vulnerability of indigenous peoples and communities in Costa Rica and their relation to drinking water services. Consultancy report commissioned by the General Comptroller of the Republic of Costa Rica. 30 June 2018

11 PNUD-MINAE Project "Strengthening Capacities of Rural Aqueduct Associations' (ASADAS) to Address Climate Change Risks in Water Stressed Communities of Northern Costa Rica".

25. Comité Administrador del Acueducto Rural de China Kicha	

26. A current infrastructure investment project (Figure 3), by AyA (*Instituto de Acueductos y Alcantarillados Nacionales* in Spanish), is strengthening rural aqueducts network. AyA is also supporting communal ASADAS with administrative problems.

Figure 3. Location of drinking water treatments plants and rural aqueducts distribution network in Talamanca, Costa Rica.



Source: AyA. Document provided during project preparation.

27. In Panama, there are a total of 5,397 community-based aqueducts which provide potable water for human consumption and other uses to some 677,207 inhabitants in indigenous territories, rural and peripheral urban settlements, covering 20% of Panama total population.

28. In terms of wastewater treatment, both Costa Rica and Panama are lagging behind in terms of public investment. In terms of sanitation, at a national level in Costa Rica, only 8.2% of wastewater collected through sewers is treated. However, there are strategic investments in Costa Rica related to sanitation and water treatment plants by AyA (acronym by its name in Spanish, *Instituto Costarricense de Acueductos y Alcantarillados*) and by by IDAAN in Panama. in the lower Sixaola valley (Sand Box aqueduct)

29. AyA is finalizing the design of a sewerage treatment plant in the coastal town of Puerto Viejo. The construction will be carried out with the support of UNOPS. In Panama, there is also a project by IDAAN to install a new water treatment plant in Changuinola.

30. In Panama, this percentage reaches 39% nationally, but in Bocas del Toro province only 6% of wastewater is currently treated. [12] The dumping of untreated wastewater into bodies of water and directly into the sea is one of the main causes of pollution of ground, surface and marine waters in both Costa Rica and Panama. This source of contamination of water resources also contributes to the alteration and degradation of associated ecosystems, with negative impacts on public health, activities related to tourism and recreation and affects the overall development of both countries. The direct discharge and inadequate treatment of wastewater, generated by human activities, is one of the main causes of pollution of ground, surface and marine waters, as well as the alteration and degradation of associated ecosystems. As a consequence, these have negative impacts on public health, activities related to tourism and recreation and affect the overall development of the country. Likewise, this pollution limits the possibility of using water resources and increases the cost of treating water

12 República de Panamá, Instituto de Acueductos y Alcantarillados Nacionales (IDAAN) 2018 Boletín Estadístico No32, 2015-2018.

that is intended for human consumption, agriculture or any productive processes. An improved sanitation management of wastewater becomes an unavoidable necessity.[13]

Economic context

Agriculture

31. The main economic activity and employment generator in the region is the production of bananas for export; most of the area and investments belong to large companies such as Bocas Fruit Company in Panama and the National Banana Corporation (CORBANA) of Costa Rica. The banana plantations of the upper basin are in the hands of small and medium farmers.

32. Beyond, industrial agriculture, the predominant form of livelihood of the small land tenants is the production of beans and maize in the lower area of the basin; banana and cocoa production in the higher areas. The region has historically been in a peripheral and marginal position due to its remoteness from the capital city of the two countries.

Cultural, coastal and eco-tourism

33. There is a growing tourism activity in the region, with coastal and inland tourism. Ecotourism is another important economic activity that has grown over the years; however, it is not yet well established due to difficult access to communities.

34. Trade and commerce

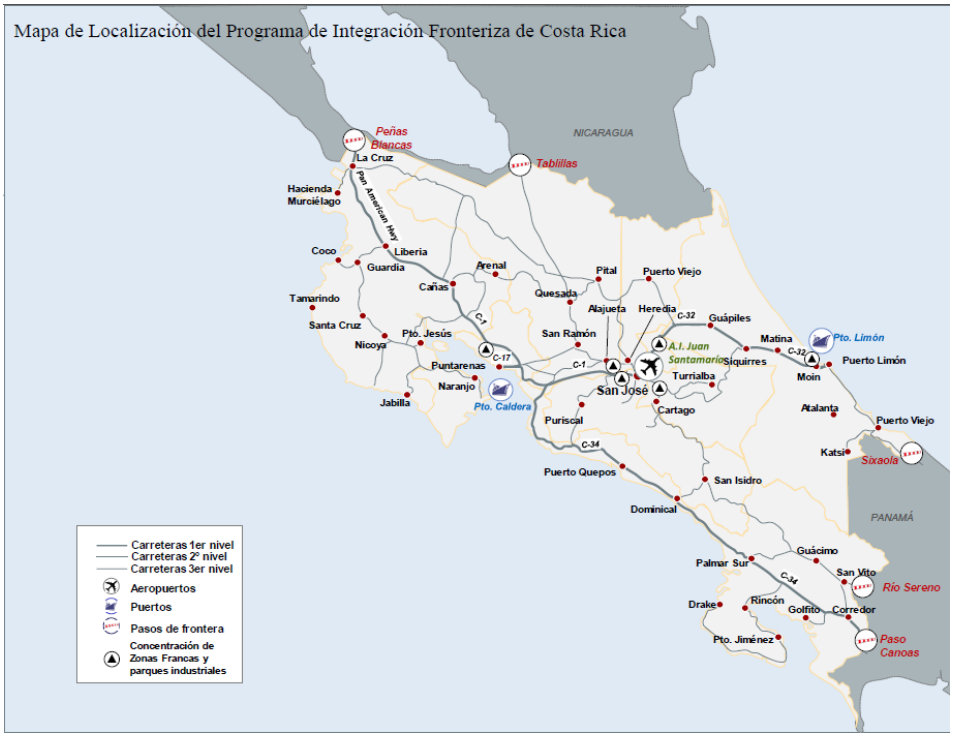
35. The area is key for trade and commercial activities among the two countries. The community of Sixaola and the community of Guabito are the border crossing points, located in both sides of the Sixaola river between the two countries. An important commercial exchange occurrs thought this point and around the area. The road is an old elevated railroad. A former railroad bridge crosses the Rio Sixaola at the border, as a one-way bridge. This bridge was built in 1908 by the Bocas Fruit Company to give service to your plantations. When the railway stopped working, this bridge was used, without major adaptations, for the passage of vehicles and pedestrians, giving rise to the conurbation Sixaola-Guabito.

36. A new bridge is being constructed by both countries, that will allow an improvement of communication and trade. Currently, there are around 35 trucks (containers) crossing every day (2010), with a projection to increase up to 70 in 2025. Moreover, there is a current project to improve the border crossing and custom offices for 100 million dollars.

Sixaola is in Costa Rica one of the 5 border customs points (Figure 4).

13 Instituto Nacional de Acueductos y Alcantarillados (AyA) 2019 Informe Anual 2018-2019 see https://www.aya.go.cr/transparenciainst/rendicion_cuentas/paginas/informes-anuales.aspx

Figure 4. Customs and border crossing points in Costa Rica, and between the border of Costa Rica and Panama.



Governance Context

37. The Agreement between the Government of the Republic of Costa Rica and the Government of the Republic of Panama on Cooperation for Border Development is the main legal instrument promoting cross-border development in the Sixaola River Binational Basin. The border between the two countries extends over 300 kilometres, from the mouth of the Sixaola River in the Caribbean to Punta Boruca in the Pacific. Although the Sixaola River runs only along a portion of the border, the agreement is an instrument that facilitates cooperation around water, recognizing the watershed approach and integrated water resources management for border cooperation.

38. This Agreement was signed by the Presidents and Ministers of Foreign Affairs of both countries in the city of Sixaola (Costa Rica) on May 3, 1992. The National Assembly of Panama ratified it with Law No. 16 of August 17, 1994. The Legislative Assembly of Costa Rica did so on July 10, 1995. The Border Agreement entered into force on July 27, 1995. The objective is to "broaden, improve and deepen cooperation relations in all fields, contribute significantly to the overall development and social and economic, commercial, environmental and political improvement of the border region and strengthen the integration process between both countries, as well as promote the "joint (binational) execution of programs, projects or activities of pre-investment, investment and technical assistance at the border".

39. The Agreement operates through a Permanent Binational Commission (CBP) headed by the Ministry of Planning and Political Economy (MIDEPLAN) of Costa Rica and the Ministry of Economy and Finance (MEF) of Panama. The Permanent Binational Commission is also made up of the authorities of the local border governments of both countries (

40.

41.

42. **Figure 5**). CBP has an Executive Secretariat, which, through a Secretary in each country, oversees the Border Agreement and supports different development interventions at the border. To this end, the Agreement has two operational mechanisms: sectoral technical commissions and technical executing units of the projects; both mechanisms seek to address common challenges in areas such as the environment, agriculture, infrastructure, health, education, migration, social aspects and local governments, among others (

43.

44.

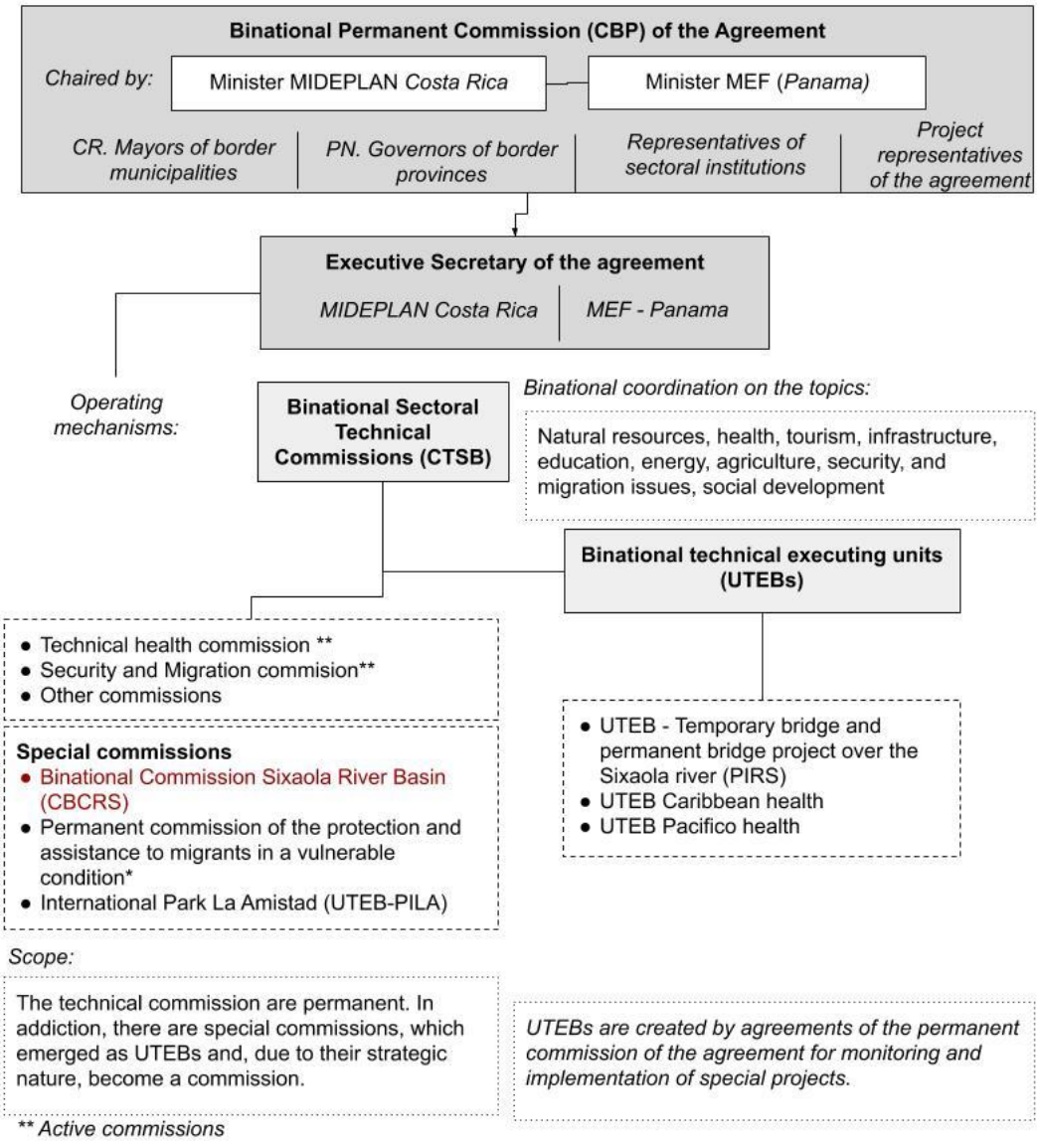
45. **Figure 5**). There are also special commissions for strategic and permanent issues such as the Binational Commission of the Sixaola River Basin. [14]

46. The Binational Commission of Sixaola River Basin (CBCRS) was created in 2007 as a technical implementing unit of a GEF project implemented by the Inter-American Development Bank and began operating in 2009. The objective of the CBCRS is the coordination and development of the necessary actions for the integrated management of the binational basin of the Sixaola River, the conservation of natural resources and biodiversity, the promotion of sustainable production and the strengthening of the binational institutional framework, under the Convention for Transboundary Development and the national legislation on basin management of both countries.[15] It is currently made up of representatives of 35 organizations, including government, private sector and representation of the 6 indigenous territories of the basin. In 2010, the CBCRS is included within the Agreement as a special strategic Commission, extending its scope beyond a specific project. In 2013, it approves its Internal Regulations, nevertheless it still needs to be consolidated and strengthened. Unlike the technical commissions, the CBCRS brings together the regional inter-institutional representatives, but not the ministerial-level hierarchies who chair an annual meeting of these commissions and establish a common plan.

14 Pérez de Madrid, M. 2020. Consultancy report during project preparation. 30 March 2020.
15 UICN 2012 Mapeo y análisis de actores de la cuenca binacional del Río Sixaola, Solano F. Y Zúñiga P.

Figure 5. Structure of the Permanent Binational Commission between Costa Rica and Panama for the Development of the Boundary Region.[16]

16 Pérez de Madrid, M. 2020. Consultancy report during project preparation. 30 March 2020.



Note.The agreement does not include a graphic organizational structure.This figure is an interpretation based on the text of the agreement, and discussions held with the Executive Secretariat.

Global environmental problems and root causes

Problem Statement

47. According to the Transboundary Waters Assessment Programme (TWAP), the SBRB overall relative risk factor is very low,[17] based on the averaged indicators for i) water quality, ii) water quantity, iii) ecosystems, iv) governance, and v) socioeconomic (UNEP, 2010).[18] However, beyond the overall risk, this assessment indicates very high risk factors related to the water quality and governance of the basin (

17 Using a five-point scale: very low, low, medium, high, and very high.
18 UNEP, 2010. Sixaola Factsheet. Transboundary Water Assessment Programme (TWAP). United Nations Environment Programme (UNEP). [Accessed online: TWAP RB Data Portal: http://twap-rivers.org/]

48. Figure ***6***); in particular pointing out mayor risk related to indicators on wastewater pollution and the legal framework. The basin is also assessed high risk related to exposure to floods and droughts.

49. Indeed, publications, interviews and participatory workshops carried out during the project preparation, highlight a contradictory status and understanding of the environmental and governance status of the basin. In one side, the basin well conserved, and almost 50% is under some kind of protection, with important protected areas in Costa Rica such as: La Amistad National Park, Chirripó Nacional Park, Hitoy Cerere Biological Reserve, Gandoca-Manzanillo National Wildlife Reserve; and in Panamá such as: the International La Amistad Park, the San San Pond Sack Wetland, and the Palo Seco Forest Reserve.[19,20] It is important to notice, (Figure 2) that critical protected areas are mainly in the upper part of the basin In Costa Rica, the basin forests, mostly in Indigenous Territories, are also a target for Payment of Environmental Services Program. This program is supported by MINAE through the National Fund for Forest Financing (Fondo Nacional de Financiamiento Forestal, FONAFIFO, in Spanish) that provides a financial incentive for people interested in forest conservation, recovery of degraded areas (natural regeneration) and reforestation.

50. On the other side, there are important governance problems identified and validated during the project preparation, such as: a) a weak management of protected areas; b) a poor implementation of the Integrated Water Resources Management (IWRM) approach, with representativeness issues regarding decision making: [21], [22] Weak articulation of environmental targets for the freshwater conservation; 4) weak articulation with the private sector. As a consequence, the SRB presents diffuse pollution of pesticides at the middle and low basin, from intensive agriculture that has not been addressed by the agriculture sector nor been considered by any of the protected area management plans.[23,24] Pollutants drain, from the middle part to the coastal wetlands, where freshwater biodiversity is significantly affected.

19 GWP, 2016. Gestión integrada de los recursos hídricos en Centroamérica: Gestionando las aguas transfronterizas como desafío primordial. Technical Focus Paper.

20 Porras, N. 2016. La Cuenca del río Sixaola: Costa Rica y Panamá : llegando a acuerdos para fortalecer la cooperación transfronteriza. San Jose, Costa Rica: IUCN.

21 Rodriguez, T. 2019. Environmental governance in transboundary basins: The Sixaola River Basin (Costa Rica-Panamá). Iztapalapa. Revista de ciencias sociales y humanidades. Onine ISSN 2007-9176

22 GWP, 2016. Op Cit.

23 Ídem

24 BID Costa Rica (2004) Programa de Desarrolllo Sostenible de la Cuenca Binacional del Río Sixaola (CR-0150).

Figure 6. SBRB Assessment results.

TWAP RB Assessment Results: BCU and Basin Relative Risk Category per Indicator[3]

Thematic group	Water Quantity			Water Quality			Ecosystems			Governance			Socioeconomics		
BCU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SIOL_CRI	1		2		5	2			3	5	2	3	1	2	3
SIOL_PAN	1		1		4	2			3	5	2	3	1	3	4
River Basin	1		2	2	5				2	5	2	3	1	3	4

Indicators

1 - Environmental water stress **2** – Human water stress **3** – Agricultural water stress **4** – Nutrient pollution **5** – Wastewater pollution **6** – Wetland disconnectivity **7** – Ecosystem impacts from dams **8** – Threat to fish **9** – Extinction risk **10** – Legal framework **11** – Hydropolitical tension **12** – Enabling environment **13** – Economic dependence on water resources **14** – Societal well-being **15** – Exposure to floods and droughts

Source: http://twap-rivers.org/indicators/

51. The core transboundary environmental problem in the SBRB is the degradation of freshwater ecosystems and water resources. Interlinked problems (summarized in **Table 3**) are related with a) pollution of surface and ground water; degradation in quality of water resources, b) degradation of habitats, c) changes in biodiversity, and d) recurrent flooding affecting livelihoods and human settlements.

52. The main threats (immediate causes) are direct discharge of polluted effluents, diffuse pollution, solid waste inappropriate management and accumulation, inappropriate agricultural practices, land use change and deforestation, mainly of riparian forest.

53. Loss of forest cover, inappropriate agricultural practices, and the geomorphology of the basin, contribute to high rates of soil erosion and increased sedimentation. Finally, an immediate cause of freshwater ecosystem degradation is the inadequate disposal of solid waste and the accumulation plastics within ecosystems, and the bioaccumulation of microplastics in freshwater species. This pollution is due to weak coverage of solid waste collection and absence of treatment on both sides of the Sixaola river basin.

54. The SBRB face multiple threats to water quality and quantity, biodiversity and the human population that depend on it. Costa Rica and Panama government and civil society have made joint efforts to advance towards collaborative IWRM, however challenge requires a more comprehensive approach.

55. Moreover, a recent and unforeseen externality is the Coronavirus Disease 2019 (COVID-19) pandemic and its future consequences. The pandemic has generated global health and socioeconomic crises. During 2020, COVID-19 pandemic disrupted production systems and supply chains and produced societal impacts, exacerbating inequalities and increasing poverty. The pandemic has also devastated the tourism industry, relevant livelihood for the population of the basin.

Table 3. Summary of Problems, Root Causes, Underlying Causes and Immediate Causes

Core environmental problem:	Interlinked transboundary environmental problems	Immediate causes	Underlying causes	Root causes
DEGRADATION OF FRESHWATER ECOSYSTEMS AND WATER RESOURCES	a. Pollution of surface and ground water with the consequent degradation of freshwater ecosystems in both Costa Rica and Panama.	Discharge of untreated agricultural effluents.	Legal gaps on drainage effluents from agriculture.	**Weak environmental governance** **Weak environmental legal enforcement** **Development model in the SBRB** **Consumption Patterns and lack of environmental awareness** **Climate Change**
			Limited capacities for IWRM.	
		Direct discharge into surface water and inadequate treatment of wastewater, generated by human activities.	Limited waste and wastewater management coverage by municipal governments.	
		Diffuse pollution from improper application of fertilizers and pesticides.	Productive practices with a high toxicity footprint	
			Poor environmental awareness and education	
		Solid waste in waterbeds (blue bags).	Intensive agricultural production.	
	b. Degradation of habitats	Soil erosion and loss of soil fertility.	Intensive agricultural production.	
		Deforestation processes and changes in land use.	Intensive agricultural production.	
			Increase in extractive and hydroelectric projects.	
			Development of tourism infrastructure in coastal ecosystems.	
			Weak governance of Protected Areas (PILA-La Amistad International Park, National Parks, Wetlands).	
		Conversion of mangroves and coastal wetlands for agriculture.	Intensive agricultural production.	
	c. Changes in Biodiversity	Diffuse pollution from improper application of fertilizers and pesticides.	Intensive agricultural production.	
		Solid waste and plastics accumulation in ecosystem, and bioaccumulation in species.	Limited waste and wastewater management coverage by municipal governments.	
	d) Recurrent flooding downstream affects agricultural production and human settlements	Extreme events and intense rain	Communities located in high-risk and flood-prone areas.	
		Lack of vegetation barriers at riverbanks.	Intensive agricultural production.	
		Soil erosion and sedimentation. (idem)	Intensive agricultural production.	

56. *(a) Pollution of surface and ground water with the consequent degradation of freshwater ecosystems in both Costa Rica and Panama.* Surface and groundwater resources are threatened by the direct discharges and effluents that reach the river, especially in the lower middle and lower part of the basin. The use of agrochemicals in agro-export plantations and the overall unsustainable productive practices (use of agrochemicals without adequate dosages, farming on slopes or dragging of agrochemicals in the dikes of large plantations), produce untreated effluents and drainage polluted with aerial fumigation and on-site residues. The pollution clearly affects the quality of water, as shown in a study carried out during the project preparation (see ANNEX 11). The results showed a drastic increase in pollutants along the river course and between samples taken before agricultural intensive areas, and after land use change. When the river course passes through banana plantations receives drainage and polluted effluents from agricultural land. Together with bad

agricultural practices cause diffuse pollution and biodiversity loss, mainly in the middle and downstream basin. The weak implementation of green barriers along plantations, and the inadequate management of drainage waters causes diffuse pollution along the surface water body and groundwater. Moreover, this environmental problem is also linked to conditions of heavy rainfall, sedimentation, changes in land use.

57. *(b) Degradation of habitats*. While the upper watershed of the SBRB is characterized by a well conserved tropical forest, the middle and lower sections of the basin are increasingly facing land use pressures and pollution, leading to habitat degradation, of riparian forest and coastal wetlands, such as Gandoca-Manzanillo and San San Pond Sak. As shown in a study carried out during the PPG (see annex 11) a drastic drop in bioindicators in quantity and diversity along the river course and between samples taken before agricultural intensive areas, and after land use change. The main drivers for these land use changed are linked to commercial agriculture and conversion of mangroves to agriculture and tourism infrastructure.

58. According to the World Heritage Outlook, for the Talamanca Range-La Amistad Reserves / La Amistad National Park, developed by IUCN and UNESCO, the cumulative level of current threats to this site is high, because of the high impact of dams on the aquatic habitats of some major watersheds. The Outlook indicates that while protected areas in both countries have relatively effective management system and legal framework, the impacts of dams cannot be mitigated, reduced or eliminated only through management actions within the site. The management effectiveness is also seriously affected by poor relationship with local indigenous peoples who opposed hydropower projects (IUCN-UNESCO).[25]

59. *(c) Changes in biodiversity.* Erosive processes and pollution by chemical agents, from agriculture intensive plantations, have been affecting the freshwater biodiversity, mainly in the lower middle and lower part of the basin. As part of the baseline studies commissioned during the PPG phase, an analysis of water quality and freshwater ecosystem biodiversity Biological Monitoring Working Party (BMWP) from a total of 13 sample points in the upper, middle and lower, shows a ten-fold drop in the presence of benthic macro-invertebrates between the upper tributaries of the Sixaola River basin (Telire River 85 reported species) and the lower part of the Sixaola River (5 reported species) (see Annex 11 for complete report).

60. *(d) Recurrent flooding affects agricultural production and human settlements.* The steep slopes of the upper and upper middle parts of the basin and its heavy rainfall present a combination of factors that contribute to the occurrence of floods. The average annual rainfall in the upper part of the basin ranges from 1,500 to 2,000 mm, in the middle part from 3,000 to 5,000 mm and in the lower part from 2,000 to 3.000 mm. This situation is further aggravated due to the increase of quantity and magnitude of rains because of the effects of climate change and variability, extreme events such as depressions and tropical storms, etc. All these factors contribute to problematizing territorial and water stability in the basin.

61. Flood risks directly affect human settlements along the Sixaola and Telire. When seasonal floods coincide with coastal storms and high tides, they can cause extensive coastal flooding, which is where most tourist infrastructure is concentrated. Climate change is likely to worsen these risks of coastal flooding, as rising sea levels will add to this dangerous combination of hazards. The Sixaola area has a significant history of flood events, which have resulted in significant infrastructure and economic losses.[26] The flood event with the greatest impact in recent history occurred in 2008, which isolated the area from the rest of the country for weeks, resulting in many losses. Such an event could happen again in the near future which, along with rising sea levels, would create massive coastal flooding. According to the hydrological models generated for the coastal area of the Sixaola basin, it is estimated that during the flooding stage the river would rise four meters above its normal level, which would cause much of the mouth of the Sixaola river and the surrounding area of the city to disappear under water.[27]

25 https://worldheritageoutlook.iucn.org/explore-sites/wdpaid/10903

26 Barrantes, G. 2019 “Estudios Preparatorios Para Formulación De Un Componente De Proyecto Relativo A La Gestión Del Riesgo Por Inundación En La Cuenca Binacional Del Rio Sixaola”, PPG consultant report.

27 Ídem

Inmediate Causes

1. Increased pollution from land-based sources

62. *Direct discharge of untreated agricultural effluents.* A major source of pollutant that impact the quality of surface waters and groundwaters in the Sixaola river basin are the untreated effluents. Banana plantations production systems require important investments in terms of drainage canals and culverts which discharge directly into tributaries of the lower Sixaola valley. These drainage systems contribute to increased runoff from agricultural fields and effluents with sediment loads containing traces of fertilizer and pesticides. This is turn increases the nutrient loading and the toxicity of surface waters in the lower Sixaola valley (see Annex 11 for the results of baseline biomonitoring and water quality analyses). These production systems require important investments in terms of drainage canals and culverts which discharge directly into tributaries of the lower Sixaola valley. These drainage systems contribute to increased runoff from agricultural fields and effluents with sediment loads containing traces of fertilizer and pesticides. This is turn increases the nutrient loading and the toxicity of surface waters in the lower Sixaola valley (see Annex 11).

63. *Direct discharge into surface water and inadequate treatment of wastewater, generated by human activities*. One of the main sources of waterborne pollutants is related to the discharge of untreated sewerage into surface waters and shallow aquifers. Although both countries are currently investing significant resources in sanitation infrastructure, with sewerage treatment plants under construction in Changuinola and Puerto Viejo, there is still a large number of human settlements in the Sixaola river basin with little or no treatment of wastewater. These often result in direct discharges into surface waters and through septic tanks built over shallow aquifers. All contribute to increasing the nutrient load of surface waters and to elevated level of nitrate contents in groundwaters.

64. *Diffuse pollution from improper application of fertilizers and pesticides.* The frequent aerial application of fertilizers and pesticide in banana and plantain production systems in the lower Sixaola river valley also contribute the diffuse, non-point sources of water pollution. The misuse of chemicals and agrochemicals has also led to accelerated soil degradation and widespread contamination of surface and groundwater in the Sixaola Basin. This is also reflected in the toxicity and loss of freshwater biodiversity in the lower sections of the Sixaola river, as the baseline biomonitoring and water quality analyses reveal (see Annex 11).

65. *Sediments, pesticides and pollution from land-based activities: agriculture*. These processes are originated mainly by a combination of factors, previous processes of mass removal in the upper parts, mainly of the Telire river, as well as changes in the channel of the Sixaola river that are added to the enlargement of meanders through the undermining of its concave parts and the sedimentation of its convex parts.[28] This is due to sedimentary processes that characterize the alluvial plain in the lower parts of the basin and due to changes in land use that have caused increased siltation of rivers and bodies of water in the basin, particularly in the lower part, threatening the stability of the riverbeds and the consequent contamination of those bodies of water.

66. *Solid waste in waterbeds (blue bags).* There is no installed capacity in the area to handle and process these wastes, and there are no sanitary landfills or facilities to recycle these bags. The nearest facilities are more than two hours away, in the close canton of Siquirres, which is a serious problem for the project, as these bags have become a serious pollution problem for the basin's water system, mainly in the lower part. In addition, the plastics used to ripen bunches of bananas and plantains impregnated with pesticides are disposed of as trash without proper handling and therefore contaminate water bodies, reaching coral reefs with lasting impacts on marine life.

2. Degradation of land and coastal ecosystems and habitats.

67. *Soil erosion and loss of soil fertility.* In the lower section of the basin, a flat undulating land relief predominates on the floodplain created by the Sixaola River. A relatively smooth land relief composed by the relicts of the water dividers can be observed in the surroundings. While the slope conditions of the Sixaola Valley favour deposition, the erosive action that is manifested is performed by the river due to its meandering behaviour. These processes that drag organic and chemical sediments into the rivers are causing a progressive

28 Barrantes, G. 2019 “Estudios Preparatorios Para Formulación De Un Componente De Proyecto Relativo A La Gestión Del Riesgo Por Inundación En La Cuenca Binacional Del Rio Sixaola”, PPG consultant’s report.

loss of fertility. This loss of soil puts at risk the productivity of the soil and causes the need to use more agrochemicals, which also increases pollution.

68. *Deforestation processes and land use change.* In the Sixaola Lower Basin is closely related to the expansion of large banana plantations and other monoculture systems. Commodity production and its associated infrastructure and services have been present in the Sixaola river basin for more than a century, but the intensification of export agricultural production since the 1990s has impacted these freshwater ecosystems and related coastal marine ecosystems.

69. *Conversion of mangroves and coastal wetlands for agriculture.* Mangroves are very valuable for coastal communities. The wetland area is 2% of the SBRB, however, according to the land use spatial analysis, this indicated the presence of banana and even palm plantations within those areas. Mangroves suffer a critical pressure by agriculture, not only from conversion of the deforestation of mangrove area, but also by the direct and indirect discharge of polluting effluents to this habitat. Runoff from the upper basin carries sediments and pollutants such as pesticides and heavy metals.

3. Climate change and climate variability

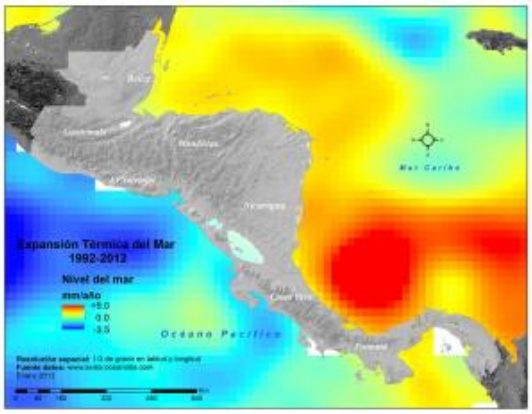


Figure 7. Tendency of increase of sea level rise 1992-2012 (Corrales, L. 2014).

70. *Extreme events and intense rain*. It is anticipated that climate change will affect the conditions of the SBRB. So far it has been identified a general warming trend of air temperature and more intense rainfall events in Central America.[29] There is a positive tendency on the sea level rise in the Caribbean. This has been observed on the period 1992-2012 (**Figure 7**), with extremes in the south Caribbean of Costa Rica and the north Caribbean of Panama, where the SBRB is located (up to 2.04 meters). The area is vulnerable to major sea level rise, with potential coastal flooding effects.

71. *Future changes in ENSO events will affect the SBRB*. Cai et al., (2014 and 2015)[30] anticipated more intense and stronger ENSO events. Nevertheless, the tendency is than El Niño events increase rainfall in the Caribbean coast, with floods. La Niña events have increases drought periods in the past. will severely impact exposed productive areas, increasing the risks of landslides. Increased rainfall will also favour conditions for the growth of bacteria and fungi, encouraging the spread of diseases on banana and plantain plantations, such as black sigatoka (caused by the fungus of the *Mycosphaerella* species).

72. *Soil erosion.* See No. 60.

Underlying Causes

73. *Legal gaps and lack of control over the use of pesticides and other pollutants.* The institutional weakness and asymmetries in regulations and standards between the two countries, in particular regarding pesticides and other pollutants, severely threatens the stability of the water system in the project area. The doses and qualities

29 Aguilar, E., Peterson, T. C., Obando, P. R., Frutos, R., Retana, J. A., Solera, M., Soley, J., Gonzales, I., Araujo, R.M., Santos, A.R., Valle, V.E., Brunet, M., Aguilar, L., Alvarez, L., Bautista, M., Castañon, C., Herrera, L., Ruano, E., Sinay, J.J., Sancez, E., Hernandez, G.I., Obed, F., Salgado, J.E., Vasquez, J.L., Baca, M., Gutierrez, M., Centella, C., Espinosa, J., Martinez, D., Olmedo, B., Ojeda, C.E., Nuñez, R., Haylock, M., Benavides, H. & R. Mayorga. 2005. Changes in precipitation and temperature extremes in Central America and northern South America, 1961–2003. J. Geophys. Res. 110. D23107. doi:10.1029/2005JD006119.

30 Cai, W., Borlace, S., Lengaigne, M., van Rensch, P., Collins, M., Vecchi, G., Timmermann, A., Santoso, A., McPhaden, M.J., Wu, L., England, M.H., Wang, G., Guilyardi, E. & F.F. Jin. 2014. Increasing frequency of extreme El Niño events due to greenhouse warming. Nature Climate Change 4: 111-116.

Cai, W., Wang, G., Santoso, A., McPaden, M.J., Wu, L., Jin, F.F., Timmermann, A., Collins, M., Vecchi, G., Lengaigne, M., England, M.H., Dommenget, D., Takahashi, K. & E. Guilyardi. 2015. Increased frequency of extreme La Niña events under greenhouse warming. Nature Climate Change 5: 132–137.

of the agrochemicals are not properly controlled, causing contamination processes in the bodies of water and affecting the aquatic flora and fauna necessary to maintain the health of the bodies of water. The lack of adequate management and monitoring also means that the use of contaminants has been left to the discretion of the producers in the area.

74. *Limited capacities for IWRM*. There is limited capacity for transboundary IWRM. The combination of the asymmetries between the governing institutions of Costa Rica and Panama, the institutional weakness in the border territories and the lack of knowledge and experiences management of the local actors do not allow a full development of the institutional technical coordination actions that should take place in the Sixaola basin.

75. Although there is a binational agreement between Costa Rica and Panama which constitutes a major asset for the sound management of shared natural resources and in particular for the integrated water resources management in the Sixaola river basin, its management is limited. The weak financial and institutional capacities by the institutions and bodies operating under the Binational Agreement mean that they have limited impacts on the sustainable development pathway of this section of the border region between Costa Rica and Panama. Moreover, regarding the limitations of the IWRM model, there is limited monitoring and follow-up capacities for water resources degradation. The lack of development and knowledge for water resources management, both among producers and within institutions, limits the capacity to monitor and provide follow-up on water quality and quantity in the basin and does not allow the full development of IWRM-related programs and projects.

76. *Limited waste and wastewater management coverage by municipal governments.* The residues and wastes generated by urban activities, generate a considerable amount of both organic and inorganic wastes, that enter the river flow, arrive in coastal wetlands, and/or are burned of buried by the population. Moreover, there is an absence of coverage to appropriate sewage system. Only 6% of Bocas del Toro wastewater is treated. Over 95% of Costa Rican homes are connected to a basic septic tank.

77. *Productive practices with a high toxicity footprint.* The lack of clear regulations, lack of coordination among the governing institutions, along with the institutional weaknesses, both within the countries and in binational management, results in little control and supervision over the use of toxic chemical supplies.

78. *Poor environmental awareness and education.* This condition is further aggravated due to the lack of skills and technical knowledge among medium and small producers, who make discretionary use of these supplies.

79. *Intensive agricultural production.* This model operated with limited environmental management of core business and their supply chain. Differences between national regulations hinder an effective and ethical implementation of environmental management standards. Moreover, although environmental management is well structured in core business operations, it is most difficult to follow up in their supply chain. Both by chemical and organic elements, altering their nature and reducing their capacity for human consumption. Therefore, producing processes of sedimentation and removal of slopes of rivers and other bodies of water. Bad practices reduce land resilience and increase vulnerability to hydro-climatic events. Moreover, activities, mainly industrial agriculture such as plastics and similar materials that contaminate the bodies of water, covering them with these materials and affecting the aquatic fauna and the environment as a whole.

80. *Increase in extractive and hydroelectric projects.* PILA was recognized as a UNESCO World Heritage Site in 1983. Since then, there have been several international assessment missions to check whether the National States that are parties to the agreement with UNESCO, Costa Rica and Panama, fulfil their responsibilities to preserve the values and natural and cultural heritage of PILA. Following the approval of the extractive and hydroelectric projects in the Panamanian sector of PILA in 2007, in particular the two hydroelectric projects in the area, Bonyic and Chan III, PILA was added/recommended to the list of World Heritage Sites in Danger. An IUCN and the International Council on Monuments and Sites (ICOMOS) joint mission was carried out in 2008 and generated a series of recommendations to mitigate the impacts of these projects on the PILA.[31] These Bonyic hydroelectric generation projects are still in place and although they are located in the neighbouring Changuinola River and Bonyic River basins in Panama, the associated infrastructure development processes

31 For more information of the report by UNESCO on these World Heritage Sites, please see https://whc.unesco.org/en/list/205/documents/. The mission also included two other World Heritage Sites in Panama, Portbelo and San Lorenzo, https://whc.unesco.org/en/danger/

constitute a potential threat to the Sixaola River basin. CHAN II concession was suspended twice in two different governments.

81. *Development of tourism infrastructure in coastal ecosystems.* Tourism-driven impacts on mangroves and coastal ecosystem are considerable, but still poorly understood. Reconciling the long-term conservation of highly vulnerable wetlands with a fast-growing tourism sector remains a difficult and important task.

82. *Weak governance of Protected Areas (PILA-La Amistad International Park, National Parks, Wetlands).* The binational coordination body has little influence on national scales and on decision-making for the management of protected natural spaces. The legal and institutional frameworks and sectoral administrative competencies are not clearly harmonized, despite the efforts of the Central American Integration System (SICA) and the Central American Commission for Environment and Development (CCAD). Another issue that affects the good binational governance of the basin is the slow institutional pace for the decisions that must be made, which makes it difficult to implement actions and initiatives for the management of water and the protected areas that exist there. However, the existence of the PILA is an experience and a structure that can be enhanced for these purposes.

83. *Communities are located in high-risk and flood-prone areas.* Although early warning systems exist, they do not function regularly and require capacity building, as well as greater binational coordination and the provision and renewal of equipment. None of these early warning systems rely on hydrogeological and meteorological models that can help trigger warnings.

Root causes.

84. Root causes (**Table 3**) are pervasive and long-standing development constraints, often structural in nature, having to do with history, deeply embedded social and political systems, cultural factors, geography, climate and demography that are transmitted through attitudes, behaviours and actions at different levels, both tangibly in policy, legislation and the way public and private institutions work, but also intangibly through discrimination and exclusion.

Weak environmental governance

85. Weak presence of the State and asymmetries between both sides of the border. The weak presence of public institutions, together with differences in installed capacities between the two countries, limits the implementation of IWRM. Moreover, there is limited transparency on agrochemical usage and dangers.

Early Warning Systems (EWS) are a set of articulated capacities, tools and procedures for generating and disseminating early warning information in a timely manner, to enable individuals, communities and organizations exposed to a hazard so that they may be able to prepare and act appropriately and in advance to reduce or avoid loss of life. However, these territories do not have such a set of mechanisms and procedures, nor is there an official instrument to standardize the design of early warning systems (EWS), establishing clear responsibilities for their operation and sustainability. Capabilities that used to exist but eventually were lost.

Weak environmental legal enforcement

86. *Weak enforcement of environmental law, regulations and standards.* existing water laws in both countries are outdated [32] and poorly enforced in the Sixaola River Basin. This is a limiting factor for coordinating actions that must be carried out within a harmonized normative legal framework, particularly regarding discharges and waste. Moreover, there is limited presence of public institutions that are in charge of the regulations, increased by weak inter-institutional coordination and asymmetries between countries.

Development model in the SBRB

87. *Persistance of the agro-export model.* In the lower middle and lower part of the basin, the existence of agro-export enclaves and industrial plantations of palm oil, pineapple and banana that have contributed to deforestation and changes in local climatic patterns and processes, as well as to the generation of conditions that have increased social, economic and ecological vulnerability in the most anthropized parts of the basin.

32 In Costa Rica the current Water Law dates from 1942 (Law Decree No 276). In Panama, the Law Decree No. 35 of 1966 regulates the use of surface and groundwater and the Law for the Integrated Management of River Basins addressed the management of watershed (Law Decree No 44 from 2002).

Consumption Patterns

88. The use of single-use plastics has increased by the population of the basin. Households' consumption patterns see the use of plastics as a standard. There is limited environmental awareness of the problems that caused by its unsustainable massive use.

Climate Change

89. *Climate variability and climate change risks.* The direct impacts and residual effects of climate change and variability are expressed differently in the basin, the upper and upper middle part, due to its good state of conservation and forest cover. Climate change is likely to worsen risks of coastal flooding, as rising sea levels will add to this dangerous combination of hazards.

Structural Poverty

90. *Structural poverty of indigenous peoples and rural population with gender inequalities.* The intensive agricultural production of banana and plantain in the lower Sixaola valley; the dependence of this source of labour from poorest populations, along with land use global changes drivers, and deficient solid and liquid waste management are increasing and contributing to the degradation of the unique freshwater ecosystems found in this binational watershed.

Long-term solution

91. The current baseline scenario is complex. It is impossible to address all the causes of biodiversity loss at once. The most strategic approach is to strengthen binational coordination, management and leadership thought the Binational Commission of the Sixaola River Basin to articulate and deliver on agreed priorities at the basin level. The long-term solution is to build agreed binational actions and governance arrangements to address the main common problems that threaten land and coastal biodiversity loss and related impacts.

92. Without an enhanced binational management framework, Panama and Costa Rica will continue to manage their resources and activities without considering global environmental benefits and/or adaptation benefits, leading to an increased loss of biodiversity and climate-related risks.

93. In the longer term, the project will contribute to integrated soil and water management, such as by advancing the nexus approach in watersheds and drainage basins, contributing to reducing water pollution, reducing land-based sources of marine pollution and contributing to ecosystem-based adaptation of vulnerable human populations.

Barriers

94. There are technical and economic limitations that restrict actions in the territory and little coordination between existing organizations, which are obstacles for good water management in the basin.

Barrier 1. Incomplete information to support common management of binational issues.

95. *Information for IWRM is incomplete, inaccessible and does not have a repository.* There is limited understanding of binational management for integrated transboundary water resources management (IWRM). Both countries face similar challenges of lack of clarity in terms of the respective competencies of the institutions in the environmental sector, aqueducts and sewage systems. There are especially gaps and lack of complementarity between existing regulations for risk management, pollution, production practices and watershed management, lacking information and an accessible and organized database for adequate decision-making, which represents a serious problem for water management.

96. *Traditional knowledge is not recognised and incorporated into the social management of water and territory.* The accumulation of experiences and knowledge that have been developed in the indigenous peoples of the area, which, although not recognized as scientific knowledge, are very valuable. These are result of the relationship of these peoples with their environment and are traditional and ancestral knowledge that could provide important inputs for efficient and effective management of water resources. The lack of recognition of this knowledge and understanding of natural phenomena, limits not only the appropriation of the project by the local communities, but also in many cases, the lack of correspondence between the technical proposals with the reality and dynamics of these territories.

Barrier 2. Limited effectiveness of existing governance structures on IWRM.

97. *Limited effectiveness of existing governance structures.* A recurring factor that generates limitations and problems is the remoteness away from the power and decision-making centres, added to this is the weakness of the institutions that exist in the area and the lack of adequate coordination and alignment of regulations that allow for a positive relationship between governments and the governed. These conditions must be articulated and harmonized with the government, local and national bodies present in the area.

98. *Limited coordination with the tourism and agricultural sectors.* The regulatory frameworks of the public institutions that deal with tourism and agricultural issues are not harmonized at the local level, a situation that generates gaps and barriers when carrying out actions such as those proposed in this project. There is a marked weakness in the relationship between the municipality and the representation of the ministries of the sector, particularly with regard to the management of solid and liquid waste. Both the existing tourist activities and the banana plantations produce a considerable amount of organic and chemical waste, the lack of sufficient coordination between these institutions, represents a problem for the proper management of the project. Agricultural planning and sectoral work are segmented and rarely coordinated with the planning and promotion of tourism development in both countries.

99. *Limited application of land management and soil conservation tools.* The problem that this represents is associated to factors that have to do with the lack of development and institutional presence in addition to weak technical capacity on behalf of both the civil servants as well as from small producers. Also, the fact that the big plantations manage their own technical standards mainly addressing factors of product quality and volume.

100. *Limited resources and human capacity in municipalities for resource management.* Because these are isolated areas that are peripheral and distant from the administrative centres of the countries, there is not enough budget allocated to them. In addition, they have low tax collection since a large part of the territory is in protected areas and indigenous territories, as well as weak human installed capacities for the management of resources. This means that the work of monitoring and follow-up, as well as the accompaniment that should be provided to projects and programs, as natural counterparts, is not only greatly reduced, but resources for the contributions and counterpart that these initiatives require are not enough, both in financial and human resources.

Barrier 3. Limited understanding and experience in managing differentiated risk & impacts to Indigenous Peoples and women

101. *Limited appropriation of spaces for social participation.* Although there are social and sectoral organizations such as Association of Small Producers of Talamanca (APPTA, *Asociación de Pequeños Productores de Talamanca* in Spanish) these differentiations affect the lack of effective appropriation of participation spaces, particularly if they deal with aspects such as integrated water resources management and other more technical issues rather than organizational ones.

102. *Limited capacities to face the impacts and adverse effects of climate change.* For climate change issues, a series of information and scenarios have been elaborated on from the international scale to assess the global situation; efforts have been made to scale down this information and scenarios on a country scale. However, there are two factors that are missing: the lack of scaling up of this information at the local level and the degree of uncertainty of these projections and the lack of development of technical and institutional capacities. These do not allow us to face the effects produced by climate change with a good degree of success, nor to carry out an adequate water management system since the information cannot be included into the decision-making processes.

Barrier 4. Limited opportunities to scale up sustainable solutions.

103. *Limited opportunities for small organic producers.* Development interventions in the region have focused mainly on support for conventional agriculture, which has limited small producers' access to technical assistance and accompaniment. Also, the little investment directed to these producers, limits the capacity to introduce clean technological improvements and the incorporation of added value to their products and afterwards, the difficulties to access markets are another limitation that does not encourage this type of production.

III. STRATEGY

104. Solving the whole range of issues occurring in the Sixaola Binational River Basin is beyond the means of the present project considering the scope of interventions which will be needed. However, the present GEF project can assist Costa Rica and Panama to build upon existing binational cooperation mechanisms, –the CBCRS and the Territorial Strategic Plan 2017-2021– and advance transboundary cooperation with a focus on IWRM. There are a range of interconnected causes of freshwater biodiversity loss (as indicated in following section: Theory of Change), but the core of this project is that improved governance, on IWRM will catalyse a range of improvements along the causal chain.

105. The project will focus on improving capacities on transboundary IWRM to address the existing inadequate management of shared ecosystem and avoid further degradation, social conflicts and potential risk to Indigenous Peoples and/or differentiated to women. This will be done in the understanding that improved governance and technical capacities will contribute to construct sound sustainable, fair and scalable ecosystem-based management. With timely information, addressing existing barriers and contributing with lessons to scale up solutions such as agrochemical pollution and the risks associated with periodic flooding.

106. The main tools of the Project will be the Transboundary Diagnostic Analysis (TDA) and the Strategic Action Programme (SAP) development approach (TDA/SAP process).[33] This is an exercise of deep collaborative, inclusive analysis and strategic planning, which will warrant the mainstreaming of fundamental elements such as common understanding of the current CBCRS IWRM challenges, opportunities, participation and representation (see Figure 8). The aim will be to have a formal instrument (the SAP) that has an adequate balance between the technical, social-gender and political dimensions of transboundary management. In addition, it is envisioned that the SAP will be the basis to ensure cooperation and investment at the binational scale of the basin.

107. To complement the TDA/SAP process, the project will develop and consider:

- Enhanced instruments and mechanisms for the CBCRS work, ensuring the integration of Indigenous Peoples consultation and decision mechanisms and gender mainstreaming.
- Pilot interventions to generate learning on three key issues: multi-stakeholder dialogues on agricultural practices, restoration and biological corridors.
- A shared binational flood warning system.
- A collaborative information system for long-term monitoring and reporting of condition.
- The interlinkages with pertinent post-COVID recovery strategies of both countries.

Project Theory of Change (ToC)

108. The Theory of Change is a project design methodology that is used to explain how and why the activities of a project will result in the desired changes. To move from an undesired situation towards a desired one. It provides a roadmap for change, based on an assessment of the project´s situation. This methodology will be combined with the logic model that is used in this project to define resources, activities, short- and long-term results. Assumptions are the necessary conditions in the social, ecological, historical, political, institutional and economic context that sustain and provide logic to the causal chain of the Sixaola River Basin management. Generally, these assumptions are not directly dependent on the project, but they are conditions that must be met for the theory of project change to be fulfilled. Therefore, making these assumptions explicit, in positive terms, provides a feasibility framework that the theory will work in practice. Reflecting on the assumptions allows the project to identify the risks and possible obstacles by which the intervention may fail.

109. In this case the project identified a central problem: the degradation of freshwater ecosystems and water resources of the basin. The actions proposed by the project are described in a logical framework derived from the construction of a Theory of Change, which must be feasible and measurable through specific and relevant

33 GEF IW:LEARN, (2013). GEF Transboundary Diagnostic Analysis/Strategic Action Programme Manual.

indicators that show a logical connection with the expected result, which in this case is that, at the end of the project, the conditions for binational management of water resources and greater global environmental benefits have been created.

110. For this Project, a Theory of Change roadmap has been discussed with the participation of key stakeholders during the PPG phase. It starts from the core problem and proposes a route to be followed until reaching both the project's goal (**Figure 8** and **Figure 9*Figure 9***); that national and binational actors, identified during the PPG phase (See Annex 4b for the Stakeholder Analysis), may have the capacities and tools for a better binational management of the project, as well as, to contribute to the long-term goal, that is: the conditions for the binational management of water resources and greater overall environmental benefits are created.

111. The logical scaling of the desired change starts from the identification of the main problems that gave rise to the degradation of water resources, and which strategies will contribute to the goal of the project, taking into consideration the preconditions for this process to be fully carried out, both from the coordination mechanisms, knowledge management at the end and a clear political will of the parties.

Figure 8. Simplified and interrelations within the Project Theory of Change

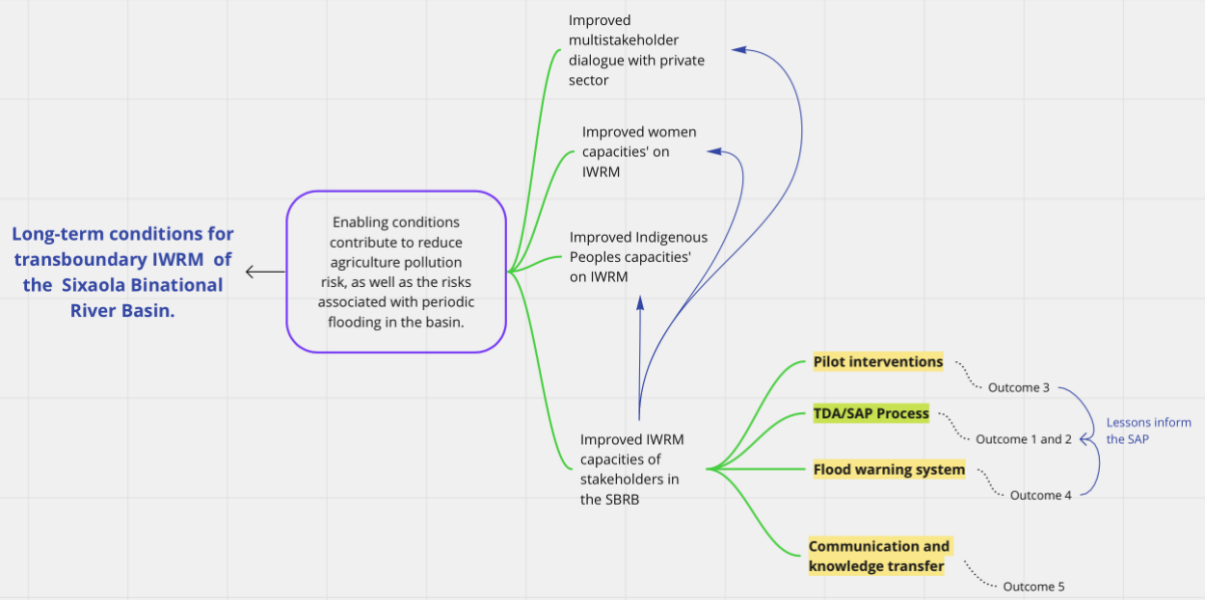
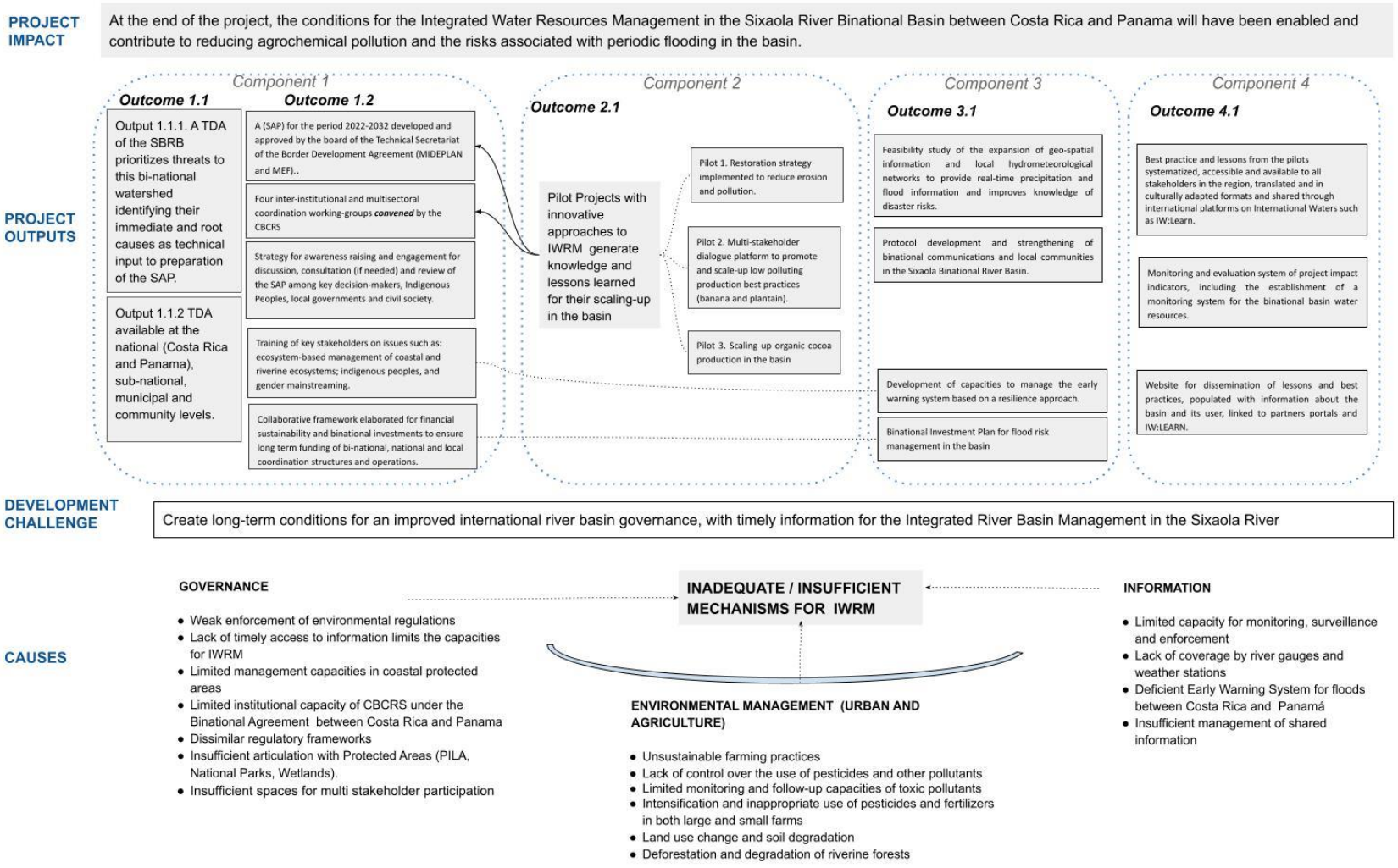


Figure 9. Project´*s Theory of Change linked to causal analysis*



Project Coherence with National Strategies, Priorities and Development Objectives

112. The proposed project is consistent with the United Nations Sustainable Development Assistance Framework (UNDAF) in both Costa Rica and Panama, as well as with the 2030 Agenda, contributing mainly to the SDGs: 5, 6, 13, 14 and 15.

113. In Costa Rica, the Development Cooperation Framework (2018-2022) identified as a result of its Strategic Priority Area 3: Strengthening the capacities of the population for participation and enforceability of rights in order to accelerate compliance with the SDG for sustainable development with equality. Specifically, outcome 3.1 expects non-governmental organizations, social movements, environmental organizations and community-based or productive organizations to strengthen their capacity to organize and generate sectoral proposals for the enforceability of rights, mainly of the most excluded groups and in conditions of vulnerability.

114. In Panama, the UNDAF/Country Programme Outcome includes the Outcome 3.2: By 2020, the State has strengthened its capacities for the design and implementation of Policies, Plans and Programs that contribute to environmental sustainability and food and nutrition security, adaptation to climate change, reducing disaster risk and building resilience.

115. Both countries bordering the Sixaola River Basin have common sustainable development goals and have had more than 25 years of bilateral cooperation in the border area. The CBCRS is a key body of the Bilateral Cooperation Agreement for Border Development that was agreed in 1992 by the presidents of Costa Rica and Panama.

116. The project will be implemented in close coordination with the CBCRS. During the PPG, the specific links and roles of this and other stakeholders identified in the project as summarized in Annex 4. (See Annexes: 4a) Social and Environmental Safeguards Screening Template-SESP; 4b) Stakeholder Analysis and Engagement Plan; the 4e) Indigenous People's Planning Framework (IPPF); and 4d) Gender Action Plan).

117. During this preparatory stage, appropriate cultural sensitivity measures were incorporated in accordance with United Nations Development Programme (UNDP) and the Global Environmental Facility (GEF) policies, considering the presence of indigenous peoples in the SBRB (See the IPPF in Annex 4e). Section IV of this document will detail aspects related to coordination with local entities and Indigenous Peoples' organizations.

Costa Rica

118. The project is also consistent with national policies of Costa Rica, including the pertinent post-COVID recovery strategies to be stablished along the project period.

The Bicentennial National Development and Public Investment Plan (2019-2022) has set targets for Gross Domestic Product (GDP) growth, multidimensional poverty reduction, unemployment and carbon dioxide emissions, as well as to halt the growth of inequality. It includes more than 270 public investment programs and projects and specific interventions for climate change adaptation and risk prevention and for the implementation of the National Biodiversity Policy of Costa Rica 2015-2030. This policy highlights the need to enhance biodiversity by safeguarding ecosystems, species and genetic diversity; increases the benefits of biodiversity and ecosystem services for people; integrates biodiversity into productive landscapes and seascapes; and reduces the urban environmental footprint and improve implementation through participatory planning, knowledge management and capacity building.

119. Costa Rica's National Biodiversity Strategy (2016-2025) has prioritized the following themes (four of the eight priorities), which are directly related to the proposed project: a) the need to increase biodiversity resilience through connectivity, restoration of riparian forests and other threatened ecosystems that provide essential services (in strategic landscapes and seascapes, as well as in urban development); b) to integrate biodiversity into landscapes and seascapes and into priority sectors (e.g. industry, water management and finance); c) strengthen ecosystem services in spatial planning and cumulative impacts, including reduction of the urban footprint; and d) strengthen biodiversity-related information for decision-making and law enforcement, including the development of land use monitoring systems.

Integrated Water Resources Management

120. Costa Rica has a variety of IWRM governance instruments to address water challenges. Firstly, the legal framework is established by the Water Law No. 276 of 1942. With more than forty years of existence, experts reasonably consider that the tool is obsolete and does not include the critical scope of sustainable development. However, the conceptual gap has been filled at the policy level. The IWRM Strategy (2005) established the guiding pillars for supporting economic and social development with respect to the environment; institutional strengthening; and modernization of the instrumental framework. Subsequently, the National Plan for IWRM (PNGIRH in Spanish) (2008) was developed and favourable conditions were defined in the legal, institutional and financial aspects. In addition, the PNGIRH defined action themes on institutional strengthening, capacity building, water resources infrastructure, water resources protection and water quality.

121. In 2008, the government also developed the National Water Policy, with a particular scope in the IWRM, which implies recognizing water as a sector, and a perspective of water as a resource and also as a service. Through Executive Decree No. 30480-MINAE, the policy was approved with 10 guiding principles that incorporate the international scope of IWRM. The principles that guide water management cover aspects such as water as a human right, the principles of equity and solidarity and *In dubio pro natura*; water as a public good; the economic value of water management and protection; the ecological function of water; the use of the best technologies to prevent pollution; the participation and governance of water; the strategic value of hydropower and renewable energies.

122. In 2013, a Water Agenda was approved, setting out the objectives to be achieved by 2030, including ensuring clean water, allocating water for different uses, and universal access to water and sanitation. The agenda was the first instrument for recognizing the water challenges related to urban growth and climate change. The Agenda goes beyond an action plan, a political governance framework that seeks to build bridges between water users. The Agenda established an action plan that included efforts on clean rivers, protection of aquifers, better governance of water resources, efficient and equitable use for all users and a new water culture.

123. Water management and soil conservation are built around large hydrological units, but a decentralized institutional plan for river basin management is not fully implemented. In Costa Rica there are only two decentralized basin commissions by law: the Commission for Planning and Management of the Reventazón River Basin (COMCURE) through Law No. 9067; and the Council for the Comprehensive Management of the Tempisque River Basin (CONCUTEM) through the Draft Law in Legislative File No. 20.088. Note that, even if the SBRB Commission is recognized by the Binational Agreement, this institution has not been legally recognized. This important process needs to be promoted by the project.

124. In the absence of an updated water law, Costa Rica's institutional context for IWRM is still complex, with a matrix of dispersed responsibilities and institutional competencies **(Table 4).** National Information System for IWRM (SINIGIRH) aims to articulate competencies led by MINAE, AyA and MAG-SENARA. SINIGIRH has made progress in unifying information on water management for decision-making; however, is an articulation mechanism, not an institution.

Table 4. Costa Rica: water-management related institutions

Name of institution	Main responsibilities
Ministry of Environment and Energy (MINAE)	Responsible for the control and management of national water resources.
Ministry of Health (MINSA)	In charge of water pollution control.
Ministry of Agriculture (MAG)	In charge of soil conservation and the prevention of pollution.
National Institute for Potable Water Supply and Sanitation (AyA)	Responsible for the supply of drinking water and sanitation.
National Groundwater, Irrigation and Drainage Service (SENARA)	Responsible for groundwater management, as an institute of the Ministry of Agriculture (MAG).

Climate change

Costa Rica has advanced in the last decade in planning for the mitigation and adaptation to climate change at the national level. These advances include the National Climate Change Strategy (2009) and its corresponding Action Plan (2012), as well as sectoral vulnerability assessments covering coastal zones, water resources, agriculture and food security, infrastructure, energy and biodiversity. Priorities for adaptation were identified in these early assessments, but only the biodiversity sector has developed a planning process to address this goal since 2012. The country launched its National Adaptation Policy in 2018 and is currently working on the formulation of its National Adaptation Plan (NAP), as part of its commitments set out in the 2015 Nationally Determined Contribution (NDC).[34] In its 2015 NDC, Costa Rica focused its long-term strategy on climate change actions that seek to increase society's resilience to the impacts of climate change and to strengthen the country's capacity for long-term low-emission development. Costa Rica has a strong track record in climate change mitigation actions, and the NDC represents a turning point in strengthening national adaptation efforts that include assessing possible synergies and trade-offs between mitigation and adaptation. The NAP focuses on six priority sectors: infrastructure, agriculture, water resources, tourism, health and biodiversity. Costa Rica launched its National Decarbonization Plan in 2019, which sets out 10 lines of action to help steer the country towards a low-carbon development path. This Plan is an important step towards achieving the objectives in Costa Rica's NDC, as a key milestone in the country's climate policy. Moreover, this plan has been communicated to the United Nations Framework Convention on Climate Change (UNFCCC) as the long-term low-level GHG strategy, in accordance with Article 4 of the Paris Agreement.[35]

Disaster risk management

125. Emergency and risk management: In 2016, Costa Rica launched its National Policy for Disaster Risk Reduction (DRR) 2016-2030, which is one of the first national DRR policies aligned with the Sendai 2015 Framework for Action for Disaster Risk Reduction. This national policy is based on Costa Rica's long experience in disaster risk reduction, prevention and emergency response. Since 2006, Costa Rica has had a National Law for Disaster Risk Prevention and Emergency Management (No. 8488), which at that time was also fully aligned with the Hyogo Framework for Action for Disaster Risk Reduction (2005). In 2010, Costa Rica also developed its National Plan for Disaster Risk Management 2010-2015, which provided concrete lines of action and placed disaster risk management directly on the country's development agenda. The latest National Policy for Disaster Risk Reduction 2016-2030 offers a medium-term planning horizon up to 2030, aligned with the 2030 Agenda for Sustainable Development. It proposes five lines of action: i) Generation of resilience and social inclusion; ii) Participation and decentralisation of risk management; iii) Education, Knowledge Management and Innovation; iv) Financial Investment, Infrastructure and Sustainable Services; v) Planning, Mechanisms and Normative Instruments for Risk Reduction.[36]

126. In Costa Rica, the institutional framework for risk management has evolved since the late 1960s when the National Emergency Commission was created. In 2005, Law No. 8488 - the National Law on Emergencies and Risk Prevention was passed. The purpose is to establish an agile legal framework that allows for the reduction of risk conditions and the optimal management of emergencies or disasters that may arise, through the integration of the functions of the central government, decentralized institutions, public enterprises, local governments, the private sector and civil society organizations, which have participation in emergency prevention and care processes. As part of the mechanisms for executing the law, article 5 establishes the Risk Management Policy as "a transversal axis of the work of the Costa Rican State; it articulates the instruments, programs and public resources in ordinary and extraordinary actions, institutional and sectoral, oriented to avoid the occurrence of disasters and emergency care in all phases".

34 Ministry of Environment and Energy, Costa Rica's Intended Nationally Determined Contribution, 2015. https://www4.unfccc.int/sites/submissions/INDC/Submission.Pages/submissions.aspx.

35 Godínez-Zamora, Victor-Gallardo, Angulo-Paniagua, Ramos, Howells, Usher, De León, Meza, Quirós-Tortós 2020. Decarbonising the transport and energy sectors: Technical feasibility and socioeconomic impacts in Costa Rica. Energy Strategy Reviews 32 (2020).

36 Comisión Nacional de Emergencia 2016 Política Nacional de Gestión del Riesgo 2016-2030, San José:CNE

127. The National Disaster Risk Management Policy 2016-2030 and the National Disaster Risk Management Plan 2016-2030 and their specific quality objectives of risk information have been improved by increasingly improving local and national decision-making processes.

128. Although the National Risk Management Policy 2016-2030 establishes axes and guidelines for its execution, in the National Risk Management Plan 2016-2020 these guidelines are grouped by scope. For example, within the Scope of Risk Reduction there are four guidelines: (1) Inclusion of disaster risk in social programmes, (2) Safe human settlements, (3) Social protection and compensation, and (4) Disaster recovery.

Indigenous rights

129. According with the IPPF, this project follows the regulations to ensure the participation of Indigenous Peoples, as indicated by the 169 Agreement and other National Policies.

Panama

130. The project is consistent with the following public policies of Panama, including the pertinent post-COVID recovery strategies to be stablished along the project period:

The 2019-2024 Strategic Government Plan (PEG in Spanish) of Panama defines five key priorities: i) Good Government; ii) Rule of Law and a functioning Legal system; iii) A competitive economy generating income and decent jobs; iv) The struggle against poverty and inequality; v) Equitable access to integral and quality education

Integrated Water Resources Management

131. The National Water Security Plan (2050) has 5 goals, this project is aligned with goals 3, 4 and 5: Preventive management of risks associated with water, Healthy Watersheds and Hydrological Sustainability.

132. With the National Water Security Plan 2015-2050, the project meets goals No. 3: preventive management of water-related risks; No. 4 in healthy watersheds; and Goal 5 on water sustainability.

Climate change

133. Panama's National Climate Change Strategy (ENCCP), which aims to increase the adaptive capacity of the most vulnerable populations and promote the transition to a low-emission development model. In particular, the project contributes to its axes of water security; design and construction of infrastructure for flood control in the headwaters of rivers; recovering forest and vegetation cover to regulate runoff; and the implementation of the Million Hectares Alliance to recover gallery forests.

Disaster risk management

134. Panama initiated risk management processes under a civil protection scheme aimed at emergency response and care, an approach characteristic of the 1960s and 1970s. When Law No. 7 of February 11, 2005 was approved, the National Civil Protection System was reorganized. It established as a fundamental purpose (in Article 2) to regulate the administration, direction and functioning of the National Civil Protection System (SINAPROC), understanding its scope of action as the entire Panamanian territory. According to article 3, SINAPROC would be the entity in charge of executing measures, dispositions and orders tending to avoid, cancel or diminish the effects that the action of nature or anthropogenic actions can cause on the life and goods of society as a whole.

135. In line with the above, Law No. 7 establishes in Article 9 that for the prevention and care of natural or anthropogenic disasters, SINAPROC must design the National Emergency Plan and the Risk Management Plan.

136. The National Policy for Comprehensive Disaster Risk Management was approved by Decree No. 1101 of December 30, 2010. This policy seeks to provide guidelines to develop a sustained process of disaster risk reduction as an integral part of sustainable development planning, and is also articulated with the guidelines of the Central American Policy on Integrated Risk Management (PCGIR), which was approved at the XXXV Ordinary Meeting of Heads of State and Government of the SICA countries, in June 2010, in Panama City.

137. The November 2010 National Policy for Comprehensive Disaster Risk Management consists of five articulating axes: a) Disaster risk reduction from investment to Sustainable Economic Development, b) Development and social compensation to reduce vulnerability, c) Environment and Climate Change, d) Territorial Management, Governability and Governance, and e) Disaster Management and Recovery.

Indigenous rights

138. According with the IPPF, this project follows the regulations to ensure the participation of Indigenous Peoples, as indicated by the 169 Agreement and other National Policies.

Regional coherence

139. Moreover, at the international level, the project is consistent with the following regional policies and instruments: “The regional environmental strategy 2015-2020 and the “Regional strategy on climate change” adopted by CCAD. Both instruments incorporate actions for the coastal and marine environment and resources.[37]

140. Regarding the policies is that both countries are based on international agreements. In Costa Rica, the National Risk Management Policy 2016-2030 adheres to the guidelines set forth in the "Sendai Action Framework for Disaster Risk Reduction, 2015-2030" and in Panama, the National Policy on Integrated Disaster Risk Management of November 2010 bases its guidelines on the "Central American Policy on Integrated Risk Management (PCGIR)" of 2010.

141. Overall, the proposed project will help implement this national policy framework by contributing to these lines of action applied to the Sixaola river basin and will provide an opportunity to explore new options for building resilience and social inclusion in a binational basin.

Binational cooperation

142. There is a variety of donors, and a long-standing history of cooperation in the basin. The CBCRS is the result of a successful cooperation framework with support from the government of both countries (

143.

144. Table 5).

Table 5. International cooperation projects developed implemented in the basin (finalized projects.)

PROJECT	PERIOD	LEAD AGENCY	DONOR	INVESTMENT (USD)
Multiphase Sustainable Development Program of Bocas del Toro - Phase II	2008		**IDB**	US$ 34,600,000
Integrated Ecosystem Management Project	2008-2013	IDB / ANAM, MINAE	GEF	US$ 3,500,000
Sixaola-Changuinola Public-Private Partnership Project	2011-2013	GIZ, RUTA	Rewe	US $ 1,356,520
Good water governance for adaptation: Building capacities for ecosystem-based climate change adaptation at national and regional levels in Mesoamerica	2010-2013	IUCN	BMU-IKI	US$ 1,434,730*
BRIDGE Program (phase I, II and III)	2010-current	IUCN	SDC	US$ 300,000*
The USAID Regional Program for Aquatic Resources Management and Economic Alternatives (MAREA)	2010-2014	Chemonics International	USAID	US$ 2,258,156*

37 Sistema de Integración Centroamericano, Comisión Centroamericana de Ambiente y Desarrollo (CCAD) 2014 Estrategia Regional Ambiental, San Salvador:CCAD; Sistema de Integración Centroamericano, Comisión Centroamericana de Ambiente y Desarrollo (CCAD) 2010 Estrategia Regional de Cambio Climático, San Salvador: CCAD.

Promoting the application of the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing in Panama	2011	UNDP	GEF	US$ 1,000,000
Promoting the implementation of the Nagoya Protocol through the development of nature-based products, benefit sharing and biodiversity conservation in Costa Rica	2014-2018	UNDP	GEF	US$ 979,566
Ecosystem Approaches to Climate Change Adaptation: Strengthening Evidence and Policy	2015-2019	IIED, IUCN & UNEP-WCMC	BMU-IKI	US$ 100,000*
Adaptation, Vulnerability and Ecosystems. Governance for Adaptation.	2015-2019	IUCN	BMU-IKI	US$ 1,000,000*
Implementation of the National Biological Corridor Program (PNCB)		GIZ	BMU-IKI	US$ 6,804,130
Cooperation Project to support the Central American Strategy for Rural Area Development 2010-2030 (ECADERT)	2018	SICA	AECID	US$ 1,400,390
TOTAL				**US$ 42,133,492**

*Indicates the approximate (prorated) budget invested in Costa Rica and Panama, within an overall multi country budget.

Details of every project from the table above are described in the following lines. This include a summary of the scope of the objectives and main results of past/closed projects:

145. The **Multiphase Sustainable Development Program of Bocas del Toro - Phase II**, consisted of a loan with the IDB for US$ 34,600,000 with counterpart funds for US$ 5,600,000. This programme lasted three years until 2008 with three components: strengthening local management capacity; natural resource management and productive diversification; and improvement of basic services and infrastructure. The Sustainable Development Strategy of the Province of Bocas del Toro and its action plan was developed during 2008.

146. The **Integrated Ecosystem Management Project of the GEF** Sixaola River Binational Basin invested $3.5 million between 2008 and 2013 in the basin. This was not an IW foundational project and as such, did not carry out a complete TDA and SAP. This project contributed to a common preliminary understanding of the threats and challenges and anchored the development of technical working groups to implement the Binational Strategic Plan 2017-2021 of the Sixaola River Basin, under the coordination of the Technical Secretariat of the Border Development Agreement. The project was implemented by the Inter-American Development Bank and executed by a Binational Executing Technical Unit, with the support of ANAM and MINAE. Several NGOs participated in the project, such as Cooperativa de Servicios Múltiples de Cacao Bocatoreño (COCABO), Asociación STIBRAWPA Personas Artesanas de Yorkín (STIBRAWPA), UPESABO, Biological Corridor Association of Talamanca (ACBTC) and Center for Tropical Agricultural Research and Teaching (CATIE).

147. Between 2011 and 2013, the **Sixaola-Changuinola Public-Private Partnership Project** was executed and financed by private entrepreneurs and the German government (Rewe, Chiquita, Corbana, GIZ and RUTA), with a total investment of $ 1,356,520, which sought to promote partnerships, contribute to biodiversity conservation and promote the development of communities located in the Caribbean transboundary zone. Activities included the conservation of the ecosystems, species and protected areas of the Sixaola Forest in Costa Rica and the San San Pond Sak Wetland in Panama; the education of plantation workers, their families and children on environmental protection and biodiversity and sustainable production systems; the exchange and dissemination of results and good practices; and the institutionalization of the regional public-private partnership.

148. The project **Good water governance for adaptation: Building capacities for ecosystem-based climate change adaptation at national and regional levels in Mesoamerica**, was implemented between 2010 and 2013.

The project was implemented in four countries, including Costa Rica and Panama, in partnership with the Central American Integration System (SICA) and the National Environmental Authorities. This project counted with funding $ 2,869,460 (€ 2,513,493) from BMU-IKI, and was leaded by the IUCN ORMACC. The project improved the statutory instruments that support responses to climate change. Special attention was given to optimizing the management of transboundary water resources. The project activities provided policymakers and other relevant actors with the necessary knowledge about ecosystem-based management methods and institutionalized coordination mechanisms for water use, promoted exchange among policy makers, technical experts, academic institutions and civil society, and carried out pilot activities that tested climate change adaptation tools in the water sector. Moreover, the project carried out risk and vulnerability assessment and design participatory EbA pilot plans, promoting activities such as: productive transformation of local farms through crop diversification and measures to restore local biodiversity and hydrological functions; strengthening of local water governance structures; establishment of demonstration sites for soil conservation practices; and establishment of local fruit and timber nurseries. Field activities were implemented with the participation of a local NGO, Corredor Biológico Talamanca Caribe.

149. Funded by the Swiss Agency for Development and Cooperation (SDC) and led by the IUCN, **BRIDGE Program** has the objective to develop water governance capacities through learning, demonstration, leadership and consensus building in transboundary river basins, including Sixaola with an investment of $300,000 in Costa Rica. The Program has been active since 2011, (BRIDGE I, BRIDGE II and BRIDGE III) supports the capacities of countries sharing river or lake basins to implement effective water management agreements through a shared vision, benefit-sharing principles, and transparent and coherent institutional frameworks. Its objective is to improve cooperation among riparian countries through the application of water diplomacy at multiple levels. The project supported the drafting of the statutes of the Sixaola Basin Binational Commission that were adopted in the Sixaola basin. This was crucial in moving the process forward and making the Basin Commission operational. IUCN ORMACC implements the project in Mexico and Central America.

150. The **USAID Regional Program for Aquatic Resources Management and Economic Alternatives (MAREA)** was a total investment of $13,888,734 in four coastal areas in Central America, including the Cahuita-Bocas del Toro area on the Caribbean coasts of Costa Rica and Panama, with expenditures of $750,000 and $1,508,156, respectively, in each country. Chemonics International, through subcontractors, has implemented MAREA field activities for four years (2010-2014). These activities focused on the protection of important coastal resources and addressed both fisheries and the conservation of important species, as well as promoted viable opportunities and best management practices at four marine-coastal sites that cross borders between CAFTA-DR member countries.

151. The Project: "**Promoting the implementation of the Nagoya Protocol through the development of nature-based products, benefit sharing and biodiversity conservation in Costa Rica**" was implemented from 2014 to December 2018 with a total amount of $979,566 USD. The main objective of the project was to achieve fair Access and Benefit-Sharing agreements (ABS) for parties involved in the development of two natural products derived from biodiversity and to address the need to reduce the use of agrochemicals in the agricultural sector by testing the effect of two aspects. Alternatives based on bananas, coffee, pineapple, potatoes and carrots, whose social and environmental impacts are currently high. The results of the project identified the potential of one of the DMDP38 nature-based components with the most outstanding results in coffee cultivation. However, field experimentation showed that although natural alternatives are not yet as effective as commonly used agrochemicals to combat banana diseases such as *Black Sigatoka* and *Radopholus* (banana nematode), the integration or substitution of these natural alternatives in all disease control programs can reduce the use of conventional agrochemicals throughout the crop cycle.

152. The **Ecosystem Approaches to Climate Change Adaptation: Strengthening Evidence and Policy** Project was implemented between 2015 and 2019 with a total investment of US$1,595,320 (€ 1,815,760.35) in 12 countries in Asia, Africa and Central and South America. The investment in Costa Rica is US$ 35.000, oriented to research and policy advocacy activities. The EbA project was implemented jointly by the International Institute for Environment and Development (IIED), the International Union for Conservation of Nature (IUCN) and the United Nations World Conservation Monitoring Centre (UNEP-WCMC). The goal of the project is to gather practical evidence and develop a country-specific policy guide on EbA and promote EbA internationally.

38 DMDP is a plant-derived sugar analogue with systemic activity against plant parasitic nematodes.

153. The **Adaptation, Vulnerability and Ecosystems (AVE) Project**, with funding from IKI, was implemented by IUCN ORMACC in six countries, including Sixaola River Basin demonstration projects in both Costa Rica and Panama between 2014 and 2018. With a total investment of US$ 5.5 million (€ 4,700,000) in six countries, the main objective of the project is to collect, synthesize and utilize existing evidence on the benefits derived from ecosystem-based adaptation (EbA). In Costa Rica and Panama, activities were implemented with the participation of a local NGO, Corredor Biológico Talamanca Caribe. The project developed a monitoring and evaluation methodology to demonstrate EbA's contribution to climate change adaptation, livelihood improvement, environmental conservation and food security.

154. Supporting the National System of Conservation Areas (SINAC) and MINAE, local governments and local population, GIZ is developing the project **Implementation of the National Biological Corridor Program (PNCB)** in the context of Costa Rica's National Biodiversity Strategy to improve the capacity of its partners in developing and implementing strategy plans for the establishment and management of interconnected biotypes, including the Talamanca-Caribbean Biological corridor. Support will be provided to strengthen the roles and functions of local dialogue platforms and corridor committees for the coordination of protection measures and sustainable use. A small project fund will also promote measures related to corridor management and processes for converting agricultural production systems. The project is establishing local incentive systems and financing mechanisms (payments for ecosystem services, compensatory payments). IKI is investing $6,804,130 (€5,978,802) in this project in Costa Rica, which aims to ensure sustainable financing and implementation of strategic plans for 45 biological corridors.

155. In 2015, the ETEA Foundation proposed the **Cooperation Project to support the Central American Strategy for Rural Area-based Development 2010-2030 (ECADERT).** The Central American Agricultural Council proposed that the ETEA Foundation develop support actions in the cross-border territory of Talamanca - Changuinola - Bocas del Toro. A cross-border diagnostic was carried out. The project was implemented with funds from the Spanish Agency for International Development Cooperation (AECID) with an investment of $1,400,390 granted to the Central American Integration System (SICA).

156. This project will coordinate actions and lessons learnt with GEF International Waters and other projects:

- GEF ID 5284: Integrated Management of Transboundary Water Resources in River Basins Puyango-Tumbes, Chira and Catamayo-Zarumilla;
- GEF ID 9246: Integrated Environmental Management of the Bi-National Río Motagua Watershed;
- GEF ID 9124 Coastal Fisheries Initiative;
- GEF Project IWEco led by UN Environment Implementing Integrated Land, Water & Wastewater Management in Caribbean SIDS;
- GEF ID 5271: Global Sustainable Supply Chains for Marine Commodities;
- GEF ID 9592: Catalysing implementation of a Strategic Action Programme for the Sustainable Management of shared Living Marine Resources in the Humboldt Current System (HCS);
- GEF ID 5542: Catalysing the implementation of the Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Caribbean Large Marine Ecosystem of the Caribbean and Northern Brazil Shelf (CLME +), executed by UNDP. Although this programme is about to conclude in 2021, a third phase is currently being discussed among member countries to continue supporting CLME+ SAP implementation.
- BIOFIN: This is an ongoing project in two countries and will provide links to the financial solutions being developed to accelerate the implementation of NBSAP, project activities will be linked to the future financing of these instruments.
- BRIDGE Program implemented by IUCN with local partners.
- Plan A. Resilient Territories, implemented by UN Environmental Program, and financed by the GCF Readiness window. This project works with municipalities to generate climate change risk maps and developing an action plan on adaptation, linked to this municipal planning. Moreover, it will develop a regional adaptation action plan for the Huetar-Atlantica region.

Governmental Investments

157. There are strategic investments and several national infrastructure projects that are financed mainly through the institutions' own resources and the national budgets. Currently investment sum up to US$ 81,258,703 (**Table 6**). In Costa Rica, the Ministry of infrastructure (MOPT), the National Road Council (CONAVI), the AyA, the National Emergency Commission (CNE) and the Administration and Economic Development Board

of the Atlantic Coast (JAPDEVA, in Spanish), have important ongoing or planned investment in the area. The same applies in Panama, with the Ministry of Public infrastructure (MOP) and IDAAN. Some of the investment, are planned under the Binational Cooperation Agreement among the two countries and are jointly implemented.

Table 6 Ongoing infrastructure investments in the Sixaola Basin related to (directly or indirectly to IWRM)

Project/Investment	**Area /sector**	**Leading and executing institutions**	**Investment (USD)**
Binational Sixaola bridge (binational)	Infrastructure.	MOPT-MOP / UNOPS	US$ 25,198,119
Modernization of customs and migration control checkpoints (binational)	Trade and migration.	MIDEPLAN-MEF	
Wastewater treatment plant and sewage system in Puerto Viejo (CR)	Sanitation	AyA / UNOPS	US$ 1,760,584
Sanitary sewerage system in Changuinola (PAN)	Sanitation	IDAAN	US$ 36,600,000
Drinking water treatment plant in Sand Box and the distribution network (CR)	Drinking water	AyA	US$ 14,700,00
Changuinola improved drinking water plant	Drinking water	IDAAN	US$ 3,000,000
TOTAL			**US$ 81,258,703**

158. UNOPS-MOPT-MOP, the governments of Costa Rica and Panama have been making significant public investments in road infrastructure and the modernization of customs and migration control checkpoints on both sides of the border. In particular, the construction of the new binational bridge over the Sixaola River, for a total amount of US$75 million, is executed by the Sixaola Binational Consortium, formed by the Costa Rica Company Meco S.A. and the Mexican companies Cal & Mayor y Asociados and Mexpresa. It is managed by the United Nations Office for Project Services (UNOPS). The UNOPS project management unit and social impact responsible, were interviewed during the PPG phase indicating that, under the environmental impact assessment (EIA) monitoring plan, there will be a water quality assessment, of the Sixaola River, which baseline data could be of use for the project. Moreover, the project social impact plan, will invest in environmental education of border communities.

159. Regarding **domestic wastewater treatment**, in Costa Rica the AyA is investing in the treatment of sewage in the canton of Talamanca. This project is managed by UNOPS, who is developing the design and construction of the sewage treatment plant in Puerto Viejo with funding from the Central American Bank for Economic Integration (CABEI), with an investment amount of US$1,760,584.10.

160. In Panama, the National Institute of Aqueducts and Sewers (IDAAN) is in the process of building the Changuinola sanitary sewerage system in the province of Bocas del Toro, with an investment of US$36.6 million; a progress level of 15% has been achieved so far.

Regarding **drinking water**, in Costa Rica AyA is investing in Talamanca to develop a drinking water system for the Southern Caribbean, which includes the improvement of aqueducts for several indigenous communities located in the Sixaola basin. AyA already finished the construction of the water treatment plant in Sand Box and the distribution network of aqueducts between Bribri, Sixaola and Cocles. This aqueduct consists of a treatment plant that can process up to 90 litres of water per second to remove iron and manganese, and distribute it through 127 kilometres of pipes, a storage tank of 2,000 cubic meters (m^3) and the construction of 13 overpasses

over streams. The commissioning of the plant is the first stage of the integrated aqueduct of Limón Sur, with a total investment of US$14.7 million with resources from AyA, the Social Development and Family Allowances Fund (Fodesaf) and the KfW German Bank.

161. In Panama, IDAAN has recently invested in a new raw water station that will send 20 million gallons of water per day to the Changuinola drinking water plant to be treated and distributed through the network to more than 60,000 inhabitants of the District. The water intake system is located on the banks of the Teribe River in the community of El Silencio. This represented a total investment of US$3 Million.

162. The Sustainable Production Systems and Biodiversity Conservation Project for investment in Panama is $28,970,000 funded by $9,590,000 from a GEF grant, $10,160,000 from the Government of Panama (in cash and in kind), $720,000 through contributions from project beneficiaries and $8.5 million from other funding sources over five years. The objective of the Project is to conserve significant global biodiversity by improving the effectiveness of project protected area management and incorporating biodiversity into buffer zones.

163. The GEF Small Grants Programme (SGP) implemented by UNDP in Costa Rica and Panama has directly invested $191,000 (2011-2015) to conserve and restore the environment while improving people's well-being and livelihoods with co-financing of $85,000. Several projects have been implemented in partnerships with local associations, both small farmers and fishermen, in Talamanca, Changuinola and Bocas del Toro. The objective is to reduce the threats to the lionfish population, an invasive marine species, and to improve the productivity of the agro-ecological system of high biodiversity (cocoa, banana and organic fruits) by improving a processing plant, to develop ethnic rural tourism and cultural rescue in indigenous communities, to develop the capacity of small producers on artisanal propagation of species of *Musa sp*. and to promote marine aquaculture of the red snapper (*Lutjanus campechanus*) to increase the economic income of artisanal fishermen, among others.

164. Baseline projects are valued at USD 137 million. These are broken down into national and international cooperation projects.

165. Without an intervention to strengthen binational cooperation, it seems unlikely that watershed ecosystem-based management and integrated transboundary water resources management will move forward in the near future. Key factors such as (i) unsustainable production practices, (ii) discharge of pollutants, (iii) soil erosion and sedimentation in river, freshwater and marine ecosystems, and (iv) flood risk will continue to deteriorate the biodiversity base of this transboundary basin, ultimately putting human lives and livelihoods at risk.

IV. Result and Partnerships

Expected Results

166. The objective of the project is to create long-term conditions for an improved shared river basin governance, with timely information for the Integrated Water Resources Management in the Sixaola River Binational Basin between Costa Rica and Panama and will contribute to reducing agrochemical pollution and the risks associated with periodic flooding in the basin. **The project is organized in four components and five outcomes. In total, five outputs will be generated (Table 7).**

- Component 1: Governance instruments improved for the joint management of the SBRB.
- Component 2: Demonstrative pilot projects stimulate collaborative work replication and implementation of SAP and build capacity, experience and support for SAP implementation
- Component 3: Flood and risk management improved
- Component 4: Knowledge Management

Table 7. Project outcomes ant outputs.

Project Outcomes	Outputs
Component 1. Governance instruments improved for the joint management of the SBRB.	
1.1 Common understanding of the transboundary water and environmental issues, challenges and opportunities with gender perspective affecting the Sixaola Binational river basin and agreed strategy for basin restoration and protection.	**1.1.1.** Transboundary Diagnostic Analysis (TDA) of the Sixaola Binational River Basin prioritizes threats to this bi-national watershed identifying their immediate and root causes as technical input to preparation of the SAP.
	1.1.2. TDA available at the national (Costa Rica and Panama), sub-national, municipal and community levels.
1.2 The Binational Commission of the Sixaola River Basin (CBCRS) role as a facilitator of IWRM actions by public and private sector stakeholders is strengthened and builds upon an and agreed strategy to attend the environmental issues, challenges and opportunities affecting the Sixaola river basin.	**1.2.1** Strategic Action Programme (SAP) for the period 2022-2032 developed and endorsed at ministerial level by the Permanent Binational Commission of the Border Development Agreement (the commission is chaired by the Ministers of MIDEPLAN and MEF).
	1.2.2 Four inter-institutional and multisectoral coordination working-groups ***convened*** by the CBCRS.
	1.2.3 Strategy for awareness raising and engagement for discussion, consultation (if needed) and review of the SAP among key decision-makers, Indigenous Peoples, local governments and civil society.
	1.2.4 Training of key stakeholders (public and private) on issues such as: ecosystem-based management of coastal and riverine ecosystems; indigenous peoples, and gender mainstreaming.
	1.2.5 Collaborative framework elaborated for financial sustainability and binational investments to ensure long term funding of bi-national, national and local coordination structures and operations.
Component 2. Demonstrative pilot projects stimulate collaborative work replication and implementation of SAP and build capacity, experience and support for SAP implementation	
2.1 Demonstrative pilot interventions implemented by local stakeholders and community-based organizations advance targets of the SAP and generate global environmental benefits in the SBRB.	**2.1.1** Pilot 1. Restoration strategy implemented to reduce erosion and pollution.
	2.1.2 Pilot 2. Multi-stakeholder dialogue platform to promote and scale-up low polluting production best practices (banana and plantain).
	2.1.3 Pilot 3. Scaling up agroforestry systems (with cocoa, banano and plantain production in the binational basin).
Component 3. Flood and risk management improved	
3.1 Capacity of communities and local organizations to respond to flood risks in the Sixaola river margin is strengthened.	3.1.1 Feasibility study of the expansion of geo-spatial information and local hydrometeorological networks to provide real-time precipitation and flood information and improves knowledge of disaster risks.
	3.1.2 Protocol development and strengthening of binational communications and local communities in the Sixaola Binational River Basin.
	3.1.3 Development of capacities to manage the early warning system based on a resilience approach.
	3.1.4 Binational Investment Plan for flood risk management in the basin
Component 4. Knowledge Management	
4.1 Improved knowledge, practice and aptitudes of key stakeholders regarding binational collaborative action to restore coastal and riverine ecosystems; control pollution and reduce vulnerability to flood risks.	**4.1.1** Best practice and lessons from the pilots systematized, accessible and available to all stakeholders in the region, translated and in culturally adapted formats and shared through international platforms on International Waters such as IW:Learn.
	4.1.2 Monitoring and evaluation system of project impact indicators, including the technical design and piloting of a binational monitoring system for the basin water resources.
	4.1.3 Website for dissemination of lessons and best practices, populated with information about the basin and its user, linked to partners portals and IW:LEARN.

167. The activities that will be carried out to reach the 5 proposed outcomes will be:

Component 1. Governance instruments improved for the joint management of the SBRB

Outcome 1.1 Common understanding of the transboundary water and environmental issues, challenges and opportunities with gender perspective affecting the Sixaola river basin and agreed strategy for basin restoration and protection.

168. The core scope to achieve this outcome will be applying the Transboundary Diagnostic Analysis and Strategic Action Programme development approach (TDA/SAP process) for the management of SBRB.[39] The TDA will consider the impacts of the COVID-19 pandemic and the SAP will integrate, as much as possible, the countries´ recovery strategies.

169. The project actions and budget to undertake the TDA/SAP process include the two participating countries.

170. This component will be driven by the project coordinator in close collaboration with the gender and participation specialist (EGP), the Waste Management Sp, the Social Expert, and consultants. The EGP will ensure that (i) the process is participatory and inclusive and (ii) that key aspects like participation, representation and gender are addressed in the TDA/SAP process. The Social Expert will ensure to carry out the coordination with the Indigenous Peoples.

Output 1.1.1 Transboundary Diagnostic Analysis (TDA) of the Sixaola River Basin prioritizes threats to this bi-national watershed identifying their immediate and root causes as technical input to preparation of the SAP

171. The complete Transboundary Diagnostic Analysis (TDA) of the Sixaola River Basin will be conducted through this output. The project will complete a comprehensive analysis of the situation in the SBRB, that is the identification of (i) the transboundary and shared problems and (ii) the challenges and opportunities for IWRM. The output will be Transboundary Diagnostic Analysis (TDA) which will be built through a participatory process. There is good amount of material that has been generated over the years by a range of entities which will be considered for the TDA.

172. The standard GEF methodology will be used to develop the TDA/SAP process [40] following the Strategic Environmental and Social Assessment (SESA) approach. There will be a consultant (senior advisor for TDA development) which will provide guidance and technical support to the TDA development team in the process to prepare the TDA. This person will oversee the preparation of the national analyses (see below) and will draft the TDA document.

173. This process will require workshops with national and local stakeholders directly and indirectly involved in IWRM actions in the Sixaola River Basin. These workshops will apply the TDA methodology, which consists of a participatory analysis to identify and prioritize the problems and threats, the environmental impacts and the socioeconomic consequences of these problems. Participation of women will be promoted and facilitated throw-out the process.

174. The technical/scientific document will allow the identification of problems related to surface and groundwater pollution (solid waste, sedimentation, wastewater, etc.) with special emphasis to understand the differentiated risk to women. As indicated in the GAP, the TDA will elaborate a gender assessment to understand the risk and impacts affecting women in the basin. The GAP results will support the identification of needs and gaps that will be also reflected in the SAP, guaranteeing gender mainstreaming in the whole process.

175. The results of the TDA will serve as the scientific and technical basis for the design and implementation of the Strategic Action Programme, to provide the solution to the problems identified during this process.

176. The TDA will include: among others, the main technical topics: a) an inventory of specific or diffuse sources of pollution; b) an inventory of wells detailing their hydraulic characteristics and stratigraphic lithological

39 GEF IW:LEARN, (2013). GEF Transboundary Diagnostic Analysis/Strategic Action Programme Manual.
40 Ídem.

profiles; c) the identification of water recharge areas or the implementation of the methodology used by the National Irrigation and Drainage Service (SENARA), d) the application of new isotopic tracer analysis techniques to determine recharge times at different sites in the basin. The analysis of the quality and quantity of water resources, requires the design of a network of sampling points, and the monitoring of all sampling points. A proposal of sampling points is suggested Annex 11, based on the analysis of various sample points during project preparation.

177. During project preparation, stakeholders and the CBCRS highlighted the need to study and analyse governance options to manage the Gandoca Manzanillo and San San Pond Sak wildlife refuges as binational wetlands of international importance. TDA, will commission specific studies to support a potential binational management plan for these two coastal wetlands.

178. The analysis of land use, land cover and water resource pressures, a geospatial analysis will identify current forest management programmes, protected area management programmes and the main pressures caused by changes in land use. Moreover, information will be contracted with climate change scenarios generated by both countries.

179. Field visits will be made to compile information from municipalities and databases of natural resources administered by institutions such as MINAE-SINAC, MINAE-Water Directorate, Ministry of Environment of Panama (MiAmbiente), National Meteorological Institute (IMN), Empresa de Transmisión Eléctrica en Panamá (ETESA), the Ministry of Agriculture and Livestock (MAG), the Ministry of Agricultural Development (MIDA), the AyA, the Institute of Aqueducts and Sewers (IDAAN) of Panama, among others. Reports from regional offices of the Ministry of Health (MINSA), Institute of Rural Development (INDER), Municipality of Talamanca, Municipality of Changuinola, among others, will also be analysed.

180. A hydrogeological study shall be conducted containing at least the following information: locations of the wells, static water levels, dynamic water levels, water flow and water chemistry. A preliminary baseline study on the quality of surface waters and the presence of benthic biota was conducted during the PPG phase (See Annex 11 for full report). The threat of climate change to the Sixaola River will also be assessed. Other evaluations will include the determination of baseline conditions and state indicators of environmental and socio-economic conditions related to surface and groundwater resources of the basin (hydrological and land-use maps of the basin, physical-chemical parameters, sources of pollution, economic valuation of ecosystems, U-POP emissions, plastic wastes, stakeholder analysis and stakeholder engagement strategies - including the private sector and communities, as well as gender analysis).

181. Based on the information collected from official agencies and the partial results of the Transboundary Diagnostic of the Sixaola River Basin, the environmental indicators and socioeconomic conditions associated with the water resource will be determined. These indicators will serve to provide a comparison with the project baseline identified during the project formulation stage. The indicators must be agreed between the participants, together with MINAE and MiAmbiente, in order to achieve an integrated follow-up of the project. This will allow for a common understanding of transboundary environmental problems, challenges and opportunities affecting the Sixaola river basin.

182. The TDA will be adopted by the project board, the CBCRS, and the Secretariat of the Binational Agreement between Costa Rica and Panama.

Output 1.1.2 Transboundary diagnostic available at the national (Costa Rica and Panama), sub-national, municipal and community levels

183. Technical information and complex data will be summarized through different materials (triptych brochures, videos and executive summaries that allow any reader to understand the findings and results). As indicated in Outcome 4 and the IPPF, the TDA will be translated/edited into Spanish, Indigenous languages as appropriate, and English, producing high-quality PDF documents for wide distribution.

184. As part of the communication strategy (Outcome 4) briefs will be prepared to succinctly inform decision makers in the region about the core findings of the transboundary analysis and the opportunities. These results will be socialized using different methods and will focus on the target public and private actors formed by the Sixaola River Basin Binational Commission (CBCRS). The results will be disseminated to the groups identified in the Stakeholder Plan (Annex 4b), the Indigenous Peoples Participation Plan (Annex 4e), and the Gender Action Plan (Annex 4d).

185. Finally, as detailed in Outcome 4 (Knowledge Management), the TDA will be disseminated through the IW: LEARN platform and will be uploaded to the web portal for long-term reporting once it is operational.

186. This output should also allow for the design of legal proposals (national legislation, municipal ordinances and executive branch guidelines) to improve integrated water resources management in both Costa Rica and Panama. At the same time, it seeks to create the conditions to develop new figures of social water management in indigenous territories that are compatible with national regulations and local governance conditions.

Outcome 1.2 The Binational Commission of the Sixaola River Basin (CBCRS) role as a facilitator of IWRM actions by public and private sector stakeholders is strengthened and builds upon an agreed strategy to cope with the environmental issues, challenges and opportunities affecting the Sixaola river basin.

187. This outcome constitutes one of the key elements of long-term planning in the basin. This outcome will allow the strengthening of binational governance conditions for integrated water resources management and strengthen the functioning of the CBCRS, and thus the management of the basin's water resources.

188. This outcome proposes to provide technical assistance to improve the skills and methods of the Sixaola River Basin Binational Commission (CBCRS) stakeholders to use the complementary studies to develop an Strategic Action Programme (SAP) for the period 2022-2032

189. The SAP requires ministerial endorsement, so the SAP could be discussed to facilitate endorsement by the Binational Permanent Commission of the Border Agreement. This Commission is chaired by Ministers of the Planning and Finance Ministries of Costa Rica and Panama. The discussion and negotiation will be facilitated through the Executive Binational Secretariat.

Output 1.2.1 A Strategic action programme (SAP) for the period 2022-2032 developed and endorsed at the ministerial level by the Permanent Binational Commission of the Border Development Agreement (the commission is chaired by the Ministers of MIDEPLAN and MEF).

190. The Government of Costa Rica and the Government of Panama, in collaboration with working groups of national and international experts, will develop, on the basis of the Transboundary Diagnostic, the main lines of action and participation mechanisms of the Strategic Action Programme to attack the causes of water resource degradation in the Sixaola River Basin.

191. The project will set up a technical team in charge of designing and developing the Strategic Action Programme for the Sixaola river basin. Based on the inputs from the (TDA, Output 1.1.1) generated under which will provide the technical background, the formulation of the SAP will take place through a collaborative, binational effort.

192. The CBCRS will update the current Binational Strategic Action Programme, to increase its influence and increase involvement of relevant stakeholders through technical assistance provided to reactivate and strengthen the existing working groups (see output 1.2.2.)

193. According to the GAP (Annex 4d), the SAP will propose a substantive approach to integrate gender perspective. The SAP design and elaboration will take specific gender mainstreaming actions, as detailed in the GAP. In doing so, proposals for addressing the impacts and risk faced by women will be designed with women leaders and groups and for women. Beyond consulting a final draft, the process aims to mainstream gender substantially.

Output 1.2.2 Four inter-institutional and multisectoral coordination working-groups convened by the CBCRS.

194. The CBCRS established working groups to design and implement the current Strategic Territorial Development Plan 2017-2021 and the Investment plan. These groups operate as task-force groups with members of the CBCRS; all are composed of binational stakeholders. Under the project, these working groups

will be reactivated to inform the SAP development. Working groups are expected to play a role in establishing the strategic programatic guidelines of the pilot interventions of Component 2. The CBCRS will convene and articulate programmes aimed at mobilising local community participation through targeted support and relevant investments and projects. In coordination with the CBCRS, the project will help to operationalize these working groups:

195. Working group 1 (**agricultural practices**), has the aim of promoting adoption of best practices among agricultural producers to reduce pollution risks. This working group will review best practices adapted to the binational basin production matrix and landscape. This will be articulated with the Multi-Stakeholder Platform proposed in Component 2 and through a larger network of CBCRS partners. Moreover, this working group will provide as technical support under request for pilot project 3 in component 2.

196. A second working group (**restoration working group**), will lead restoration planning efforts along the river basin. This group will have close interaction with expert stakeholders working in the basin that may provide technical expertise in restoration campaigns, such as IUCN, that identified the restoration priorities in the Sixaola basin, or local municipal governments to ensure prioritized actions are in line with projected land use planning. This working group will inform the SAP elaboration, to consider restoration efforts and annual targets. This group will have close interaction with expert stakeholders working in the basin who can provide technical expertise in restoration campaigns, under the CBCRS which identified restoration priorities in the Sixaola basin, or local municipal governments to ensure that priority actions are in line with projected land use planning. Moreover, this working group will provide technical support under request for pilot project 2 in component 2.

197. A third working group (**pollution monitoring and control working group**), will coordinate the binational efforts monitor and control pollution and follow up pollution abatement actions by agriculture and tourism sector stakeholders and partners. This group aims to improve actions on riverine and coastal ecosystems through participatory processes that involve stakeholders that do not commonly work together. This will also increase the influence, and coordination role of the CBCRS. The project will take advantage of NGOs and international partners who have long worked in the region to select the best options to ensure the long-term operation of binational and collaborative riverine and coastal ecosystem pollution monitoring techniques.

198. A fourth working group (**early warning systems**) will support existing early warning systems for floods in both countries. This working group will inform the elaboration of the SAP with lessons and results from Component 3 (output 3.1.1).

199. In general terms, the tasks of these working groups would include:

- Mobilising local community participation for TDA and SAP development.
- Provide insights and facilitate information for the TDA development.
- Inform the SAP development with lessons and specific results from current Strategic Territorial Development Plan 2017-2021.
- Provide strategic technical support for the pilot interventions of Component 2; Component 3.
- Define the mechanisms aimed at promoting the adoption of best practices among agricultural producers to reduce pollution risks and mitigate the impact on shared marine, coastal and freshwater ecosystems.
- Design and strengthen binational mechanisms to control pollution of river and coastal ecosystems with state agencies, stakeholders and partners in agriculture and tourism.
- Promote riverine landscape restoration plans throughout the basin.
- Support the management of existing flood early warning systems in both countries.
- Mainstreaming gender issues in the whole process to address gender gaps and needs identified during TDA preparation.

Output 1.2.3. Strategy for awareness raising and engagement for discussion, consultation (if needed) and review of the SAP among key decision-makers, Indigenous Peoples, local governments and civil society.

200. The Strategic Action Programme will be discussed with Governments of Costa Rica and Panama and with key stakeholder groups (as indicated in Stakeholder Engagement Plan, IPPF and GAP). This output constitutes a critical step in the design and approval of the Strategic Plan, as a strong review process can provide the SAP with the required technical relevance and political legitimacy. This important phase of the design of the SAP will

provide the necessary buy-in and support by local society organizations, indigenous peoples organizations, social movements, NGOs, producers organizations and other stakeholders. Two levels of engagement will be distinguished under this output:

Local stakeholders

201. During the project preparation, a specific plan to engage with Indigenous Peoples was agreed and has been summarized in the draft Indigenous Peoples Planning Framework (IPPF, Annex 4e). The Stakeholder Engagement Plan, the IPPF and the Gender Action Plan (see Annex 4b, 4e and 4d respectively) provide greater details on how the project will work to ensure participation of civil society organizations, indigenous peoples, women groups and afro-Caribbean groups.

202. Once the project has produced a first draft version of the Strategic Action Programme, a series of consultation workshops will be organized, in close coordination with the CSCRS and its working groups. The mechanisms to involve working groups will be discussed with members organizations; preliminary, it is expected that working groups will be convenors by topic/theme.

203. The previous will be done by building on the convening power of the CBCRS, and thanks to the creation of over consultative bodies, such as the Indigenous Peoples Consultative Commission for indigenous peoples.

National and Binational partners

204. Once the draft version of the Strategic Action Programme has been amended and revised with key stakeholder groups and Indigenous Peoples, a final draft version will be prepared to submit to Ministries of Environment of both countries, and to the Secretariat of the Binational Agreement between Costa Rica and Panama.

205. This process will require strong advocacy work to enable created a common understanding of the environmental problems affecting the freshwater resources of the Sixaola river basin, and their social and economic effects. This consultation will take place at the binational and national level, and will be organized through workshops, contact groups and binational events.

206. At the end of the project, it is expected that the Strategic Action Programme must have been finalized and approved/endorsed at the highest level.

Output 1.2.4 Training of key stakeholders (public and private) on issues such as: ecosystem-based management of coastal and riverine ecosystems; indigenous peoples, and gender mainstreaming.

207. Additional to ecosystem-based and coastal and riverine management trainings, the project will design and deliver two critical trainings programmes: i) Indigenous Peoples rights; and, ii) Governance with gender perspective. These two core governance programmes will strengthen the capacities of the CBCRS to ensure an improved governance approach. A better understanding of these issues will allow a better implementation of the rest of the project activities, avoiding risk and potential conflicts.

208. The Project Coordinator will ensure that these training programmes include gender, indigenous sensibilities and social considerations, as indicated in the GAP and the IPPF in order to achieve target goals. Trainees will be followed-up to assess the impact of the courses, as part of the M&E Plan.

Output 1.2.5 Collaborative framework elaborated for financial sustainability and binational investments to ensure long term funding of bi-national, national and local coordination structures and operations.

209. The Strategic Action Programme 2022-2032 will need to be adequately resourced for its implementation. One of the vital components of the project is to develop the Investment Plan associated with the implementation of the Strategic Action Programme. This Investment Plan should identify public and private sources of financing (i.e multilateral, bilateral development banks, private sector), and create financial mechanisms that allow a permanent flow of resources for the implementation of strategic IWRM actions in the Sixaola River Binational Basin. In particular, the Investment Plan should identify concrete mechanisms to help strengthen the functioning of the CBCRS. The implementation of the SAP will require short term and medium-term funding, and these binational institutions require revenue generation in order to sustain their functioning and thus help strengthen

the IWRM in the Sixaola River Basin, which is the ultimate goal of this project. This revenue generation will require in turn a formal legal mandate to enable joint, binational, public and private investment with gender equality in the binational watershed.

Component 2. Demonstrative pilot projects stimulate collaborative work, replication and implementation and build capacity, experience and support for SAP implementation.

Outcome 2.1. Demonstrative pilot interventions implemented by local stakeholders and community-based organizations advance targets of the SAP and generate global environmental benefits in the SBRB.

210. This Component focus on generating practical lessons through three pilot interventions on key issues: (i) riparian forest restoration; (ii) sustainable plantain and banana production and iii) scaling up agroforestry with cacao production. The experience and lessons from these pilots will provide inputs to the TDA/SAP process and will serve to prepare governance instruments.

211. The COVID-19 pandemic had a wide range of impacts on the basin populations; not only on social and health aspects, but also on the economic dynamics: the export chain, the tourism, and others. The pilots will document pertinent impacts on each case to provide inputs to the TDA/SAP process.

212. This outcome is the implementation of three pilot projects in Costa Rica and Panama to reduce surface and groundwater pollution in the Sixaola River Basin, increase aquifer recharge through ecological restoration measures, rehabilitate coastal ecosystems, and optimize the availability of water resources.

213. As indicated in the Gender Plan, the pilots will involve women, women's groups and women's empowerment groups in specific activities. In addition, their participation will be sought in environmental education programs implemented through innovative investments and to maintain inclusive and gender-sensitive participation.

214. Indigenous Peoples will be beneficiaries and take part in the implementation of demonstrative pilots. These pilot projects foresee actions to be implemented with or in their territories. As indicated in SESP (annex 4a) and the IPPF (annex 4e), risk as mitigation measures will be taken to ensure Indigenous Peoples rights while implementing the pilot projects.

215. The project demonstrative pilots will involve groups that will contribute to the sustainability of specific actions to replicate best environmental practices throughout the basin. The technical support of the project is aimed at developing studies that give a comprehensive understanding of environmental problems, as well as to develop incentives with key stakeholders such as the private sector, to reduce this pollution.

216. The national subcommittees and the Executive Committee of the project will play an important role in the project pilots, seeking best available innovative solutions, sustainability mechanisms and scaling up to ensure lessons are incorporated, understood, and disseminated among stakeholders (see section VII Governance and Management Arrangements Section). As agreed by the stakeholders consulted during the project preparation, pilots have beyond national scope, a transboundary scope, seeking real binational cooperation. Either by the joint implementation of actions or the transfer of knowledge and capacities.

217. Under the project preparation phase an Environmental Social Management Framework (ESMF) was carried out to screen any possible risk related project implementation. A ESMP will be developed during project implementation.

Output 2.1.1. Pilot Project 1- Restoration strategy implemented to reduce erosion and pollution

218. Rivers usually form a bed or plain flooding; such is the case of the SBRB (**Figure 10**). These are flat areas on the banks of the river that are frequently flooded. Unless these margin areas are used intensively, frequent floods should not represent a threat, since are typically expected.[41]

41 Barrantes Castillo, G. and Vargas Bogantes, J. (2011). Flood Hazard Zoning as a Land Use Planning Tool in the Sixaola River Valley (original document in Spanish). Revista Geográfica de América Central Nº 46.

219. The natural process of erosion removes –through the power of wind and water– soil and rocks from land that are transported downstream as sediment through rivers. Understanding sediment transport and the conditions under which sediment is deposited or eroded from the various environments in a river, is critical to understanding and managing sediment and sediment-related habitat in rivers.[42]

220. The SBRB faces a process of erosion responding to drivers such as non-sustainable agricultural practices, the deforestation in the upper part of the basin, the geomorphology of the basin and the climatology, with heavy precipitation. According to the National Meteorological Institute, the average annual rainfall in the upper part of the Sixaola basin ranges from 1,500 to 2,000 mm, in the middle part from 3,000 to 5,000 mm and in the lower part from 2,000 to 3,000 mm (see **Figure 10** for details).[43]

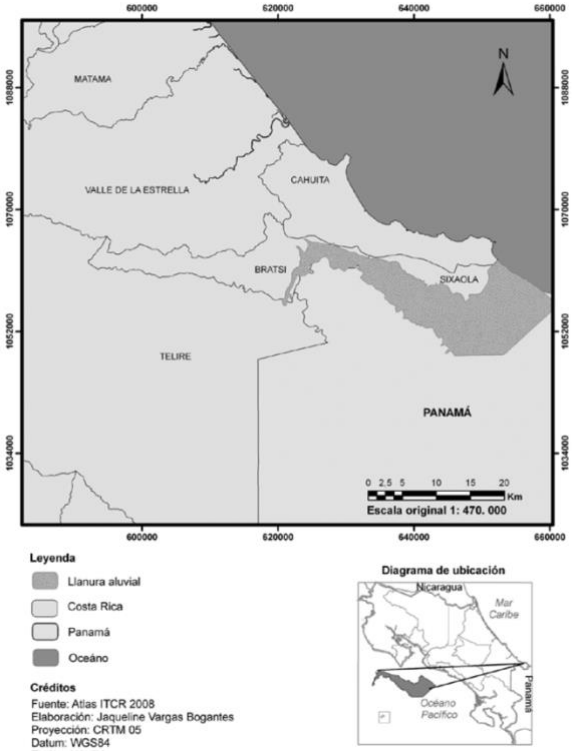


Figure 10. SBRB floodplain.

Source: Barrantes and Vargas, 2011.[44]

221. Erosion has various ecological consequences: Not only that fertile soil is removed from agricultural land and forest; but also, important amounts of sediments, decrease water quality of the river and the coastal ecosystems such as the coral reefs in Gandoca Manzanillo. Moreover, when heavy rain occurs, especially in short period of time, and encounters an important amount of sediments from erosion, the river expands to its floodplain causing damaging flooding. The SBRB is one of the most affected by constant and severe flooding, which occurs in its floodplain. The floodplain area is widely used for subsistence activities and agro-export. Historical flooding is reported on the Sixaola River in the years 1928, 1935, 1945, 1970, 1975, 1988, 1991, 1993, 2002, 2005 y 2008.[45]

222. Banana production monoculture has taken advantage of the rich sediment deposited in the floodplains of the Sixaola. A study elaborated in 2012 by ANAI (commissioned by the Sixaola Binational GEF Project),[46] indicated that from the community Zabala in Costa Rica and Tiger Hill in Panama downwards most of the Sixaola River alluvial valley had been heavily altered by banana activity for decades. However, population, agriculture production and infrastructure have been impacted with severe flooding in the past. Unless protected from flooding, vulnerable households, farmers, businesses and infrastructure are still at risk. Flood risk is expected to increase with climate change and extreme events from climate variability.

223. More extreme precipitation events also increase the frequency for flooding in susceptible areas. Extended periods of excess water during the agriculture growing period can lead to yield declines or crop losses. Also, wet soils can hinder field operations and animal agriculture activities.[47]

42 USGS. River Sediment Dynamics. Southwest Biological Science Center. Website, RL: (Accessed on the 3th of October 2020).
43 Rojas, N. (2011). Cuenca del Sixaola. Atlas de cuencas Hidrográficas. San Jose: IMN
44 Barrantes, G. and Vargas Bogantes, J. *Op. Cit.*
45 Idem.
46 ANAI (2012). Bio-monitoring results in the SBRB (2000-2011) and relationship with pollution sources. Proyecto Binacional Sixaola.
47 Swanston, C.W.; Janowiak, M.K.; Brandt, L.A.; Butler, P.R.; Handler, S.D.; Shannon, P.D.; Derby Lewis, A.; Hall, K.; Fahey, R.T.; Scott, L.; Kerber, A.; Miesbauer, J.W.; Darling, L. (2016). Forest Adaptation Resources: climate change tools and approaches for land managers, 2nd ed. US Department of Agriculture, Forest Service, Northern Research Station. 161 p. http://dx.doi.org/10.2737/NRS-GTR-87-2

224. A common practice to reduce the impact of the flooding, is to sustain functions of soil to maintain and improve the soil's function to infiltrate water and protect water quality in response to higher peak flows, runoff velocities, and soil erosion resulting from increasingly severe storm events.[48] Erosion management in riverbanks is one of the critical activities of such strategy. Although, a pilot project could never expect to entirely eliminate the risk of flooding it will help learn on how to improve the basin resilience, and reduce the devastating impacts on people's lives, rural communities, indigenous peoples and the local economy.

225. In Panama, the Ministry of Environment, though the national Sixaola River Basin Commission, has stablished a budget for reforestation on the lower part of the basin.[49] Moreover, several reforestation efforts have been taken in the past to reduce erosion of riverbanks; most of them, leaded by local NGO and international organizations (see box 3). Reforestation actions have been developed with species of trees useful for the conservation of the banks of rivers and streams, especially zotacaballo or guabino (*Zigia longifolia*), combined with a diversity of native wood and fruit tree species. Reforestation efforts have been documented since 1992.

Box 1. Restoration and reforestation efforts in SBRB.

- Project "Trees of Peace" (in 1992) developed in Costa Rica by the Association of Small Producers of Talamanca (APPTA), with international funds. This activity consisted of the planting of more than 2000 zotacaballo plants along the Costa Rican side of the Sixaola River, with the participation of international volunteers.
- ACBTC-UNDP Project (in 2012), carried out in coordination with the CoopeRio producers' associations (Margarita, Talamanca) and Asoparaíso (Paraíso). A total of 25,200 timber, fruit and bank conservation trees were planted.
- IDB-MAG/ACBTC Project (2013-2014), achieved the sowing of 98,712 plants (zoohorses, timber and fruit trees), from community from Chase to Sixaola. Thirteen reforestation days were held with producers and volunteers.
- First Binational Reforestation Workshop, (2014) organized by the IUCN/BMU-I project in the communities of Las Tablas and Paraíso.
- Second Binational Reforestation Day (2015) planting 2,650 trees in 8 farms in the basin. The species planted were zotacaballo, cenízaro, surá, guaba, medlar tree, almond and mahogany.
- Third Binational Reforestation Day (2016) in the communities of Margarita (Costa Rica) and Tiger Hill (Panama). Through this effort 3,830 trees were planted 2 farms and 6 schools.
- Forth Binational Reforestation Day (2018). A total of 3,605 trees, including timber, fruit and bank conservation trees. In Panama 1,945 trees were planted and in Costa Rica 1,660 trees. Species such as almond, cashá, ojoche, oak, jacaranda, guayacán, cortés negro, cortés amarillo, espavé, cocobolo, corotú, marañón curazao, guayaba, orange, grapefruit, guanábana, mamón chino, mamón verde, sota caballo, among others, were planted. The beneficiary communities were Sibube, in Panama, and Pueblo Nuevo de Olivia, in Costa Rica.

226. The majority of binational strategies followed an awareness raising approach which involved the support to integral farms; the organizations of binational reforestations day (around the celebration of the World Environmental Day in June) and the organization of agrobiodiversity fairs. These activities were co-organized by local NGO, Ministries of Environment and Ministries of Education of both countries.

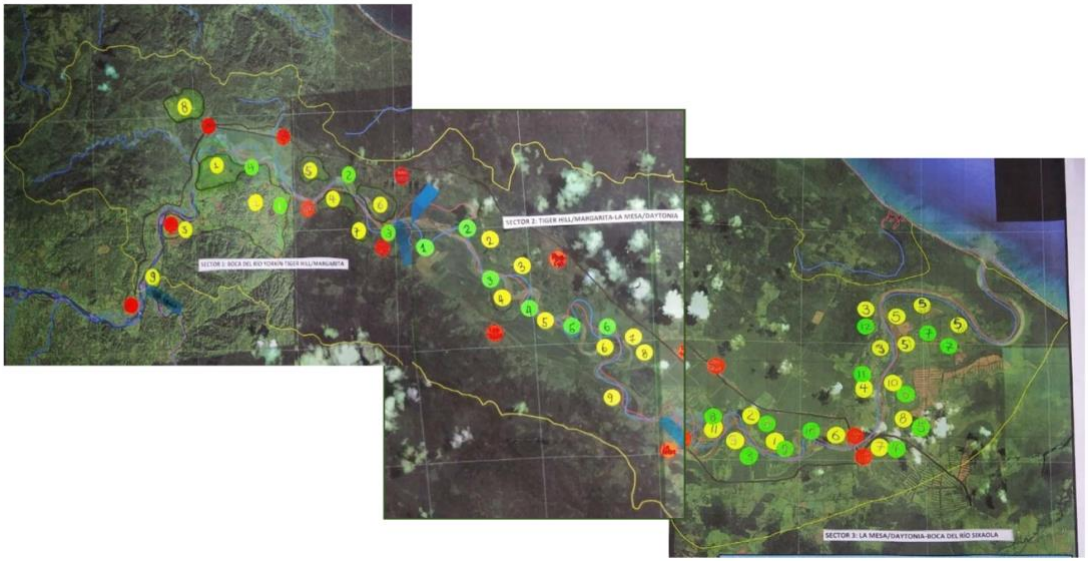
227. Although there are important efforts on restoration, none of the studies or reports have studied the role on women on restoration practices. This was also highlighted in the Gender Analysis.

228. The CBCRS and the IUCN commissioned in 2018 two technical studies for the design of a more integrative scalable restoration approach, that was elaborated by the ACBTC and other individual consultants: "Technical and methodological strategy for the implementation of binational reforestation and restoration campaigns of the Sixaola River Basin".[50] The consultancy build a participatory mapping of opportunities and priorities on restoration (Figure 11). This report was analyzed during the project preparation. Key design elements proposed in the scaling up strategy were: i) analysis of previous restoration efforts –quantitative and qualitative–; ii) understanding of common restoration methodologies; iii) impact with territorial actors; iv) strategic

48 USDA. Compendium of Adaptation Approaches. https://www.fs.usda.gov/ccrc/climate-projects/adaptation-approaches.
49 As indicated during an interview during the project preparation with the regional office of the Ministry of Environment, MiAmbiente, Panama.
50 Barquero, J., Carranza, J., Barrantes, JC, (2018). Estrategia técnica y metodológica para la realización de campañas binacionales de reforestación y restauración de la cuenca del río Sixaola. Consultancy Report. UICN.

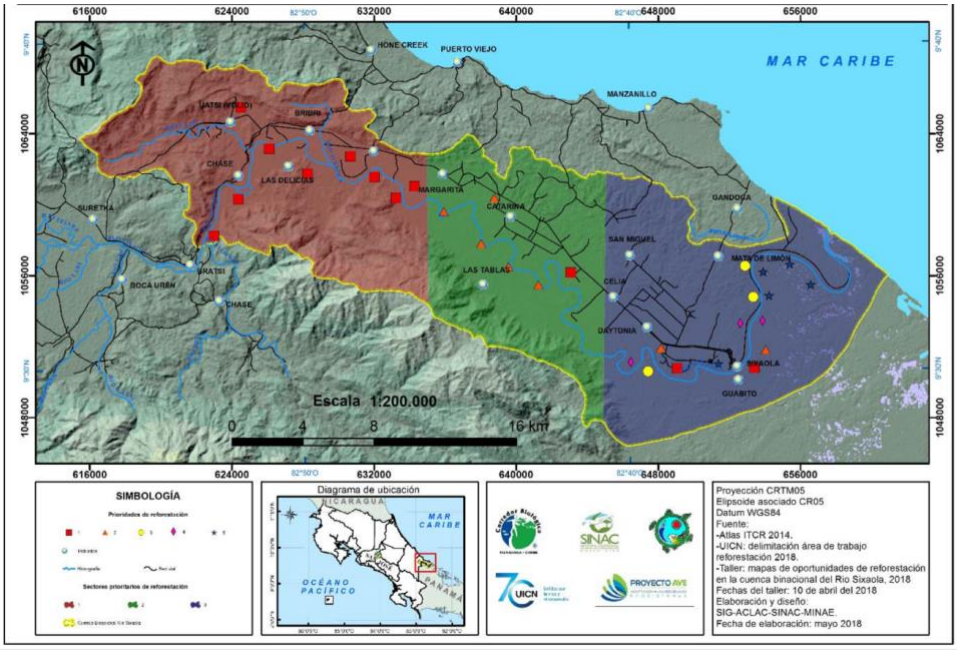
communication; and, v) governance. This report recommends that any restoration plan would benefit from giving continuity of previous activities with local and binational institutions, as well as with local organizations and the private sector. However, it is important to highlight that the focus of this strategy was mainly in the middle part of the basin, leaving the low part not fully covered, and with the gap of the interrelation of the coastal ecosystems and protected areas.

Figure 11. Results of participatory work to identify and map priorities and reforestation opportunities in the SBRB



Source: Barquero, Carranza and Barrantes, 2018.[51]

Figure 12. Map with reforestation priorities in the binational river basin.



Source: Barquero, Carranza and Barrantes, 2018.[52]

51 Idem
52 Idem

Description of the proposed pilot

The pilot will generate knowledge and lessons learnt to inform decision making to restore the gallery and riverine forest and coastal wetlands in the SBRB.

A synthesis of key drivers of erosion, deforestation and restoration elements as described above are:

- There is limited information and understanding of erosion process and specific drivers in the basin.
- Although there have been previous reforestation and restoration effort in the basin, these have not been fully articulated among government institutions. There is no plans, cooperation or goals around restoration among countries.
- The is a need to agree on the implementation of a pilot, based on previous information.
- Freshwater and coastal ecosystems are threatened due to erosion process in the basin, and transport of pollutants.
- The role of women in restoration processes has not been analysed. Women have not been fully considered in restoration efforts. neither in Costa Rica nor in Panama.

This pilot will capitalize on years of efforts by local organizations in reforestation, agroforestry systems and payment for environmental services, both in Costa Rica and Panama. The pilot project will work on the following strategic lines:

a) **Compile and generate a basic understanding of restoration techniques (riverine and coastal ecosystems) with stakeholders.**

This pilot seeks to encourage the application of nature-based solutions under the Ridge to Reef approach. Restoration practices have been carried out traditionally by Indigenous Peoples, with different purposes. Indigenous Peoples uses the biodiversity of forest as a source of food, as founded by several studies.

The pilot will work with ancestral authorities such as the Bulu and Bribri General Council as well as King Naso and General Congress Naso Tjërdi and the cacique of areas annexed to the Ngäbe-Buglé region in Panama and indigenous development associations: ADITIBRI, Indigenous Development Association of the Talamanca Cabecar Territory (ADITICA) and Indigenous Development Association of the Telire Territory (ADITELIRE), in Costa Rica to identify sites and communities to implement practices of biological corridors and restoration of river banks, using traditional knowledge and native species.

The pilot will follow an adaptive ecosystem-based management approach to implement restoration efforts on the basis of scientific, traditional indigenous knowledge and gender perspective (i.e., to determine species composition and distribution). Scientific and traditional restoration practices will be compiled in practical guidelines to orient and scale up restoration. In indigenous Territories, biological corridors will be promoted as indicated in the IPPF (Annex 4e). The previous will reduce the risk of future loss of investments due to climate change. Restoration efforts will be carried out using endemic species adapted to heavy rains and considering the cultural ecology of cultivated forests according to indigenous knowledge.

For the activities in this pilot invasive alien species (IAS) will not be used. And for ensuring the previous, during the design of this pilot project a selecting process to include the right species for ecosystem restoration, indigenous peoples will be consulted, and their ancestral knowledge of forest management and social water management will be considered as a technical input (as indicated above).

b) **Implement – at a demonstrative level – stabilization and consolidation techniques of riverbanks in the Sixaola River.**

The pilot will invest in restoration actions along the river basin and will support the incorporation of land management tools (micro corridors, live fences, among others). Folllowing technical guidelines, this pilot will restore gallery and riverine forest and coastal wetlands (mangroves, *Raphia taedigera, Prioria copaifera*). The specific sites will be defined together with stakeholders during the first year of implementation of the project. For these activities not invasive alien species (IAS) will be used.

c) **Strengthen the capacities of small producers and women to manage nurseries and implement restoration techniques.**

The pilot project will generate capacities and lessons on the implementation of a productive landscape restoration approach together with women and indigenous peoples as indicated in the Gender Action Plan and the Indigenous Peoples Participation Plan.

d) **Explore governance options to manage the Gandoca Manzanillo and San San Pond Sak wildlife refuges as binational wetlands of international importance.**

During the TDA phase of the project, specific studies are included to support the binational management plan for these two coastal wetlands. This management plan will reflect gender equity considerations in terms of equal opportunities for women in restoration practices.

The implementation of this binational management plan of Gandoca and San San Pond Sak wetlands could be an important recommendation to be incorporated under the Strategic Action Programme for the Sixaola River basin (2022-2032). The binational wetlands eventual recognition by the Ramsar Convention is in process, and its eventual approval would mean an important opportunity to develop a binational management plan for the Gandoca-San San Pond Sak wetland, incorporating proven practices of restoration, protection and sustainable use.

e) **Environmental awareness to local communities.**

Communication materials will be produced in several languages as appropriate to the target population. Materials will address the explanation and dissemination of restoration techniques. Communication materials, when possible, will be designed with children. All communication materials will give visibility to the role of women on restoration actions.

f) **Lessons and knowledge management.**

Together with local stakeholders generate lessons from implementation of the pilot. Specific lessons on stabilization and consolidation techniques of riverbanks in the Sixaola River will be systematized. Lessons from women, and from Indigenous Peoples will be collected and disseminated appropriately, according to the GAP and the IPPF.

Finally, a regional workshop will be held to share lessons and inform the elaboration of the SAP. Lessons learnt and knowledge from this pilot will inform the development a binational restoration strategy, to be integrated as a component of the SAP.

Important considerations on the implementation of this pilot are:

- As part of the gender action plan, sex-disaggregated data of women participation will be gathered.
- As part of the draft Indigenous Peoples Planning Framework the assessment and specific implementation of restoration actions in Indigenous Territories will be consulted trough the IPCC. The IPCC will assess if FPIC or Consultation will be needed.

A moderate risk on child labour could be a practice of beneficiaries of pilot projects is envisioned.

Particular attention will be given to ensure that no child labour is involved in activities associated with pilot projects N°2, N°3 and N°4 implementation, through the following measures:

- The UNDP Country Office and the PMU will promote strict compliance with the UNDP SES, and national legislation that prohibits child labour, through awareness raising about this issue in the sites and communities of pilot activities (in particular inviting to the CBCRS members), and training to Project staff, partners and consultants.
- Communication of the child labour prohibition will be included in the Terms of Reference for consultancies and services and included in all contracts.

- The PMU will ensure that all actions and service contracts impose the prohibition of child labour. The UNDP will ensure adequate compliance. Implementation of the monitoring plan will ensure oversight and reporting on adequate compliance with these measures.

- Instructions will be given and follow-up carried out with the stakeholders involved, especially the Project team, the conservation guarantors and the local organizations involved

There are no negative environmental risks envisioned under this pilot for indigenous populations. By contrast, positive environmental global benefits are envisioned.

Output 2.1.2 Pilot 2. Multi-stakeholder dialogue platform to promote and scale-up low polluting production best practices (banana and plantain)

229. Land use in the SBRB is heterogeneous (

230.

231.

232. **Figure *13***), with important differences from the upper part to the lower part. The upper part of the basin presents a forest cover of more than 90%. In the middle zone of the basin, there are the agroforestry uses, with subsistence agriculture, cocoa plantations and smaller plantain and banana farms. Wild food harvesting is a common practice of Bribri communities, so the forest is a critical resource for their livelihoods.[53] By contrast, agriculture is very developed in the lower part of the SBRB, where there are mainly banana and plantain monoculture extensive plantations.

233. The production of banana in the SRB faces important diseases, due to the extreme and humid climate. Besides using important amount of fertilizers, banana plantation also faces deadly diseases such as the fungus Fusarium. Moreover, it also faces the risk of new diseases such as *Fusarium oxysporum* ("Fusarium raza 4) which is a disease that produces the wilting of banana and plantain species. Currently there is no solution to this new disease, that is expanding from South America (currently prevalent in Colombia).

234. The SBRB, including surface and groundwater, receives important amounts of agrochemicals (pesticides, fertilizers) from different improper practices:

- *Diffuse pollution from improper aerial application of pesticides.* In one side, banana production use frequent aerial application of fertilizers, and the practice is common in the lower Sixaola valley. This common practice contributes to the diffuse, non-point sources of water pollution. Pollutants drain, from the middle part to lower part, and then to coastal wetlands, where freshwater biodiversity is significantly affected. The misuse of chemicals and agrochemicals has also led to accelerated soil degradation and widespread contamination of surface and groundwater in the Sixaola Basin. This is an immediate cause of environmental degradation to freshwater biodiversity.

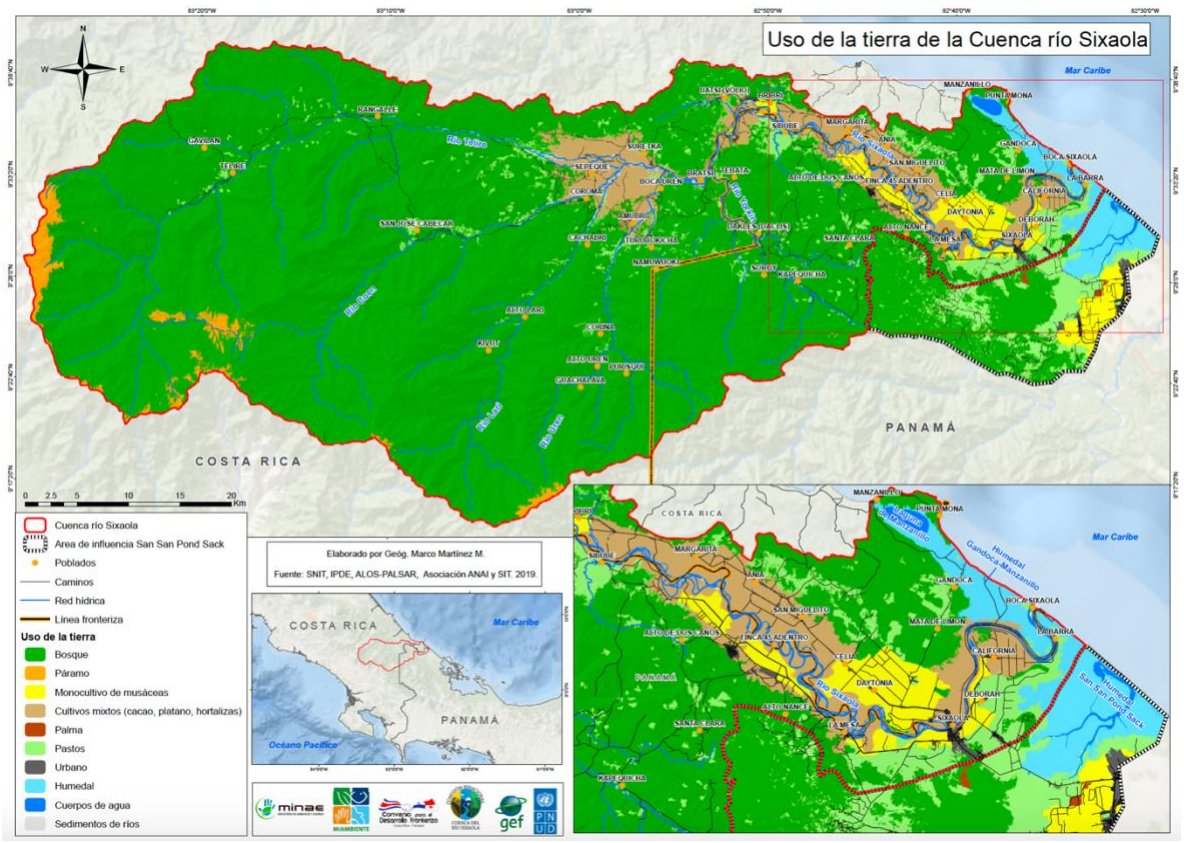
- *Discharge of untreated agricultural effluents*. Another major source of pollutant that impact the quality of surface waters and groundwaters in the Sixaola river basin are the untreated effluents. Banana plantations production systems require important investments in terms of drainage canals and culverts which discharge directly into tributaries of the lower Sixaola valley. These drainage systems contribute to increased runoff from agricultural fields and effluents with sediment loads containing traces of fertilizer and pesticides. This is turn increases the nutrient loading and the toxicity of surface waters in the lower Sixaola valley (See Annex 11 for the results of baseline biomonitoring and water quality analyses).

  Both, diffuse aerial pollution and discharge of agriculture effluents, affects ecosystems as reflected in the toxicity and loss of freshwater biodiversity in the lower sections of the Sixaola river, according to the baseline biomonitoring and water quality analyses reveal (See Annex 11). Concentration levels of critical pollutants in surface waters at 10 sample points measured during the PPG phase show highest concentration of total pesticides in surface waters near Gandoca Lagoon (2019 Value of 1,324µg/l), the Sixaola-Guabito International bridge (2019 Value of 0,0877 µg/l) and in the San San Pond Sak Lagoon (2019 value of 0.0646 µg/l). Presence of macro-invertebrates in sample points in the SBRB, range from a BMWP Index value of 110 in the upper tributaries of the Sixaola (Telire river) to BMWP index value of 5 in the lower Sixaola river (bridge between Sixaola and Guabito) and other water bodies downstream such as Gandoca lagoon (BMWP index value of 7) and San San Pond Sak lagoon (BMWP Index value of 9). The SBRB diffuse pollution of pesticides at the middle and low basin, from intensive agriculture has not been addressed by the agriculture sector nor been considered by any of the protected area management plans (GWP, 2016; BID Costa Rica, 2004).

- *Solid waste in waterbeds (blue bags).* Banana and plantain production use plastics to ripen bunches of bananas and plantains impregnated with pesticides. If these are disposed as trash without proper handling, these bags contaminate water bodies, reaching coral reefs with lasting impacts on marine life. There is no installed capacity in the area to handle and process these wastes, and there are no sanitary landfills or facilities to recycle these bags. The nearest facilities are more than two hours away, in the close canton of Siquirres, which is a serious problem for the project, as these bags have become a serious pollution problem for the basin's water system, mainly in the lower part.

[53] Sylvester O. and García Segura, A. (2016). Landscape Ethnoecology of Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica. *Journal of Ethnobiology*, 36(1):215-233. Society of Ethnobiology. DOI: http://dx.doi.org/10.2993/0278-0771-36.1.215;

Figure 13. Land use map in the SBRB.



Source: Elaborated during project preparation.

235. An agro-exporter model –highly dependent on agrochemicals use–operates in the area of the SBRB. Most of the banana production area and investments belong to large companies such as Bocas Fruit Company in Panama and the National Banana Corporation (CORBANA) of Costa Rica. Banana and plantain mixed plantations of the middle and upper basin are in the hands of small and medium farmers. Both, big companies and smaller banana producers use high doses of agro-chemicals and there is no tangible goal to reduce this usage.

236. Enforcement of environmental regulation is complex and needs the articulation of several institutions: the ministries of health are formally the authority to control pollution (Table 4), but can only monitor pollution from direct effluents. Aerial application of pesticides is regulated by the aeronautic authority, indicating that applications must occur with a safe distance from settlements. However, practical enforcement is lacking. Besides, diffuse pollution presents a gap in legislation in both countries.

237. However, there are certain examples of more sustainable banana farming in the area: The company Platanera Sixaola in Costa Rica, is a plantation which implements environmental standards and innovative practices and sells to a niche conscious buyer in Germany. Their farm was visited during the project preparation, to learn about their practices using organic fertilisers or managing drainage channels. The Cooperativa Bananera del Atlántico COOBANA (with 400 workers), uses Fair Trade Certification to guide its production. Their model, beyond environmental standards, promotes the wellness and education of workers' families. Both examples show that it is feasible and profitable to produce with higher environmental standards in the area.

238. If a transformation needs to occur in the SBRB, both the private (big corporations and smaller producers) and the public sector need to dialogue to discuss challenges, set targets, and learn from each other. An intersectoral collaborative action will be promoted by a multi-stakeholder platform for promoting a systemic change. This will be a permanent dialogue platform during the project. The project will prototype this mechanism and will evaluate its feasibility to expand after the piloting phase. Some of the functions for this platform (to be further discussed and agreed with sector and stakeholders), among others, are:

- Generate lessons and provide advice to the CBCRS.
- Promote sustainable practices for Musa spp. production in the basin.
- Share lessons learnt and facilitate technology transfer.

- Propose common targets for environmental progress in Musa production.
- Serve as a concertation dialogue mechanism among stakeholders.

239. A synthesis of key environmental degradation drivers to address by this platform are:

- Improper aerial application of pesticides causes diffuse pollution hard to control or manage.
- Discharge of untreated agricultural effluents hard to control or manage.
- Intensive production of banana and plantain is the single largest contributor to the toxic footprint in the surface and ground water SBRB, as per the water quality studies conducted during the PPG phases (See Annex 11).
- Decrease in water quality and biodiversity from upper to lower part of the basin (as showed through the water chemical analysis and the macro-invertebrate's study carried out during the project preparation).
- Insufficient capacity to handle and process blue bags.

Description of the proposed actions

240. The pilot will generate knowledge and lessons learnt to inform decision making to manage agriculture with more sustainable practices, based on a multi-stakeholder permanent dialogue.

241. The pilot would promote the adoption of better agricultural production practices by the producers of *Musa spp.* crops (banana and plantain). Moreover, the pilot aims to increase the level of knowledge and skills to adopt best environmental practices in plantain and banana production with gender perspective. The ESMF screening, indicated that the need for developing a waste management plan will be determined, during project implementation, according to discussions and agreements with the multistakeholder platform.

242. The pilot project will work on the following strategic lines:

a) **Partner with local organization to engage on dialogue multi-stakeholder platform.**

As indicated in the Gender Action Plan, gender focus will be considered to select farmers and producers.

b) **Farmer-to-farmer mentoring program**

The project will work with sustainable producers (i.e., Platanera Sixaola) and other experienced companies in low polluting practices and access to niche conscious markets. These companies will mentor and train other producers to improve their practices and access new markets.

According to the Gender Action Plan, a target program (lead by the multi-stakeholder platform) will focus on the implementation of sustainable production of *Musa spp*. This Program will initiate with the identification of farms (Musa producers) led and/or with women involved to implement low polluting production best practices.

c) **Held at least two dialogues per year with multi-stakeholder platform.**

Partners will work in close coordination with the project technical staff and local technicians from the Ministries of Agriculture on information transfer and extension services on alternatives to agrochemicals and/or on good practices in the use of agrochemicals, as well as on best sustainable production and sanitation practices for pollution prevention.

243. This pilot will involve working directly with the private sector, particularly banana companies in the area, through CORBANA in Costa Rica and with COBANA in Panama.

244. To engage relevant private sector stakeholders in the banana sector, the project will maintain contact with the Green Commodities Programme (GCP), a UNDP unit that leads the development of methodologies for multi-stakeholder processes that generate systemic change to achieve sustainable agricultural products. The advisory services provided by GCP will improve the strategy and forms of private sector involvement in the processes needed to address the root causes of the environmental and social externalities of banana production. GCP will also provide corporate engagement services with banana buyers to ensure alignment between banana purchasing policies in the binational basin and best practices promoted through SAP implementation.

245. Close attention will be paid to the emerging risks associated with the contagion of the Fusarium sp fungus which is currently affecting banana plantations in Colombia, and its potential implications in terms of increased

use of agrochemicals in the Sixaola River Basin. An increase in the use of agrochemicals associated with the emerging risk of contagion by Fusarium sp., would mostly likely annul any progress achieved by this pilot.

246. A moderate risk on child labour could be a practice of beneficiaries of pilot project is envisioned.

Particular attention will be given to ensure that no child labour is involved in activities through the following measures:

- The UNDP Country Office and the PMU will promote strict compliance with the UNDP SES, and national legislation that prohibits child labour, through awareness raising about this issue in the sites and communities of pilot activities (in particular inviting to the CBCRS members), and training to Project staff, partners and consultants.
- Communication of the child labour prohibition will be included in the Terms of Reference for consultancies and services and included in all contracts.
- The PMU will ensure that all actions and service contracts impose the prohibition of child labour. The UNDP will ensure adequate compliance. Implementation of the monitoring plan will ensure oversight and reporting on adequate compliance with these measures.
- Instructions will be given and follow-up carried out with the stakeholders involved, especially the Project team, the conservation guarantors and the local organizations involved

Output 2.1.3. Pilot 3- Scaling up agroforestry systems (with cocoa, banano and plantain production in the binational basin)

247. Two associations are the main producers of organic cocoa in the canton of Talamanca: the Association of Small Producers of Talamanca (APPTA) and the Association of the Bribri Indigenous Women of Talamanca (ACOMUITA). Recently a cooperative called Coopecacao Afro R.L. has been created and it is mainly articulated by Afro-Caribbean populations who live mainly on the coast of Cahuita, Puerto Viejo and Manzanillo.[54]

248. The Association of Small Producers of Talamanca (APPTA) is an indigenous people organization responsible for the industrialisation and marketing of cocoa mostly from organic farming, but also from so-called "organic cocoa". APPTA is located in Sand Box, 10 minutes from the Bribri district, it was founded in 1987 with the support of CATIE. APPTA has about 1,200 partners, including 995 certified organic producers by the certifying company Ecológica. According to the interviews conducted in 2016, 80% of the partners are women. Currently APPTA is no longer able to meet the high international demand for organic cocoa together with the Panamanian Cocoa Cooperative (COCAO), they have established a cross-border cooperation agreement. Today APPTA produces about 300 tons of cocoa and exports this certified cocoa in Europe.[55]

249. ACOMUITA is an indigenous Bribri women's organization which produces cocoa for the national and international market. ACOMUITA was born after the 1991 earthquake. The association was set up with the aim of bring together the Bribri women of Watsi and Shiroles villages to face the disaster. ACOMUITA was created to be a platform for policy impact that sought to "give a voice to the women" and the Bribri villages. ACOMUITA has become a key economic player bringing together today 89 associates, to whom the organization buys the cocoa at higher prices.[56]

Description of the proposed pilot

250. Based on the experience with small scale farmers, APPTA and ACOMUITA and others, will support the expansion and scaling up of agroforestry system with cocoa production in Talamanca. The pilot project will work on the following strategic lines:

a) Partner with local organization.

54 Chavarochette C. and Rodriguez T. 2020. «Les territoires du cacao biologique, alternatives productives et femmes indigènes, Talamanca, Costa Rica», Études caribéennes. URL: http://journals.openedition.org/etudescaribeennes/18486
55 Idem
56 Idem

Based on existing best practices in the region, the project will work closely with the extension programs of the Ministries of Agriculture, in Panama and Costa Rica, and the National Organic Agriculture Program of Costa Rica, which provides continuous efforts in organic cocoa and banana production with APPTA, COCAO, ACOMUITA, among other organizations.

b) Investment in post-harvest management processes, processing and agro-industrial production of cocoa and tropical fruits derivatives (powdered cocoa, cocoa nibs, dehydrated tropical fruits, among others).

Under this strategic line, the project will work with consolidated producer organizations in Talamanca (APPTA, and Multiple Services Cooperative Cacao Bocatoreña-COCABO), the ACOMUITA de Talamanca and the Bocas del Toro Artisanal and Cultural Agricultural Development Conservation Association (ACODAAC) to understand the feasibility of new investment in post-harvest management processing.

c) Rescue and protection of traditional cocoa varieties and expansion of native organic cocoa production under agroforestry systems in indigenous territories of the binational basin.

Particular importance will be given under this pilot to supporting the role of women in organic cacao production, and in the rescue and protection of traditional varieties of cacao in Talamanca. An increased role of women in the processing and packaging of organic cacao sub-products will also be promoted (50% of the 1,000 producers that are members APPTA are women) for its full-scale implementation during the Strategic Action Programme (2022-2032).

The following actions will be implemented:

- Creation of nurseries for the rescue and reproduction of traditional native cocoa and *Musa sp*. species (red plantain or *Red Macabu*)
- Promotion and strengthening of traditional agroforestry systems
- Incorporation of cocoa and native fruit trees in reforestation and soil recovery initiatives
- Horizontal exchanges and training courses between organic cocoa producers between Talamanca and Bocas del Toro
- Post-harvest processing and marketing of organic cocoa products.

251. Particular attention will be given to the involvement of indigenous women in the promotion of these restoration practices, with existing community-based organizations such as the Talamanca Indigenous Women's Commission Association (ACOMUITA), among others.

252. A moderate risk on child labour could be a practice of beneficiaries of pilot projects is envisioned. Particular attention will be given to ensure that no child labour is involved in activities associated, through the following measures:

- The UNDP Country Office and the PMU will promote strict compliance with the UNDP SES, and national legislation that prohibits child labour, through awareness raising about this issue in the sites and communities of pilot activities (in particular inviting to the CBCRS members), and training to Project staff, partners and consultants.
- Communication of the child labour prohibition will be included in the Terms of Reference for consultancies and services and included in all contracts.
- The PMU will ensure that all actions and service contracts impose the prohibition of child labour. The UNDP will ensure adequate compliance. Implementation of the monitoring plan will ensure oversight and reporting on adequate compliance with these measures.

Instructions will be given, and follow-up carried out with the stakeholders involved, especially the Project team, the conservation guarantors and the local organizations involvedComponent 3. Flood and risk management

improved

Outcome 3.1. Capacity of communities and local organizations to respond to flood risks in the Sixaola river margin is strengthened

253. This outcome seeks to capitalize on 20 years of flood risk management to build a binational early warning and monitoring system, with innovative approaches and citizen participation. The expected outcome of this component is to strengthen the capacity of local communities and organizations to respond to flood risks. This will be achieved through a scaling-up approach geared to the development of an early warning system (EWS) for floods to protect exposed communities.

254. Previous efforts of EWS have been operating in the Sixaola river basin. The first EWS in the Sixaola began in 1988 on the Costa Rica side of the watershed, followed Hurricane Joan. As the impacts of this event became evident, the National Emergency Commission (CNE) of Costa Rica took the first steps towards establishing early warning processes in conjunction with the communities of Sixaola and Valle de la Estrella. Following the April 1991 Earthquake, whose epicenter was in the Estrella River valley, the monitoring systems for landslides and flash floods were reinforced. Efforts involved the implementation of the first radio communication systems that, together with the National Meteorological Institute of Costa Rica (IMN), that facilitated warnings and alerts for hydrometeorological phenomena. As of 2011, although Costa Rica did not have EWS for floods per se, an institutional communications network was available and operational in the Sixaola and Estrella river basins.[57]

255. The current institutional communication network focuses on flood monitoring and it is implemented by the CNE. Among the beneficiary communities in Costa Rica are: Chase, Delicias, Margarita, Olivia, Puerto Cocle, Paraíso, Bribri, Guabito and Las Tablas, the latter two belonging to Panama.

256. These binational hazard monitoring efforts, and in particular flood monitoring in the Sixaola River Basin, have stagnated in recent years, although records of flood loss and damage in urban areas and agricultural plots in the middle and lower basins continue to occur regularly.

257. A baseline study was conducted during the project preparation phase, and a preliminary design and system of thresholds and triggering mechanisms for an improved EWS in the Sixaola Basin was proposed (see Annex 12 for full report).

258. Main conclusions of this baseline study show that a community-rooted EWS could address a variety of hydrometeorological hazards, in order to facilitate public education and raise risk awareness, disseminate messages and warnings efficiently, and ensure that a constant state of readiness and early action is enabled. Additionally, more precise hydro-meteorological information is needed; currently there is only one meteorological station in the basin.

259. Moreover, the baseline study identifies many opportunities to improve the quality of information by using systematic observation methods along with information from remote sensors and drones and their translation into protocols and emergency communications. Figure 14 shows the location of the meteorological station in Sixaola community and other locations proposed: in Amubri (Indigenous Territory) and in Gavilán Canta (in La Amistad International Park). The study also proposes the installation of a monitoring system to provide accurate information of the strengthening of the EWS (Figure 15).

260. The technical study highlights that in order to consolidate and upgrade the current monitoring system to an early warning system the project would need to:

a. Improve knowledge of disaster risks. Through systematic data collection and analysis to understand the nature and behaviour of hazards, as well as the identification of related vulnerable groups, with special attention given to women and indigenous peoples. The localization of critical infrastructure and exposed assets, to design evacuation strategies that include evacuation routes and safe areas, and to expand warning messages to include the most vulnerable and isolated communities.

b. Improve capacity for detection, monitoring, analysis and forecasting of hazards and potential consequences. To provide forecasts and warnings, including the development of specific

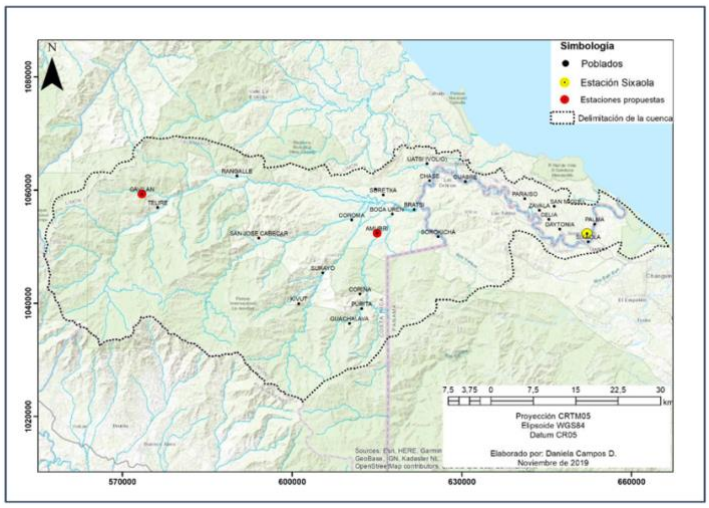
[57] UNESCO-CEPREDENAC 2011 Best Practice on Tsunami and Coastal Hazards Community Preparedness and Readiness in Central America and the Caribbean, 11–13 August 2008, Panama City, Panama, 44pp. 2008 (IOC Workshop Report No 241, UNESCO 2011) (English)

hydrometeorological models, as well as increasing automated hydrometeorological monitoring infrastructure to produce and deliver accurate thresholds for determining the activation of warnings at strategic sites in the binational basin.

c. Develop specific early warning dissemination and communication protocols. To ensure that warnings reach all people at risk in both countries with clear messages containing simple, useful and usable information to enable adequate preparedness and response of organizations and communities, using multiple communication channels and currently available technology.

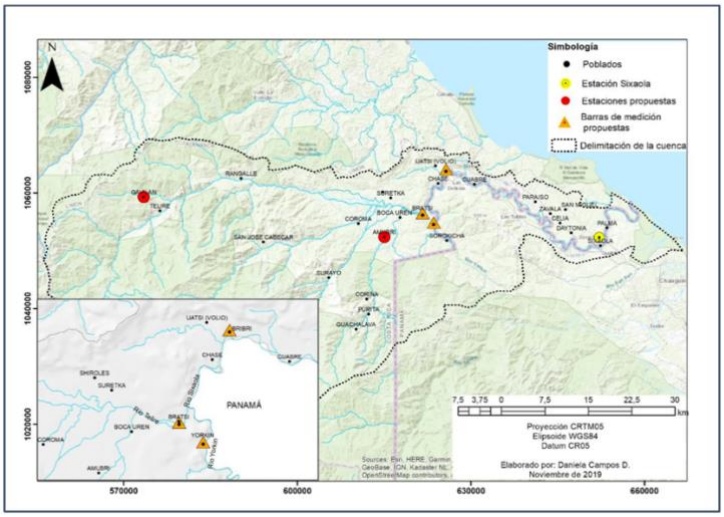
d. Strengthen local capacities so that people understand their risks, respect alert services and know how to react to alert messages. Riparian communities need to be organized and trained to apply simple monitoring tools, such as drones, to monitor flood waters, to complement and support automated monitoring mechanisms. It is key to stimulate the co-responsibility of the inhabitants in the maintenance of the EWS, particularly through the participation of educational institutions, women and youth organizations that can help create solidarity among communities. This includes increasing the organization and training of existing local emergency committees in charge of disaster management plans, determining guidelines for self-protection and safe behaviour, identifying available evacuation routes to safe areas, locating shelter locations, among other to reduce risks, damages and property loss.

Figure 14. Location of the Sixaola station (yellow) and two other proposed stations (red dots) in Gavilán Canta y en Amubri



Source. Project preparation documents.

Figure 15. Monitoring stations proposed to provide accurate information of the strengthening of the EWS. In orange the measuring bars.



Source. Project preparation documents.

261. Therefore, there are still significant needs for public and private investment to facilitate and strengthen disaster risk management and adaptation to climate change in the basin.

262. Based on the previous recommendations, this outcome propose the development of four outputs are proposed to strengthen and consolidate an early warning system (EWS) in the SBRB:

Output 3.1.1 *Feasibility study of the expantion of geo-spatial information and local hydrometeorological networks to provide real-time precipitation and flood information and improves knowledge of disaster risks.*

263. The main objective of this output is to analyse the feasibility to expand the network of hydrometeorological stations in the Sixaola river basin, particularly with new infrastructure located in the middle and upper basin. Noting that the potential installation of equipment of the network would need to be located in Indigenous Territories, the feasibility of this option will need to be discussed and analysed with indigenous peoples, as indicated in the IPPF.

264. This output will be carried out in close collaboration with the National Meteorological Institute, the MINAE Water Directorate and the National Emergency Commission. In Panama, work will be done with the National Civil Protection System (SINAPROC), the Electrical Transmission Company in Panama (ETESA) and the Tommy Guardia Institute. Discussion will be facilitated by the CBCRS. All together with a culturally relevant approach taking into account the ethnic and cultural diversity of the inhabitants, as well as the gender perspective that considers the differentiated role of women and men in disasters and enhances the role played by women as agents of change in these communities (See Annexes 4e, 4d). The articulation of additional scientific observation networks and hydrometeorological stations operated by universities or research centres (CIGEFI-UCR; -OACG-UCR and UNA-ECG) will be considered.

265. The meteorological and climatic information of the basin can also be complemented with observation networks using remote sensors and drones in high-risk critical areas, with LIDAR radar (Light Detection and Ranging o Laser Imaging Detection and Ranging) and multi-spectral applications that allow a detailed analysis of flood zones using both hydrological and geomorphological models. The combination of these sources of information will allow the generation of flood scenarios and simulations, to identify potential flood zones and thus better prepare response actions within the framework of an Early Warning System. The processing of information will be done through real-time communication systems, using a combination of media such as radios, mobile phone messages and social networks.

266. Early warning communication will be coordinated through the CNE in Costa Rica and the SINAPROC in Panama. Articulation will be supported by the basin committees in Changuinola and Guabito in Panama and the Municipal Emergency Committees of Talamanca.

Output 3.1.2. Protocol development and strengthening of binational communications and local communities in the Sixaola Binational River Basin.

267. The CNE in Costa Rica and the SINAPROC in Panama will jointly develop a series of flood response protocols that will form the legal and technical basis for a binational Early Warning System. Protocols were discussed and validated with Indigenous Peoples according to the IPPF. These protocols will incorporate a series of substantive changes in the use of digital information, through access to maps and accurate information on flood-affected areas, with the potential for more sequential updates during an Emergency Declaration.

268. This strengthening of access to public information is also due to Costa Rica's open government policy and Panama's National Authority for Transparency and Access to Information (ANTAI) and the Escazú Agreement.

269. The result indicator is the number of alerts generated by the Early Warning System that combine traditional knowledge and acquired skills training programs in both countries with gender perspective.

Output 3.1.3. Development of capacities to manage the early warning system based on a resilience approach.

270. The proposal for the development of community capacities to manage EWS based on a resilience approach is based in a top-down approach which is proposed for the generation of the workshops, that is, the process on how the EWS empowerment is articulated from the institutional level towards the communities through the identification of community leaders (Table 8). This proposal aims to empower communities in flood monitoring mechanisms in the basin. The techniques for capacity building that are proposed to be developed in the workshops are the following.

271. According to the GAP, women leaders will be identified and trained to improve their capacities.

Table 8. Proposed phases for the development of community capacities for the management of the early warning system based on a resilience approach

Phase I	Phase II	Phase III
- Coordination between the institutions CNE, SINAPROC, municipal and community Emergency Committees in Costa Rica and Panama. - Presentation of the proposal of the SAT to articulate the training processes	- Approach to the key communities, i.e. those where the installation of the stations and the bars of measurement would be done - Establishing contact with the community leaders such as a means of linking the institutional sector and communities	- Coordination of workshops for capacity building in the key communities - The coordination of the workshops should be developed to through the link at local level (community leaders)

Output 3.1.4. Binational Investment Plan for flood risk management in the basin

272. This output will be carried out through the National System of Public Investment of the Ministry of Planning and Economic Policy of Costa Rica and the National Directorate of Public Investment of the Ministry of Economy and Finance of Panama, in close coordination with the CNE and SINAPROC.

Based on the feasibility study, (output 3.1.1), the implementation of a Binational Early Warning System will require significant investments, particularly in equipment and communications. This output will generate a Binational Investment Plan for Risk Management and Early Warning Systems in the Sixaola River Basin as the main product; this will complement on-going infrastructure investments around the binational bridge and customs at Sixaola. The Plan will address the following needs.

- Expanding and strengthening the hydrometeorological observation network in the basin.
- Increasing public investments in civil protection and civil works against floods between Costa Rica and Panama
- Exploring nature-based solutions to mitigate the impact of flooding through wetland management and riverbank restoration
- Investing in communication systems and an information portal on risk and adaptation to climate change in the SBRB.

273. Investment solutions to be implemented in Indigenous Territories will be discussed with the IPCC. Moreover, they will be discussed with women groups.

274. Additionally, this Output will seek to mobilize the necessary resources and formulate project identification factsheets for each solution.

275. Therefore, there are still significant needs for public and private investment to facilitate and strengthen disaster risk management and adaptation to climate change in the basin.

Component 4. Knowledge management

Outcome 4.1: Improved knowledge, practice and aptitudes of key stakeholders regarding binational collaborative action to restore coastal and riverine ecosystems; control pollution and reduce vulnerability to flood risks.

276. The project will focus on knowledge management, ensuring broad stakeholder participation in defining and systematizing best practices and lessons learned. The knowledge documents will be culturally adapted and translated into the indigenous languages of the binational basin, and the technical documents will have English summaries to facilitate international access to them. Documentation will be shared via the project website, national and regional websites and IW: LEARN. The project website will be developed and maintained following the IW: LEARN guide. Project experience will be documented and disseminated using the GEF IW templates for experience notes and outcome notes. Country representatives and the project team will participate in IW: LEARN meetings and international water conferences.

277. This fifth outcome makes up component 4 of the project and constitutes an instrumental component that will work in the service of the first three components described above. It will seek to improve the quality of the information available on the basin and its water resources and make it available to a maximum number of users both within and outside the basin, in Costa Rica and in Panama. This outcome will be composed of four outputs:

Output 4.1.1 Best practice and lessons from the pilots systematized, accessible and available to all stakeholders in the region, translated and in culturally adapted formats and shared through international platforms on International Waters such as IWLearn.

278. This output will seek to disseminate information and general knowledge to a broad public, both nationally and internationally. The lessons learned by the project will be systematized and good production practices with low water footprint and solid and liquid waste management in the basin will be documented. This Output will seek to disseminate these experiences, practices and tools generated by the project by a range of virtual media, printed documents, graphic arts, interactive maps, video documentaries, mobile applications. These knowledge products will also be disseminated internationally through specialised knowledge platforms such as IWLearn.

279. This output will seek to provide more specific information for a national and local audience, specifically aimed at decision-makers at the local level. This information will contain key data and information for IWRM on the climate and hydrology of the Sixaola River Basin, and on the risks and threats, populations and development assets exposed to periodic flooding as well as productive activities affecting water quality in the basin. This information will be translated into easy-to-understand formats and presentations for local actors. These lessons learned will also subsequently inform the formulation of the Strategic Action Programme.

280. The actors to whom the information will be directed include local actors such as mayors, municipal councils, district councils, community development associations, indigenous development associations, regional and provincial government agencies, high schools, technical colleges and schools. Dissemination mechanisms will include the use of communication media such as radio stations, public campaigns, posters, brochures and maps.

281. In terms of dissemination and training, it is expected to count on the collaboration of Public Universities with local facilities, such as the UNED, in the online training of local actors, as well as the “Escuela para Todos” Radio Program of the Central American Institute for the Extension of Culture (ICECU).

Output 4.1.2. Monitoring and evaluation system of project impact indicators, including the technical design and piloting of a binational monitoring system for the basin water resources.

282. A critical element of integrated water resources management is timely and reliable information on the state of water resources, their availability and geographical distribution, and their quality. This output aims to design a binational water quality monitoring system in the Sixaola River Basin. It will build on existing biomonitoring experience of the Basin that has been carried out since 1997 by the ANAI, a Non-Governmental Organization within the framework of the Talamanca-Caribbean Biological Corridor.

283. The National Water Laboratory of the National Institute of Aqueducts and Sewers (LA-AyA) of Costa Rica is responsible by law for conducting water quality analyses of drinking water sources in the basin and in particular of the rural aqueduct supply sources administered by ASADAS. The National Institute of Aqueducts and Sewers (IDAAN) of Panama is in charge of monitoring groundwater quality, in close coordination with the Directorate of Water Security of the Ministry of Environment of Panama (MiAMBIENTE). In the baseline established in the framework of the preparatory phase of the project, basin sampling points and a first analysis of surface water quality were established (see Annex 11 for full report). It is expected that project monitoring and evaluation system generate gender differentiated information and impact indicators for decision making It is expected that the Monitoring System will be able to support public laboratories (Observatory of Water and Global Change, School of Geography-University of Costa Rica; Research Group on Stable Isotopes - School of Chemistry-National University, Regional Institute of Studies on Toxic Substances of the National University IRET- National University), particularly to analyse with isotopic tracers the characteristics of aquifer recharge and to carry out physical-chemical analysis to periodically determine the quality of surface waters and their load of persistent organic pollutants. The results of this collaboration will also provide key inputs for the National Water Laboratory of the National Institute of Aqueducts and Sewers in Costa Rica, and for the ETESA in Panama in their effort to standardize and increase the range and frequency of the water monitoring system.

Output 4.1.3. Website for dissemination of lessons and best practices, populated with information about the basin and its user, linked to partners portals and IW:LEARN.

284. This output will seek to create the official communication channel of the Binational Project, through a website dedicated to IWRM in the Sixaola river basin. The website will be managed from the project´s main offices within the framework of the Sixaola River Basin Binational Commission. All the activities and initiatives conducted by the project can be disseminated from the website. Also, a geoportal service with all the cartographic and documentary information compiled and generated by the project will be hosted on the website. It is hoped that most of the data recollected from project activities will be differentiated by sex, and that the training and capacity development efforts set forth by the project will help increase the number of women involved in skills training programs.

Partnerships

285. These main project partners will be part of the Project Board along with UNDP Costa Rica and UNDP Panama. The project partners are:

286. In Costa Rica: i) Ministry of Environment and Energy (MINAE) and ii) Ministry of Planning and Political Economy. The Ministry of Environment and Energy (MINAE) will be the main national counterpart of the project and will coordinate day to day activities through its regional office SINAC-ACLAC. The Ministry of Planning and Economic Policy (MIDEPLAN) will also be a key partner, as it houses the Secretariat of the Bilateral Agreement for the Border Region Development.

287. In Panama: i) Ministry of Environment (MiAmbiente) and ii) Ministry of Economy and Finance. The Ministry of Environment (MiAmbiente) will be the main government entity of the project in Panama and will also provide local counterparts to the project in the Bocas del Toro regional offices and through its Water Security Directorate at the national level. The Ministry of Economy and Finance (MEF) will be another key entity in Panama, in particular as it houses the Secretariat of the Bilateral Agreement for the Border Region Development.

288. At the binational level, the Secretariat of the Bilateral Agreement for Border Region Development, is the governing body for the entire border region between Costa Rica and Panama. The Secretariat will play a key oversight and facilitation role in matters related to bilateral relations between both countries.

289. Moreover, the CBCRS will act as the forum of key stakeholders involved in the project. As a convenor it brings together both national and local government agencies, producer organizations, Indigenous Peoples organizations, NGOs, among others. As details in the IPPF, an Indigenous Peoples Consultative Commission (IPCC) will be established for the purpose of the project, which will work in close coordination with the CBCRS.

Strategic allies

Key entities in Costa Rica

290. The Ministry of Agriculture and Livestock (MAG) which will be involved in several of the pilot activities under Outcome 3. The National Emergency Commission (Comisión Nacional de Prevención del Riesgo y Respuesta a Emergencias -CNE) which will be mostly involved in designing and managing the Early Warning System in the Sixaola River Basin. The Ministry of Health (MINSA) will be involved strategically in one of the working groups of the CBCRS, on monitoring and control of pollutants. MINSA will also be key at providing guidelines to the development of Pilot project 1.

Key entities in Panama

291. The Ministry of Agricultural and Livestock Development (MIDA) will also play a key role with the productive sectors under Outcome 3. Finally, the National Civil Defense System (Sistema Nacional de Protección Civil - SINAPROC) will be a key entity in Panama, involved in the design and management of the Early Warning System against floods in the Sixaola River Basin.

292. Close collaboration is expected with Ministries of Environment of both countries on key ongoing projects (as listed in sub section Project Coherence and Binational Cooperation in the basin). This will be key to take advantage of their experience and information generation.

Risks

293. The following risks to successful project implementation are known at the time of the project document development. The unknown risks will be dealt with on an ad hoc basis in line with UNDP and GEF best practices. A "Risk mitigation log" will be kept throughout project implementation and will be initiative by the Regional Project Coordinator in the inception phase of the Project in the Sixaola river basin. In Annex 5 can be found the UNDP Risk Register which includes both the Social and Environmental Risk Screening Checklist according to established UN standards.

Table 9. Project Risk Management Matrix

Risk	Type	Level	Mitigation measures
Risk 1. Political instability could affect the implementation of actions at country or regional level	Political	Low	Both Costa Rica and Panama have for the past decades benefitted from political stability. The presence of UNDP Country Offices in both countries with direct access to senior government officials also will help to address emerging issues early on, through the project steering committee.
Risk 2. Lack of priority given to International River Basin Management in national policies and agency decision-making	Strategic	Medium	The Bilateral Cooperation Agreement for Border Development between Costa Rica and Panama provides a solid framework for the work of the Binational Commission of the Sixaola River Basin (CBCRS). This legal and political structure provides the basis for increased transboundary cooperation, which will be enhanced/strengthened through the implementation of the SAP 2022-2032.
Risk 3. The complexity of interventions for SAP preparation without effective coordination between both countries could limit the expected results	Organizational	Medium	The TDA will enable the project management to identify weaknesses in bilateral sectoral coordination mechanisms and will provide recommendations for specific remedial actions in order to strengthen capacities in both countries for the coordination of activities under the SAP.
Risk 4. The increase in the use of pesticides and fungicides to combat the spread of the Fusarium disease among banana and plantain producers in the lower Sixaola river basin.	Environmental	Moderate	The *Fusarium oxysporum* is a disease that produces the wilting of banana and plantain species. It is currently prevalent in Colombia, and there is fear of it spreading to Panama and Costa Rica. This would most likely constitute a direct threat to the aims of the project to contribute to reducing the among of pesticide use in the Sixaola river basin. During its TDA phase, the project will need to focus on innovative approaches to combating this disease, which may include the introduction of fungus o disease-resistant plant varieties, and other techniques that do not require more intensive applications of pesticides and fungicides to banana plantation.
Risk 5. Poorly designed, including the disregard of indigenous knowledge, or not consulted activities in the pilot project N°1 could damage critical or sensitive habitats, including through the introduction of invasive alien species during forest restoration activities. The lack of consultation with indigenous peoples could affect the local appropriation and in consequence, the sustainability of restored areas.	Socio-Environmental risk (SESP Risk 1)	Moderate	The pilot project N°1, will invest in restoration actions along the river basin and will support the incorporation of land management tools (micro corridors, live fences, among others). For these activities, invasive alien species (IAS) will not be used. And for ensuring the IAS no use, during the design of this pilot project a selecting process to include the right species for ecosystem restoration, indigenous peoples will be consulted, and their ancestral knowledge of forest management and social water management will be considered as a technical input (see details in PRODOC Output 2.1.2) (all the previous based on the project's Stakeholders Engagement Plan tools/actions – PRODOC Annex 4b and for respecting Standard 6, a Indigenous People Planning Framework (IPPF) is included in – PRODOC Annex 4e). The promotion of agricultural best practices will include knowledge kits to train producers and project partners on the impacts of invasive species on ecosystems and traditional indigenous tropical forest production systems, including water management knowledge.
Risk 6. Deforestation by foreign non-indigenous settlers in the upper watershed (protected areas and indigenous lands) continues and this reduces the benefits of	Socio-Environmental risk (SESP Risk 2)	High	The project will consider active coordination with environmental authorities and indigenous organizations to control deforestation resulting from illegal land occupation. The ESMP should give special consideration to this situation.

ecosystem restoration and flood risk mitigation with a negative impact to all human settlements in the middle and lower part of the basin.			
Risk 6: The risk that the Strategic Action Programme (SAP) is not properly consulted and appropriated by the population.	Socio-Environmental risk (SESP Risk 3)	Substantial	The process of formulating the SAP will consider participation and consultation with indigenous peoples, territories and communities, their rights to land and management of their natural resources. With this purpose, an Indigenous Peoples Consultative Commission (IPCC) will be set to facilitate a permanent dialogue with the project management team and to ensure that these participatory and consultation processes will be conducted with an intercultural approach that doesn't impact the rights and identity of indigenous peoples located in the Sixaola river (details are provided in the IPPF, included in PRODOC Annex 4e). Targeted activities to ensure gender equality and women's empowerment are included in the GAP (PRODOC Annex 4d) and will be carried out for the SAP development process. Inclusion of local stakeholders, especially women, and Afro-descendant's communities in the SAP consultation process will reduce the risk that rights-holders do not have the capacity to claim their rights. Therefore, content will be pedagogically mediated, to reach the local population, with an intercultural approach. Moreover, a Stakeholders Engagement Plan was also prepared during PPG (PRODOC Annex 4b), with main stakeholders that were categorized defining the best approach and tools to work with them. Finally, important to emphasize that the TDA/SAP process will be carried out following the Strategic Environmental and Social Assessment (SESA) approach (see PRODOC Output 1.1.1). The ESMP should give special consideration to this situation.
Risk 7: The risk that the potential results or products of the project are vulnerable to the potential impacts of climate change.	Socio-Environmental risk (SESP Risk 4)	Substantial	The project will invest in restoration actions in previously prioritized areas through baseline investments (pilot N°1). IUCN has defined sites to restore in the basin (see PRODOC Output 2.1.2.). These sites will be selected once started project implementation using methodologies that include climate change variability as a selection input. The screening of possible risks related to pilot projects was analysed through the Environmental Social Management Framework (ESMF). Moreover, a SESA will be carried out during project implementation. The final areas for restoration located in indigenous territories should be consulted with the IPCC which will oversee participation and consultation processes. The previous will reduce the risk of future loss of investments due to climate change. Restoration efforts will be carried out using endemic species adapted to heavy rains and considering the cultural ecology of cultivated forests according to indigenous knowledge (see related actions mentioned above and correspondent actions in PRODOC Output 2.1.2.).
Risk 8: The absence of FPIC and culturally adapted consultation processes on project activities, could lead to social conflict.	Socio-Environmental risk (SESP Risk 5)	Substantial	As proposed and agreed during the PPG (explained in the IPPF - PRODOC Annex 4e), during project implementation, an Indigenous Peoples Consultative Commission (IPCC) will be established under the Project Organization Structure (PRODOC section VII), which would provide permanent advice on consultation, inter-cultural approach, FPIC and conflict management in project implementation, including pilot projects. During the 6 first months of the project it will be determined which interventions will need consultation and/or FPIC, and the IPCC will continue during all project execution and will be responsible to evaluate the need of consultation and/or FPIC for all new activities. The Project will provide resources and technical supporting staff if required, for consultation and/or FPIC processes. The project participation and consultation system based on an IPCC, as included in the IPPF, corresponds to what is established in both

			legislations and it has been agreed with the national indigenous authorities (National Coordination of Indigenous Peoples of Panama and National Indigenous Board of Costa Rica and territorial organizations). And it complies with UNDP's SES requirements.
Risk 9: Risk of producers disposing their no longer used chemicals in water sources.	Socio-Environmental risk (SESP Risk 6)	Moderate	As indicated above, an ESMF was prepared in order to screen the possible risks associated. For pilot 2, the ESMF screening, indicated that the need for developing a waste management plan will be determined, during project implementation, according to discussions and agreements with the multistakeholder platform. The project participation and consultation system based on an IPCC, as included in the IPPF, corresponds to what is established in both legislations and it has been agreed with the national indigenous authorities (National Coordination of Indigenous Peoples of Panama and National Indigenous Board of Costa Rica and territorial organizations). In both countries, the right of consultation is defined in recent regulations (Law 37 of 2016 in Panama and Decree 40932 MP MJP of 2018 in Costa Rica). In Costa Rica through the Indigenous Consultation Technical Unit of the Ministry of Justice and Peace and the Territorial Consultation Bodies in the Sixaola River Basin and in Panama through the Vice-Ministry of Indigenous Affairs and the territorial authorities.
Risk 10: Installation of an additional meteorological station without agreement with indigenous peoples may generate conflict (PRODOC outcome 3.1.).	Socio-Environmental risk (SESP Risk 7)	Low	A proposed location for these stations as included in Figure 17 and 18, based on studies carried out during the project preparation. In the event that they are finally located in indigenous territories, consultation and/or FPIC will be required, which will be discussed with the IPCC. The project must ensure the surveillance and maintenance of hydro-meteorological stations, both in technical and financial terms including an agreement with indigenous territorial organizations. The land where they are located must be outside flood risk areas.
Risk 11: Risk of economic displacement if activities to implement restoration practices under Pilot project 1 imply that productive activities must be displaced. The project finances restoration activities for non-indigenous entities or individuals in indigenous territories (i.e.: wood harvesting, livestock, forest food harvesting, among others that represent incomes).	Socio-Environmental risk (SESP Risk 8)	Low	In coordination with the IPCC, the project will establish appropriate compensation measures in case of economic displacement. To mitigate risks related to economic displacement, the project will not finance non-indigenous persons or entities located within the limits of titled or claimed indigenous
Risk 12: Risk of unapproved access and traditional forms of knowledge without sharing benefits.	Socio-Environmental risk (SESP Risk 9)	Moderate	In all cases involving the use and dissemination of indigenous traditional knowledge, whether or not with commercial uses, the rules for the protection of rights shall apply and consultation through the IPCC shall be required. Moreover, in the case that benefits were foreseen through communication products, practices or solutions, based on indigenous knowledge, a benefit sharing process will be discussed with the IPCC.
Risk 13: If the Pandemic emergency is prolonged, it will affect the onset of the project implementation. Participatory and consultative processes foreseen during project implementation; if	Socio-Environmental risk (SESP Risk 10)	Moderate	The impact of the COVID 19 virus has been global in scale and will impact most transboundary interactions between Costa Rica and Panama for months to come. During TDA preparation, team will work hand in hand with the Secretariat of the Bilateral Cooperation Agreement for Border Development

they do not consider the constraints posed by the pandemic, could lead to increased infections.			between Costa Rica and Panama to assess the risks related with the closing of the border and the potential emerging barriers to the project implementation. The use of mask will be in place for pilot implementation, meetings and field visits, as any other sanitary restriction by Panama and Costa Rica. Moreover, exchanges of experiences will be carried out in smaller groups and/or virtually if necessary. Provisions should be made so that social bubbles are respected, and project officials move from one place to another considering the risks of virus spread. Particular attention will be paid to the protection of the most isolated indigenous communities and any activity on indigenous lands must be approved by the territorial authorities through the IPCC. As far as possible, virtual means of communication will be used. The project will support the different stakeholders to have access to them.
Risk 14: The Project may potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits.	Socio-Environmental risk (SESP Risk 11)	Moderate	During PPG a Gender Analysis was conducted and a Gender Action Plan (PRODOC Annex 4d) for the project was designed to reduce this risk and ensure the development of each activity ensures full and equal participation of women. As detailed in the GAP, environmental and social problems faced by indigenous women and women workers in the agricultural sector and local water management will be systematized. The project will also strengthen women capacities for restoration activities, and on the implementation of sustainable practices and early warning systems. (See GAP in Annex 4d for details on activities). A Gender Specialist will be hired to lead the implementation of the GAP. A specific budget has been allocated for the implementation of the Gender Action Plan.
Risk 15: The activities of pilot project 1 and 3 could imply disrespect for workers' labour rights.	Socio-Environmental risk (SESP Risk 12)	Moderate	Through the implementation of the ESMF and subsequent ESIA/ESMP, the project will ensure that workers in productive projects (pilot 3), ecosystem restoration (pilot 1) and stakeholders participating in dialogues to reduce the use of agrochemicals have all the rights granted to them by national and international legislation and that they are not subjected to health risks. Particular attention will be given to ensure that no child labour is involved in activities associated with pilot projects N°1, and N°3 implementation, through the following measures: The UNDP Country Office and the PMU will promote strict compliance with the UNDP SES, and national legislation that prohibits child labour, through awareness raising about this issue in the sites and communities of pilot activities (in particular inviting to the CBCRS members), and training to Project staff, partners and consultants. Communication of the child labour prohibition will be included in the Terms of Reference for consultancies and services and included in all contracts. The PMU will ensure that all actions and service contracts impose the prohibition of child labour. The UNDP will ensure adequate compliance. Implementation of the monitoring plan will ensure oversight and reporting on adequate compliance with these measures. Instructions will be provided, and follow-up carried out with the stakeholders involved, especially the Project team and the local organizations involved.

¡Stakeholder Engagement

294. During project preparation, a stakeholder's analysis and engagement plan were elaborated (Annex 4b). The PMU will coordinate this plan, and together with the monitoring and evaluation specialist will monitor and assess the indicators of the plan. The stakeholder's engagement plan includes the grievance mechanism for the project.

295. The COVID-19 context could prevent stakeholders' participation. Then, biosecurity plans for meetings to be developed during the implementation of the project. The implementation of virtual meetings will be also considered.

296. There are 77 institutions and local organizations were listed as relevant to its implementation in both countries. Of these, most are private institutions and local NGOs. The least represented are social organizations and public local institutions and international cooperation. Both Costa Rica and Panama have national key stakeholders represented but there are existing binational institutions or instances, such as the Secretariat of the Binational Agreement for the Development of the Border Region between Costa Rica and Panama, and the CBCRS identified as relevant to the scope of incidence of the project. Most of these actors have an average influence on the project, just as most have a high interest in its implementation.

297. Within the 77 stakeholders identified, there are 3 most relevant groups, who should be given attention and establish a specific strategy for their follow-up during the different phases of project execution. For detailed information, refer to the Stakeholder Analysis of the Sixaola River Basin project (See Annex 4b). The groups identified as key players due to their level of influence and interest in the project:

- Binational instances and national institution present of in Sixaola River Basin
- Local actors for the implementation of pilot interventions in each site.
- Indigenous Peoples
- Private sector

298. Indigenous peoples and private sector will be critical to project implementation and success.

Indigenous Peoples

299. ***Indigenous Peoples.*** Representatives of the indigenous peoples of Panama and Costa Rica participate in the CBCRS. They are the following:

• The Ngäbe people, represented by the chief of areas annexed to the Ngäbe-Buglé County.
• The Naso people, through their ancestral authorities, the Naso king and the Naso Tjërdi General Congress.
• The Bribri people through their ancestral authorities, the Bulu and the Bribri General Council.
• Association for the Comprehensive Development of the Bribri Indigenous Territory (ADITIBRI).
• Association for the Comprehensive Development of the Keköldi Indigenous Territory (ADIKEKÖLDI).
• Association for the Comprehensive Development of the Cabécar de Talamanca Indigenous Territory (ADITICA).
• Association for the Comprehensive Development of the Cabécar Indigenous Territory of Telire.

300. These organizations are integrated into the CBCRS and participate in its assemblies. However, this is not sufficient to ensure the fulfilment of their specific rights, both collective and individual.

301. In relation to the project, the integration of an Indigenous Peoples Consultative Commission (IPCC) is recommended. See more details in the IPCC regarding the functions suggested for the IPCC. Gender parity is recommended for the members of the IPCC as mentioned in the Gender Action Plan.

302. Although risk mitigation and impact measures and intercultural strategies to address the problems of territorial governance, ecosystem restoration, social water management and risk management are considered, institutional capacities are key, in conceptual and instrumental terms to reduce these risks. From this perspective, and within the framework of a process of mitigating risks and negative impacts and a long-term perspective of sustainability, it will be necessary to implement a series of activities as detailed in the IPPF.

Private sector

303. **Private Producers Organizations.** The lower Sixaola river valley is also an area of intensive agricultural production, mostly of banana and plantain. This mainly monocropping activity also involves a number of private producers' organizations, both large and small. These organizations account for almost a third (24) of the total of 77 stakeholders identified in the Sixaola river basin. These range from large international companies with similar production operations in other part of the region, to medium sized cooperative and associations of small holder producers. The diversity of agricultural systems ranges from large monocropping intensive export-oriented production, through medium and small holder monocropping of banana plantain. These systems co-

exist with, particular in the middle and upper sections of the Sixaola river basin, with small holder indigenous and afro-descendant traditional polyculture of cacao, banana, plantain and fruit trees. These agroforestry systems are also increasing adopting modern techniques, including pesticide and fertilizer use.

304. Small community-based producers are also critical for strengthening existing traditional systems of agroforestry based on limited external inputs, organic and endemic varieties.

Gender Equality and Women's empowerment

305. This is a crucial component of the project, as the Project is located in peripheral regions of both Costa Rica and Panamá, where gaps in gender equality are the greatest. The Sixaola River Basin also is a region with a high cultural diversity, and where intersectional gender analysis is particularly relevant, as indigenous women or women of Afro-Caribbean descent face particular challenges for their full empowerment and human development. In Annex 4d, the full gender equality analysis as well as the Gender Action Plan or the project can be found for reference.

Summary of Gender Analysis

306. Main gender gaps identified during project preparation are:

- The economic situation of women due to the marked sexual division of labour, significantly affects women in the basin.
- Data from Costa Rica shows that more than a quarter of agriculture farmers are women: in Talamanca (32.5%). However, there is unequal distribution of payments on farms. Permanent payment for agriculture producers is approximately 70% men, against 30% women while for temporary work only 40% of women are paid. Women's unemployment rate in the Huetar-Caribbean region in Costa Rica is increasing. From households living in poverty (around 11% in Huetar Caribe in 2015) there is a significant difference (+4-5%) households headed by women than men. Additionally, women spend 35:49 hours per week on unpaid domestic work, while men spend 13:42 hours on average, in other words, women contribute 22 hours more than men to unpaid domestic work (Costa Rica).
- Regarding health gender gaps, pregnancies in girls and adolescents are overwhelming. Moreover, the access to health centres and hospital for indigenous women is low. The maternal mortality rate remains stagnant.
- Political participation in local governments still has serious gaps that need to be filled. Recurrently, the position of mayor (chair of the local government) is mostly held by men; women have been elected as deputy mayors.
- Limited information of how environmental pollution affects women and the role of women in IWRM.

307. The gender analysis shows how gender gaps persist in Panama and Costa Rica for indigenous, Afro-descendant and rural women living around the Sixaola River Basin. Despite the fact that they mostly work in agricultural production, their capacities to formalize in the market are limited, given the limited access to health and education services, they are more exposed to the impacts of disasters, rates of teenage pregnancy and intra-family violence prevail, less participation in local water resource management, among others.

Summary of Gender Action Plan

308. Beyond the importance of profound gender gaps in the basin, this project will focus on strengthening the role of women (indigenous, Afro-descendent and rural women in Costa Rica and Panama) in IWRM of the basin, with emphasis on their role on governance and decision making of future projects and investments in the basin. It will collect data on problems faced by indigenous women and women workers in the agricultural sector and local water management. It will also strengthen women capacities for restoration activities, the sustainable practices and early warning systems. (See GAP in Annex 4d for details on activities).

309. A Gender Specialist will be hired to lead the implementation of the GAP and will coordinate with the PMU specialists to implement the activities. This specialist will also work jointly with the M&E specialist to ensure the proper monitoring of Gender Action Plan Indicators.

310. A specific budget has been allocated for the implementation of the Gender Action Plan. (see Annex 4d)

South – South and Triangular Cooperation

311. The present project is based on south-south cooperation (SSC). The project expresses the interest of Costa Rica and Panama to coordinate common problems. The backbone of the project is the preparation of the Transboundary Diagnostic Analysis and the Strategic Action Programme/Plan for the Sixaola river basin.

312. The project includes a series of actions for joint development and for the exchange of knowledge, experience and lessons among authorities and key stakeholders. UNDP will catalyse this process by facilitating access to global experiences and motivating alliances among project participants.

Innovativeness, Sustainability and Potential for Scaling Up

313. This project will provide a unique opportunity to build on existing sustainable practice within the Sixaola river basin, as well as within both bordering countries. The upscaling of these efforts will be essential to achieve the overall longer-term objectives of the SAP. The proposed IWRM project for Sixaola river basin is specifically aimed at catalysing the implementation of the broader SAP through increasing the capacity of those who will ultimately be implementing watershed management at the regional and national level.

314. In addition to catalysing the implementation of the SAP 2022-2032, the project proposes specific actions aimed at encouraging and facilitating the uptake of lessons learned and the replication of scaling up of best practices. In particular, the fifth component of the project focuses on Knowledge Management and will be instrumental for the scaling-up of best practices, through the sharing of knowledge and tools.

Replicability

315. The binational project in the Sixaola river basin will create the supporting platform required for such future replication and up-scaling within the immediate area of influence of the project, for instance in the adjacent river basins such as the La Estrella river in Costa Rica and the Changuinola river in Panama, which share similar geographical and agricultural characteristics with the Sixaola basin. But the project will also provide useful opportunities for scaling at the national level, in both Costa Rica and Panama, as it will strengthen the institutional framework of the CBCRS as per Component 1. The project will also contribute to the strengthening of the human and institutional capacity under Component 2, promoting innovative approaches to IWRM, waste management and sustainable agriculture through demonstrative pilots. Under Component 3, the project will seek to test and replicate solutions for binational flood risk management and will also support enhanced science and knowledge management for enhancing governance at the national and regional levels under Component 4.

316. During the TDA phase of project implementation, there will be limited activities related to the promotion of innovation, sharing of knowledge and the scaling up of best practices in waste management and sustainable agricultural production. Additional outputs are designed to be linked to enable up-scaling and replication through the development process. Capacities for this increase in take-up of innovative practices will be developed, through awareness raising and hands-on training of local municipal staff, professional water managers, small hold producers and other key stakeholders working in the Sixaola river basin, in both Costa Rica and Panama.

317. This will provide the basis for substantial expansion of the actions needed to achieve the overall SAP objectives and more fully contribute to the SAPs overarching long-term goal. In the medium to long-term, is when up-scaling will be able to contribute to the gradual expansion of the scope of IWRM area approaches to fully integrate water management into development processes in the Sixaola river basin.

318. In this way, the project is also expected to contribute to global environmental benefits during the next decade, by testing innovative approaches to freshwater management across national boundaries, through different sectors in applied situations, refining these approaches based on lessons learned, and sharing of these through regional and global water management exchange network with as IW Learn, among others.

Alternative scenario

319. The GEF contribution will accelerate progress towards IWRM in the binational basin by building the basis for collaborative regional management. Based on previous experience and ongoing initiatives, the project will contribute to strengthening the binational cooperation framework for coordinated action to address key problems within this transboundary river basin and adjacent areas. The key contributions will be: (i) increased regional cooperation, (ii) enhanced protection of globally important biodiversity, (iii) reduction of transboundary and terrestrial pollution of marine ecosystems, and (iv) flood risk reduction and ecosystem-based adaptation to climate change.

320. The alternative scenario will consist of agreed binational measures and governance agreements to address the main common problems that threaten the coastal and marine biodiversity of the binational basin and adjacent areas. Joint action is expected to reduce risk factors and contribute to conserving valuable biodiversity and sustaining the range of ecosystem services this river basin provides to Costa Rica and Panama.

V. PROJECT RESULTS FRAMEWORK

321. The proposed Project Results logical Framework matrix presents the most relevant elements and contents of the project components, outcomes and outputs.

This project will contribute to the following Sustainable Development Goal (s): Goal 5: Achieve gender equality and empower all women and girls; Goal 6 (6.6): Ensure access to water and sanitation for all; Goal 13 (13.1, 13.3): Take urgent action to combat climate change and its impacts; Goal 15: Sustainably manage forests, combat desertification, halt & reverse land degradation & high biodiversity loss.				
This project will contribute to the following country outcome (UNDAF/CPD, RPD, GPD): **Costa Rica. Output 1.4.1** Solutions scaled up for sustainable management of natural resources, including sustainable commodities and green and inclusive value chains. **Output 3.1** expects non-governmental organizations, social movements, environmental organizations and community-based or productive organizations to strengthen their capacity to organize and generate sectoral proposals for the enforceability of rights, mainly of the most excluded groups and in conditions of vulnerability. **Panama: OUTCOME 3.2:** By 2020, the State has strengthened its capacities to design and implement policies, plans and programs that contribute to environmental sustainability, food and nutrition security, adaptation to climate change, disaster risk reduction and resilience build-up.				
	Objective and Outcome Indicators	**Baseline**	**Mid-term Target**	**End of Project Target**
Project Objective: Strengthen transboundary multi-stakeholder action in the Sixaola River Basin shared by Costa Rica and Panama to restore riverine and coastal ecosystems, reduce pollution from agricultural production and reduce risks from hydrometeorological disasters	**Indicator 1 (mandatory/ GEF core indicator 11):** # Direct project beneficiaries disaggregated by gender (individual people). *See related indicator: SAPI 1	**Total: 0** CRI: women: 0; men: 0 PAN: women: 0; men: 0	**Total: 5,000** CR: women: 2,000; men: 2,000 PAN: women: 500; men: 500	**Total: 30,000** CR: women: 12,000; men: 12,000 PAN: women: 3,000; men: 3,000
	Indicator 2 (mandatory): # Indirect project beneficiaries disaggregated by gender (individual people) *See also related indicator: SAPI 2	**Total: 0** Costa Rica: women: 0; men: 0 Panama: women: 0; men: 0	**Total: 6,000** CR: women: 2,400; men: 2,400 PAN: women: 600; men: 600	**Total: 37,000** CR: women: 13,000; men: 13,000 PAN: women: 5,500; men: 5,500
	Mandatory GEF-7 Core Indicators			
	Indicator 3 (GEF7 Core Indicator 3): Area of land restored (Million hectares)	0 Ha	1,000Ha	3,000Ha
	Indicator 4 (GEF7 Core Indicator 4): Area of landscapes under improved practices (Million hectares)	0 Ha	300Ha	1,000Ha
	Indicator 5 (GEF7 Core Indicator 7): Number of shared water ecosystems under new or improved cooperative management (*7.1. Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation*).	1 = No TDA/SAP	2 = TDA finalized	3 = SAP endorsed at ministerial level

Project Component 1	Governance instruments improved for joint integrated management of the Sixaola Binational River Basin.			
Project Outcome 1.1. *Common understanding of the transboundary water and environmental issues, challenges and opportunities with gender perspective affecting the SBRB and agreed strategy for basin restoration and protection*	**Indicator 6:** Level of access to and common understanding of transboundary environmental and IWRM related problems all key stakeholders, as a result of the elaboration of the TDA. *See also related indicator: GAPI 1 and SAPI 3.	There is not updated information on the transboundary environmental and IWRM related problems of the SBRB: Moreover, the available transboundary information (generated by previous GEF project) is not publicly accessible.	The formulation of the Transboundary Diagnostic Analysis with gender perspective has been completed with updated inputs from all stakeholders involved.	The Transboundary Diagnostic Analysis is accessible with gender perspective serves as a key input for the formulation of the Strategic Plan for the Sixaola River Binational Basin 2022-2032.
Outputs to achieve Outcome 1.1.	Output. 1.1.1 Transboundary Diagnostic Analysis (TDA) of the Sixaola River Basin prioritizes threats to this bi-national watershed identifying their immediate and root causes as technical input to preparation of the SAP; Output 1.1.2 Transboundary Diagnostic Analysis available at the national (Costa Rica and Panama), sub-national, municipal and community levels			
Outcome 1.2. The Binational Commission of the Sixaola River Basin (CBCRS) role as a facilitator of IWRM actions by public and private sector stakeholders is strengthened and builds upon an and agreed strategy to attend the environmental issues, challenges and opportunities affecting the Sixaola river basin.	**Indicator 7:** Number of binational projects identified together with key stakeholders and included in the Strategic Action Programme 2022-2032. *See also related indicators: GAPI 2 and SAPI 4	The baseline refers to the existence of a Strategic Plan for Transboundary Territorial Development 2017-2021	At least 3 joint projects identified to be included in the SAP. (See also GAP indicator 2) At least 1 project proposed in the SAP, address issues affecting differently women and/or impact positively their empowerment for IWRM.	At least three other joint projects with gender perspective have been identified, and a total of 6 have been incorporated through participatory and consensus processes into the Strategic Action Programme.
	Indicator 8: The Strategic Action Programme including a chapter to increase women´s participation and key stakeholders for the strengthening of the IWRM in the Sixaola river basin has been designed , validated with stakeholders, and endorsed at the ministerial level.	Existence of a Strategic Plan for Transboundary Territorial Development 2017-2021.	Mid-term Targets: A technical team is commissioned with formulating the Strategic Action Programme (2022-2032) Key stakeholders, including women, are involved in design of SAP	End of Project Target: The Strategic Action Programme (2022-2032) has been designed, validaded through a participatory process, and endorsed at ministerial level. Key stakeholders with emphasis in women involved in consultation process of SAP.
	Indicator 9: A new legal framework for CBCRS enables joint public and private investment, ensuring gender empowerment and reducing differentiated risks and impacts on women in the SBRB. *See also related indicator: GAPI 3	*Rating for legal framework: 0* *The current CBCRS needs formal legal mandate to enable joint, binational, public and private investment with gender equality in the Sixaola river basin.*	*Rating for legal Framework: 2* Legal agreement under development	*Rating for Legal Framework:4* Legal agreement ratified and functional

Outputs to achieve **Outcome 1.2**	Output 1.2.1 Strategic Action Programme (SAP) for the period 2022-2032 developed and endorsed at ministerial level by the Permanent Binational Commission of the Border Development Agreement (the commission is chaired by the Ministers of MIDEPLAN and MEF). Output 1.2.2 Four inter-institutional and multisectoral coordination working groups *convened* by the CBCRS; Output 1.2.3 Strategy for awareness raising and engagement for discussion, consultation (if needed) and review of the SAP among key decision-makers, Indigenous Peoples, local governments and civil society. Output 1.2.4 Training of key stakeholders (public and private) on issues such as: ecosystem-based management of coastal and riverine ecosystems; indigenous peoples, and gender mainstreaming. Output 1.2.5 Collaborative framework elaborated for financial sustainability and binational investments to ensure long term funding of bi-national, national and local coordination structures and operations			
Project Component 2	Demonstrative pilot projects stimulate collaborative work, replication and implementation and build capacity, experience and support for SAP implementation.			
Outcome 2.1 Demonstrative pilot interventions implemented by local stakeholders and community-based organizations advance targets of the SAP and generate global environmental benefits in the SBRB.	**Indicator 10:** Improved management of the river margins of the Sixaola river basin through forest landscape restoration action	Number of improved land management tools implemented:0	Number of improved land management tools implemented: 10	Number of improved land management tools implemented:20
	Indicator 11: Improved farms with improved management thanks to the articulation of the Multi-stakeholder dialogue platform mentoring program.	0 farms with improved low polluting production best practices implemented	25 farms with improved low polluting production best practices with gender equality	50 farms with improved low polluting production best practices with gender equality implemented
	Indicator 12: Improved water quality in the Sixaola river basin. See PPG baseline analysis of water quality in Annex 11.	BMWP Index: 110 (Telire river) BMWP index: 5 (Bridge between Sixaola and Guabito) BMWP index: 7 (Gandoca lagoon) BMWP Index: 9 (San San Pond Sak lagoon) Gandoca Lagoon (2019 Value of 1,324µg/l) Sixaola-Guabito bridge (2019 Value of 0,0877 µg/l) San San Pond Sak Lagoon (2019 value of 0.0646 µg/l).	0%	25% of sample points show an improvement in the presence of macro-invertebrates in surface waters, with total count above 60 in the BMWP index 25% of sample points measurements reach legally acceptable concentration levels of pollutants, with no sample points with measurements of total pesticide concentrations of above 0.05 µg/l
	Indicator 13: Level of knowledge and skills to adopt best environmental practices in plantain and banana production with gender perspective (from 0 to 4)	No best practices (adopted)	2 best practices with gender equality partially adopted	4 best practices with gender equality broadly adopted and shared
	Indicator 14: Percentage of women participating in pilot demonstration interventions *See also related indicators: GAPI 5, GAPI 7, and SAPI 6	There are civil society organizations active in the Sixaola river basin with significant participation of women. But few are working in an articulated fashion. This baseline will be completed during the TDA.	Increase by 50% in the number of smallholder female agricultural producers involved in pilot demonstration projects.	Increase by 100% in the number of smallholder female agricultural producers involved in pilot demonstration projects.

Outputs to achieve Outcome 3	Output 2.1.1 Pilot 1. Restoration strategy implemented to reduce erosion and pollution; Output 2.1.2 Pilot 2. Multi-stakeholder dialogue platform to promote and scale-up low polluting production best practices (banana and plantain); Output 2.1.3 Pilot 3. Scaling up agroforestry systems (with cocoa, banano and plantain production in the binational basin).

Project component 3	**Flood and Risk Management improved**			
Outcome 3.1. Capacity of communities and local organizations to respond to flood risks in the Sixaola river margin is strengthened.	**Indicator 15:** Number of communities in both sides of the border linked through the early warning system. See also related indicator: GAPI 9	0	20	60
	Indicator 16: Number of alerts generated by the Early Warning System that combine traditional knowledge and technical scientific information. Note: Conditioned to the materialization of hazards in the basin.	0	4	10
	Indicator 17: Percentage of women involved in the binational EWS skills training program. See also related indicator: SAPI 7	0	30	50
Outputs to achieve Outcome 3.1.	Output 3.1.1 Feasibility study of the expansion of geo-special information and local hydrometeorological network to provide real-time flood information and improves knowledge of disaster risks; Output 3.1.2 Protocol development and strengthening of binational communications and local communities in the SBRB; Output 3.2.3 Development of capacities to manage the early warning system based on a resilience approach; Output 3.1.4 Binational Investment plan for flood risk management in the SBRB.			
Project component 4	**Knowledge management**			
Outcome 4.1. *Improved knowledge, practice and aptitudes of key stakeholders regarding binational collaborative action to restore coastal and riverine ecosystems; control pollution and reduce vulnerability to flood risks*	**Indicator 18:** Number of users accessing the digital content of the Project (social media and website). (disaggregated by gender).	0	1000	5000
	Indicator 19: Number of initiation or closing workshops with key national and local stakeholders. See also related indicator: SAPI 8	0	2	5
	Indicator 20: Project monitoring and evaluation system generates gender differentiated information and impact indicators for decision making	O	2 impact indicators developed	4 impact indicators developed and monitored
Outputs to achieve Outcome 4.1.	Output **4.1.1** Best practice and lessons from the pilots systematized, accessible and available to all stakeholders in the region, translated and in culturally adapted formats and shared through international platforms on International Waters such as IW:Learn; Output **4.1.2** Monitoring and evaluation system of project impact indicators, including the technical design and piloting of a binational monitoring system for the basin water resources. Output **4.1.3** Website for dissemination of lessons and best practices, populated with information about the basin and its user, linked to partners portals and IW:LEARN.			

VI. MONITORING AND EVALUATION (M&E) PLAN

322. The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex details the roles, responsibilities, and frequency of monitoring project results.

323. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

324. Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the GEF Monitoring Policy and the GEF Evaluation Policy and other relevant GEF policies. The costed M&E plan included below, and the Monitoring plan in Annex, will guide the GEF-specific M&E activities to be undertaken by this project. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

Additional GEF monitoring and reporting requirements:

325. Inception workshop and report: A project inception workshop will be held within 60 days of project CEO endorsement, with the aim to:

a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
c. Review the results framework and monitoring plan.
d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
g. Plan and schedule Project Board meetings and finalize the first-year annual work plan.
h. Formally launch the Project.

326. GEF Project Implementation Report (PIR): The Binational Project Coordinator, the UNDP Country Office and the UNDP-GEF Regional Technical Advisor will make an objective contribution to the annual GEF PIR, which will cover the reporting period from July (previous year) to June (current year) for each year of project implementation. The Binational Project Coordinator will ensure that the indicators included in the project results framework are monitored annually prior to the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

327. The GEF Core Indicators: The GEF Core indicators included as Annex will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR and TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent ground truthing. The methodologies to be used in data collection have been defined by the GEF and are available on the GEF website.

328. Independent mid-term evaluation: The terms of reference, the review process and the final MTR report will follow the standard templates and guidance for GEF-financed projects available on the UNDP Evaluation Resource Center.

329. The evaluation will be 'independent, impartial and rigorous'. The evaluators that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project under review.

330. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/NCE Directorate.

331. The final MTR report and MTR TOR will be publicly available in English and posted on the UNDP ERC by November 2022. A management response to the MTR recommendations will be posted to the ERC within six weeks of the MTR report's completion.

332. Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion fo al major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance for GEF-financed projects available on the UNDP Evaluation Resource Center.

333. The evaluation will be 'independent, impartial and rigorous'. The evaluators that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

334. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/NCE Directorate.

335. The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by (add date included on cover page of this project document). A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

336. Final report: The project terminal PIR, together with the TE report and the corresponding management response, will serve as the final project report package. The final project report package will be discussed with the Project Board during an end-of-project meeting to discuss lesson learned and opportunities for scaling up.

337. Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy and the GEF policy on public involvement.

Table 10. Monitoring and Evaluation Plan and Budget

Monitoring and Evaluation Plan and Budget:			
GEF M&E requirements	Responsible Parties	Indicative costs (US$)	Time frame
Inception Workshop	OET NGO (implementing partner) PM/Coordinator/ CTA	*USD 3,000*	Within 60 days of CEO endorsement of this project.
Inception Report	PM/Coordinator/ CTA	None	Within 90 days of CEO endorsement of this project.
Monitoring of indicators in project results framework	PM/Coordinator/ CTA	*USD 168,000.* *Monitoring & evaluation Specialist (PMU)*	Annually prior to GEF PIR. This will include GEF core indicators.
GEF Project Implementation Report (PIR)	RTA UNDP Country Office58 PM/Coordinator/ CTA	*None, under TOR of Binational coordinator*	Annually typically between June-August
Monitoring all risks (UNDP risk register)	UNDP Country Office PM/Coordinator/ CTA	*Updating annually of project risk management matrix*	On-going.
Monitoring of social and environmental safeguards (SESP) For Indigenous peoples and afro-caribbean populations For gender equity (see Annex 4a)	*Project Safeguards Officer*	*USD 7,500*	On-going.
Supervision missions	UNDP Country Office	None	Annually

58 Or equivalent for regional or global project

Monitoring and Evaluation Plan and Budget:			
GEF M&E requirements	Responsible Parties	Indicative costs (US$)	Time frame
Oversight/troubleshooting missions	RTA and BPPS/GEF	None Error! Bookmark not defined.	Troubleshooting as needed
Mid-term GEF and/or LDCF/SCCF Core indicators and METT or other required Tracking Tools	*UNDP country office team Costa Rica and Panama and UNDP GEF RTA*	*USD 2,500*	*Before mid-term review mission takes place.*
Independent Mid-term Review (MTR)	Independent evaluators	*USD 15,000*	30 November 2022
Terminal GEF *and/or LDCF/SCCF* Core indicators *and METT or other required Tracking Tools*	List name of institution/agency that will collect this data	*USD 2,500*	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE)	Independent evaluators	*USD 20,000*	30 September 2024
TOTAL indicative COST		*USD 218,500*	*Add to TBWP component 4*

VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project's governance mechanism:

338. *Implementing Partner:* The Implementing Partner for this binational project is the **Organization for Tropical Studies (OET)**. The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

339. OET is responsible for executing this project. Specific tasks include:

- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.
- Risk management as outlined in this Project Document;
- Procurement of goods and services, including human resources;
- Financial management, including overseeing financial expenditures against project budgets;
- Approving and signing the multiyear workplan;
- Approving and signing the combined delivery report at the end of the year; and,
- Signing the financial report or the funding authorization and certificate of expenditures.

Project stakeholders and target groups:

340. *Comisión Binacional de la Cuenca del Río Sixaola* (CBCRS). The CBCRS brings together a wide-ranging cross-section of civil society organizations, as well as local and national government representatives. These include local NGOs, indigenous peoples' and afro-caribbean peoples' organizations, private sector representatives, municipal governments from the Talamanca and Changuinola municipalities, and regional representatives from the Ministry of Environment of Costa Rica and Panama. The CBCRS will be a key player in the implementation of the project, as it has the convening power to bring together all key stakeholders in the Sixaola basin, from both Costa Rica and Panama. Part of the outputs proposed under Component 1 are aimed at strengthening the work of the CBCRS and its partners, and this Binational Commission will serve as a local beneficiaries and will name two representatives to sit on the Project Board. The CBCRS.is a public policy entity at the regional

level that has incorporated indigenous peoples into its structure. Still, the afro-Caribbean population does not participate in this Commission, but the proposal has been launched and its approval is expected at the next ordinary meeting.

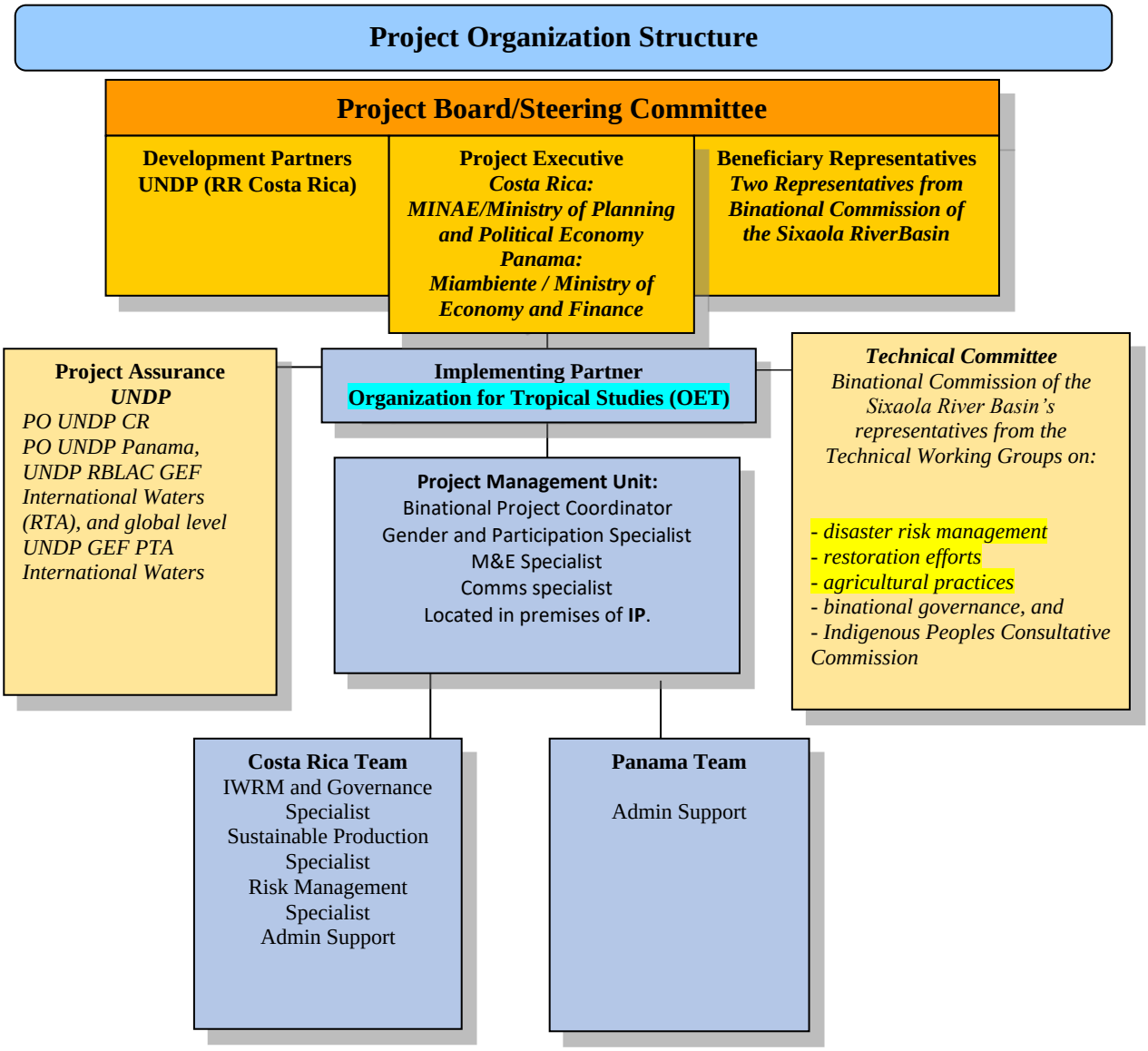
341. The SAP requires a permanent channel for addressing the concerns and risks faced by indigenous peoples and afro-caribbean population living in the Sixaola river basin. This will be achieved through the establishment of an Ad Hoc Advisory Commission for Indigenous and Afro-descendant Peoples. It is not intended to create new structures to establish the participatory mechanisms required by this project. In part because the creation of temporary structures for the duration of a project tends to weaken social organizations, introduce ephemeral instances and generate legitimacy conflicts. If an institutional framework already exists, it can acquire the necessary capacities and competencies to verify compliance with safeguards, ensure the participation of indigenous peoples through consultation and Free, Prior and Informed Consent (FPIC).

342. One the key outcomes of this project is the strengthening of the IWRM of the Sixaola River, and the key institution in charge of coordinating actions in the Sixaola River basin is the CBCRS. The project will work closely with the Binational Commission providing it with material support and technical assistance. The Project Management Unit should be located in or close to the office of the CBCRS, and the project will provide it with equipment and resources to strengthen its capacity to work for the management of this international river basin. Regular and extraordinary sessions of the CBCRS will be supported by the project, as well as technical assistance, expert missions and resources for exchanges and training. It is also expected that the legal status of the CBCRS can be reformed in order to increase its mandate and strengthen its capacities to conduct and implement the Strategic Action Programme 2022-2032 in the Sixaola River Basin. In order to implement successfully this Strategic Action Programme, an investment plan will be designed (under Output 2.5) under the coordination of the CBCRS.

343. The design of the Strategic Action Programme 2022-2032 will require the creation of several thematic working groups under the Binational Commission of the Sixaola River Basin. The working groups identified include the one that promotes the adoption of best practices among agricultural producers to reduce pollution risks and mitigate the impact on shared marine, coastal and freshwater ecosystems. A second working group will be formed to technically help the SAP to define binational mechanisms to control pollution of river and coastal ecosystems by stakeholders and partners in agriculture and tourism. A third working group will be dedicated to guide the restoration planning efforts throughout the basin. This group will have close interaction with expert stakeholders working in the basin who can provide technical expertise in restoration campaigns, such as IUCN, which identified restoration priorities in the Sixaola basin, or local municipal governments to ensure that priority actions are in line with projected land use planning. A fourth relevant working group for the SAP update is the one that supports the management of existing flood early warning systems in both countries. This working group will help update the SAP by revising the technical hydrometeorological model that will be produced by Component 3 of this project.

344. UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Board/Steering Committee.

Project organisation structure:



345. The Project Board (also called Project Steering Committee) is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.

346. In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

347. Specific responsibilities of the Project Board include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project manager;
- Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;
- Agree on project manager's tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;
- Ensure coordination between various donor and government-funded projects and programmes;

- Ensure coordination with various government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Review combined delivery reports prior to certification by the implementing partner;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;
- Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.
- Ensure highest levels of transparency and take all measures to avoid any real or perceived conflicts of interest.

348. The composition of the Project Board must include the following roles:

a. Project Executive: Is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. For the case of this binational project two co-executives serve as co-chairs of the board. The Project Executives will be selected by the Ministries of Environment of each country. In the case of Costa Rica, the Ministry of Environment and Energy has named the head of the ACLA-C Conservation Area of SINAC-MINAE as representative to the Binational Commission of the Sixaola River. The Ministry of Environment of Panama will name a representative after signature of the Prodoc. In addition to the previous, the Ministry of Planning and Political Economy from Costa Rica and one representative from the Ministry of Economy and Finance from Panama. The individuals who will be part of the project board will be appointed after CEO endorsement.

b. Beneficiary Representative(s): Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often civil society representative(s) can fulfil this role. The Beneficiary representatives for this project will be Two Representatives from Binational Commission of the Sixaola River Basin (one from each country). The individuals who will serve as beneficiary representatives will be appointed after CEO endorsement.

c. Development Partner(s): Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner for this project will be the UNDP Country Office Representative for Costa Rica.

d. Project Assurance: UNDP performs the quality assurance role and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed, and conflict of interest issues are monitored and addressed. The Project Board cannot delegate any of its quality assurance responsibilities to the Binational Project Coordinator. UNDP provides a three – tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of project execution.

349. As part of the project management arrangements, an Executive Committee for the project will be established which brings together the main project partners: Government of Costa Rica (MIDEPLAN, MINAE), Government of Panama (MEF, MiAMBIENTE) and UNDP. This committee will be responsible for overseeing the progress of the project, approving the annual work plans and the annual budget of the project. It will also make it possible to solve any management and political issues related to the project. The Executive Committee will also play an important role in the project pilots, seeking best available innovative solutions, sustainability mechanisms and scaling up to ensure lessons are incorporated, understood, and disseminated among stakeholders.

350. Indigenous Peoples are represented in the CBCRS Assembly of the Sixaola River Basin and will also be part of an Indigenous Peoples Consultative Commission.

Supervision and monitoring responsibilities:

351. Binational Project Coordinator: This person is responsible for the day-to-day management of the project and the regular monitoring of project outcomes and risks, including social and environmental risks. The Binational Project Coordinator will ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and evaluating and reporting on project outcomes. The Binational Project Coordinator will inform the Project Board, the UNDP Country Office and the UNDP-GEF Regional Technical Advisor (RTA) of any delays or difficulties encountered during implementation so that appropriate support and remedial action can be taken. The Binational Project Coordinator will develop annual workplans based on the multi-year workplan included in Annex A2, which will include annual performance targets to support efficient project implementation. The Binational Project Coordinator will ensure that the standard M&E requirements of UNDP and GEF are met with the highest quality standards. This includes, but is not limited to, ensuring that results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that risk monitoring and the various plans/strategies developed to support project implementation (e.g., gender strategy, knowledge management strategy, etc.) occur on a regular basis.

352. Under Project Component 4, the Project Management Unit will provide technical assistance and communication dissemination to develop and communicate an awareness, participation and articulation strategy among key private sector decision-makers and local government stakeholders. This communication and dissemination strategy will aim to promote the position of the CBCRS as the main articulator and coordinator in the basin, helping to bring other stakeholders together on the specific collaborative actions being promoted. This will also consist of training public and private stakeholders on ecosystem-based management approaches for coastal and river ecosystems as an outreach tool. The trainings will be designed to involve non-traditional stakeholders in solving common problems.

353. Composition of the Project Management Unit. The Binational Project Coordinator will be located in Costa Rica (in a new Project Office). His main function will be the coordination of the parts of the project as well as providing a strategic vision to the project team, both the Binational Coordinator and the Specialists and the Board of Directors. This person will lead the annual planning, reporting and monitoring of the progress of activities and results.

354. The local regional team will also include a Monitoring and Evaluation Specialist, a Gender and Participation Specialist, and a Communication Specialist. This team will be in charge of the implementation of the participation plan, the safeguards plan and the gender strategy, and will provide strategic inputs to the governance component as well as to the implementation of the pilot projects.

355. For component 2 of the project, there will be a Specialist in sustainable production (banana and cocoa), who will be in charge of accompanying the implementation of two pilot projects for scaling up cocoa production and the implementation of low agrochemical practices with banana producers. In addition, there will be a Specialist in water pollution and solid waste. This person will support, and guide activities related to agrochemical reduction and waste management. In addition, he/she will provide accompaniment to the development of the TDA diagnostic (component 1 of the project) in the issues of pollution and waste that reach the riverbed, as well as those planned within the pilot actions.

356. Component 3 will be led by a Disaster Risk Management Specialist who will guide the development of the basin flood SAP and will also provide inputs for the development of the TDA and SAP.

357. For the development of component 4, communication will be addressed with the support of the M&E Specialist and the Communication Specialist. They will specialize in website development. Specialists should also seek alliances, in coordination with the Binational Project Coordinator for the development of an ambitious SAP on the subject of chemical reduction. In addition, there will be two administrative-financial assistants, one in each country and their role will be to provide administrative, financial and budget execution support. In addition, for the design or specific advice of the pilots, specific consultancies will be required, for which the procedures of the implementing agency will be followed.

358. **Project extensions:** The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the UNDP Country Office oversight costs in excess of the CO's Agencey fee specified in the DOA during the extension period must be covered by non-GEF resources.

VIII.FINANCIAL PLANNING AND MANAGEMENT

359. The total cost of the project is US$18,239,801.44. This is financed through a GEF grant of US$ 4,386,210 and in kind co-financing of US$13,853,591.44. UNDP, as the GEF implementation agency, is responsible for the implementation of GEF resources and co-financing in cash and transferred only to the UNDP bank account. UNDP GEF will delegate the authority to manage GEF resources to the UNDP Lead country office.

360. Confirmed Co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. Note that all project activities included in the project results framework that will be delivered by co-financing partners (even if the funds do not pass through UNDP accounts) must comply with UNDP's social and environmental standards. Co-financing will be used for the following project activities/outputs:

Co-financing source	**Co-financing type**	**Co-financing amount ($)**	**Planned Co-financing Activities/Outputs**	**Risks**	**Risk Mitigation Measures**
Government (CNE National Emergency Commission Costa Rica)	In kind	5,000,000	Infrastructure development	CNE execution of infrastructure is slow	Involvement of CNE from Binational commission and MIDEPLAN
Government (Aqueducts and Sewage Institute, AyA / Costa Rica)	In kind	5,000,000	Infrastructure development	Regional AyA may not coordinate the development with TDA/ SAP	Political engagement of AyA President to support investments in the binational river basin
Government Municipality Talamanca Costa Rica	In kind	1,000,000	Service provision	Municipal elections planned for February 2020	Political engagement with new elected municipal government
Government SINAPROC Panama	In kind	558,151.44	Support to binational Early Flood Warning System	Change of Political and budgetary priorities due to COVID 19 National Emergency	Political engagement with national government
Government Municipality Changuinola Costa Rica	In kind	1,000,000	Support to the development of TDA/SAP, and the M&E system.	Change of political and budgetary priorities due to the COVID 19 National Emergency	Political engagement with local municipal government
Government Ministry of Environment Paanama	In kind Public investment	415,440 880,000	Support to project implementation	Change of political and budgetary priorities due to the COVID 19 National Emergency	Political engagement with national government

361. Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board.

362. Should the following deviations occur, the Binational Project Coordinator and UNDP Country Office will seek the approval of the BPPS/GEF team to ensure accurate reporting to the GEF: a) Budget re-allocations among components in the project budget with amounts involving 10% of the total project grant or more; b) Introduction of new budget items that exceed 5% of original GEF allocation. Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

363. Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop.

364. Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

365. Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. **Operational closure must happen with 3 months after posting the TE report to the UNDP ERC**. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

366. Transfer or disposal of assets: In consultation with the Implementing Partner and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file[59]. The transfer should be done before Project Management Unit complete their assignments.

367. Financial completion (closure): The project will be financially closed when the following conditions have been met: a) the project is operationally completed or has been cancelled; b) the Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

368. The project will be financially completed **within 6 months of operational closure or after the date of cancellation**. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the BPPS/GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

369. Refund to GEF: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the BPPS/GEF Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF Trustee.

59 See https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default.

IX. TOTAL BUDGET AND WORK PLAN

Total Budget and Work Plan			
Atlas Proposal or Award ID	00118025	Atlas Primary Output Project ID	00115066
Atlas Proposal or Award Title	International waters SIXAOLA		
Atlas Business Unit	CRI10		
Atlas Primary Output Project Title	Cuenca binacional Sixaola		
UNDP-GEF-PIMS No.	6373		
Implementing Partner	Organization for Tropical Studies (OET)		

GEF Component/Atlas Activity	Atlas Implementing Agent (Responsible Party[2] , IP or UNDP)	ATLAS Fund ID	Donor Name	Atlas Budgetary Account Code[3]	ATLAS Budget Account Description	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total (USD)	*See Budget Note:*
COMPONENT 1 Governance instruments improved for joint integrated management of the Sixaola Binational River Basin. Outcome 1 and outcome 2	OET	62000	GEF	71200	International Consultants	53,000.00	57,000.00	46,000.00		156,000.00	1
				71300	Local Consultants	80,000.00	70,000.00	40,000.00	16,750.00	206,750.00	2
				71800	Contractual Services-Impl Partn	322,250.00	178,250.00	172,250.00	108,250.00	781,000.00	3
				71600	Travel	18,000.00	38,000.00	32,000.00	17,890.00	105,890.00	4
				72100	Contractual Services - Company	85,000.00	167,000.00	75,000.00	54,000.00	381,000.00	5
				72300	Materials and Goods	4,000.00	3,000.00	3,000.00	3,000.00	13,000.00	6
				72500	Supplies	5,825.00	7,500.00	6,500.00	3,570.00	23,395.00	7

				72800	Information Technology Equipment	24,000.00	2,000.00	2,000.00	-	28,000.00	8
				74200	Audio Visual & Print Prod Costs	3,000.00	20,000.00	23,300.00	22,300.00	68,600.00	9
				74500	Miscellaneous expenses	1,500.00	4,000.00	2,000.00	2,000.00	9,500.00	10
				75700	Training, Workshops and Conferences	26,500.00	30,000.00	23,200.00	1,500.00	81,200.00	11
					Total Outcome 1 + 2	**623,075.00**	**576,750.00**	**425,250.00**	**229,260.00**	**1,854,335.00**	
COMPONENT 2 Demonstrative pilot projects stimulate collaborative work, replication and implementation and build capacity, experience and support for SAP implementation.	OET	62000	GEF	71200	International Consultants	6,000.00	12,000.00	6,000.00	-	24,000.00	12
				71300	Local Consultants	27,500.00	57,500.00	63,500.00	17,500.00	166,000.00	13
				71800	Contractual Services-Impl Partn	44,750.00	94,750.00	86,750.00	36,750.00	263,000.00	14
				71600	Travel	13,125.00	25,000.00	24,000.00	15,000.00	77,125.00	15
				72100	Contractual Services-Company	70,000.00	200,000.00	190,000.00	50,000.00	510,000.00	16
				72200	Equipment and furniture	8,200.00	4,800.00	-	-	13,000.00	17
				72500	Supplies	800.00	4,300.00	4,300.00	800.00	10,200.00	18
				72800	Information Technology Equipment	7,300.00	19,200.00	-	-	26,500.00	19
				74500	Miscellaneous Expenses	-	1,000.00	1,000.00	2,000.00	4,000.00	20
				75700	Training, Workshops and Conferences	-	5,000.00	3,000.00	-	8,000.00	21

					Total Outcome 3	**177,675.00**	**423,550.00**	**378,550.00**	**122,050.00**	**1,101,825.00**	
COMPONENT 3: Flood and Risk Management improved	OET	62000	GEF	71200	International Consultants	-	18,000.00	18,000.00	-	36,000.00	22
				71300	Local Consultants	12,000.00	39,000.00	27,000.00	15,000.00	93,000.00	23
				71800	Contractual Services-Impl Partn	52,250.00	75,250.00	142,250.00	103,250.00	373,000.00	24
				71600	Travel	4,000.00	4,000.00	8,000.00	6,000.00	22,000.00	25
				72100	Contractual Services-Company	20,000.00	25,000.00	25,000.00	10,000.00	80,000.00	26
				74200	Audio Visual & Print Prod Costs	-	5,000.00	10,000.00	5,000.00	20,000.00	27
				75700	Training, Workshops and Conferences	1,600.00	2,000.00	2,000.00	4,000.00	9,600.00	28
					Total Outcome 4	**89,850.00**	**168,250.00**	**232,250.00**	**143,250.00**	**633,600.00**	
COMPONENT 4: KM and M&E	OET	62000	GEF	71200	International Consultants	-	15,000.00	-	18,000.00	33,000.00	29
				71300	Local Consultants	-	3,500.00	-	3,500.00	7,000.00	30
				71800	Contractual Services-Impl Partn	94,250.00	118,250.00	108,250.00	118,250.00	439,000.00	31
				71600	Travel	6,000.00	6,500.00	6,250.00	7,000.00	25,750.00	32
				72800	Information Technology Equipment	9,300.00				9,300.00	33
				74200	Audio Visual & Print Prod Costs	11,000.00	12,000.00	12,000.00	19,000.00	54,000.00	34

				75700	Training, Workshops and Conferences	4,000.00	5,700.00	5,500.00	5,700.00	20,900.00	35
					Total Outcome 5	**124,550.00**	**160,950.00**	**132,000.00**	**171,450.00**	**588,950.00**	
Project Management Costs	OET	62000	GEF	71400	Contractual Services-Individuals	47,500.00	47,500.00	47,500.00	47,500.00	190,000.00	36
				74100	Professional Services	2,500.00	5,000.00	5,000.00	5,000.00	17,500.00	37
					Total Project Management	50,000.00	52,500.00	52,500.00	52,500.00	207,500.00	
					PROJECT TOTAL	**1,065,150**	**1,382,000**	**1,220,550**	**718,510**	**4,386,210**	

Summary of Funds

	Amount Year1	Amount Year 2	Amount Year 3	Amount Year 4	Total
GEF	1,065,150	1,382,000	1,220,550	718,510	4,386,210
CNE, CR	1,250,000	1,250,000	1,250,000	1,250,000	5,000,000
AyA, CR	1,250,000	1,250,000	1,250,000	1,250,000	5,000,000
Talamanca Municipality, CR	250,000	250,000	250,000	250,000	1,000,000
Changuinola Municipality, PN	250,000	250,000	250,000	250,000	1,000,000
MiAmbiente, PN	323,860	323,860	323,860	323,860	1,295,440
SINAPROC, PN	139,538.44	139,538.00	139,538.00	139,537.00	558,151.44
TOTAL	4,528,548.44	4,845,398	4,683,948	4,181,907	18,239,801.44

Budget Notes

Budget Note	Total	Description
1	156,000.00	**TDA Senior Expert:** gathering, analysis and consolidation of information and writing of TDA; facilitation of meetings to validate accuracy of information in TDA; development of materials to summarize TDA for different stakeholders; provision of reliable data to GIS expert for inclusion in database, which includes data analysis and harmonization of information. (15% of time dedicated to gender-activities)
		Water pollution consultant. To produce a diagnosis on transboundary waste and wastes disposal mechanism in Costa Rica and Panama with differentiated information for men and women, as well for indigenous populations. (15% of time dedicated to gender-activities)
		International Law Expert to prepare recommentations for updating the statutes and norms for the strengthening the regulations of the CBCRS, to include gender considerations and the protocols FPIC.
		International consultant to develop an Environmental and Social Impact Assessment (ESIA)
		International consultant to develop an ESMP
2	206,750.00	**Environmental toxicology/pollution consultant** to produce an inventory of specific or diffuse sources of pollution and support the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions and plastic wastes disposal. He/she will also deliver capacity building to Ministries of Environment and local staff from Talamanca municipalities.
		Groundwater consultant for the identification of water recharge areas and the implementation of the National Irrigation and Drainage Service (SENARA) methodology.
		Socio-economic consultant for collection and analisys of socioeconomic information and gathering of baseline data on agreed upon socioeconomic indicators, including dissagregated gender information, indigenous peoples, with a differentiated analysis for of urban and rural context. (15% of time estimated to gender-related activities)
		GIS consultant for development of GIS database to consolidate hydrogeological information, socio-demographic information and environmental pollution inventory of point and diffuse sources of pollution.
		Communication specialist (with experience on multicultural approaches) to develop a grievance mechanism, as well as socialize and train key stakeholders.
		Consultant with background on Social Sciences to discuss Project Components (pilot projects final location and rest of components) with all key stakeholders in order to develop a final ESMP document. This person will also be a trainer of the Training Program for the PMU and the CBCRS and institutional partners.
		ESIA/SESA Consultant - Development of binational ESIA study (SESA Stydy developed by a consultant in Panama)
		ESIA/SESA Consultant - Development of binational SESA study
		Public Finance Expert for reviewing options and designing a 10-year binational investment plan for the Strategic Action Plan. He/she will support binational task group to ensure technical, scientific, and economic support for SAP implementation.
		Information Management Expert to assess and update existing Environmental Information Systems in Costa Rica and Panama, and to design a strategy on the Sixaola river basin to generate and share information with key stakeholders.
		Rural development and agriculture/food systems consultants, in the framework of the SAP elanboration, to support the discussion on the transition of production systems in the basin according to reccomendations, existing farming systems and their impact on human development and water quality.

		Capacity building instructors to deliver capacity building plan given to MiAmbiente and local staff from Changuinola municipalities.
		Workshop facilitator for 2 events/ information exchanges on sustainable food/agriculture production systemon sat the local level in Costa Rica and Panama.
		Policy consultant for incorporating the principal findings of the TDA in the Municipal and Regional Development Plans and/or Investments planning in Costa Rica and Panama.
		ESIA/SESA Consultant - Development of binational SESA study
3	781,000.00	**Binational Project Coordinator (PMU)**: coordination support to diagnostic analysis of the surface and groundwater resources of the Sixaola River Basin.
		Gender and Participation specialist (PMU): to conduct a detailed assessment of gender aspects and gathering of baseline data on agreed upon gender indicators.
		National Project Specialist (CR) / IWRM and Goverrnance Specialist: in charge of conducting and overseing integrated water resources management work under all components of the project and of providing technical assistance to the binational governance structures (CBCRS) of the Sixaola river basin
		Social and Human Rights Expert (with background on Social Sciences) to develop the IPP final document, as well as a binational capacity building plan on governance and provide support to the IPCC on Indigenous Peoples, with gender perspective. This person, provides support the grievance mechanism. He/she will also develop the training program for the PMU, CBCRS, institutional and local partners.
		IWRM and Governance Specialist (PMU)
		Technical Assistant on watershed management (based in MiAmbiente, Panama)
4	105,890.00	**Travel costs (DSA and ground transportation) for ESMP, IPPF, SESA and ESIA consultants-** *Travel costs (workshop/meetings) associated with the socializing and training of the grievance mechanism. 10 field mission days. *Travel costs (workshop/meetings regarding the collection of socioeconomis information. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESIA y SESA. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESMP. 30 field mission days.
		Travel costs (DSA and ground transportation) **for Groundwater and TDA consultants** to gather baseline data and carry out consultations and meetings for preparation of TDA. --> 50 field missions days in total.
		Travel cost (DSA and ground transportation) for **Binational Project Coordinator** in oversight of Component 1. *--> Twenty 2-day trips: $150/day, during 24 months*
		Travel cost (only ground transportation) for **National Project Specialists** to oversight and coordinate logistics of Component 1.
		Travel cost for **policy expert** to support municipalities in incorporating the principal findings of the TDA in the Municipal Development Plans and/or Investment Plans in Costa Rica and Panama. *--> Six 3-day trips: $120/day, during 8 months*
		Travel costs (missions) of **Binational Project Coordinator** and **National Specialists** to prepare the NSAP for Costa Rica ensuring articulation and participation indicated in the Stakeholder Plan, PPPI and folowing guidelines from the Gender Action Plan

		Travel costs (missions) for **Binational Project Coordinator** and **National Specialists** to participate on meetings to prepare, share drafts and agree upon SAP.
		Travel costs (missions) of **Binational Project Coordinator** and **National Specialist** regarding the coordination with the Sixaola Binational Commission (initiation of the project, establishment of coordination mechanisms, the IPCC , and other to follow up and mantain a smooth coordination and commmunication)
		Travel costs of **Binational Project Coordinator** and **M&E Specialist** associated with obtaining consensus on M&E indicators.
		Travel costs (missions) of **Binational Project Coordinator** and **International Law Expert** regarding the strenthening the Sixaola Binational Commission.
		Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Costa Rica (10 field mission days).
		Travel costs (workshop/events) regarding the **participative process for SAP elaboration** with relevant stakeholders as indicated in the Project Stakeholders Plan.
		Travel costs (workshop/events) regarding the **participative process for SAP elaboration on gender mainstreaming**, to elaborate of proposals to address issues affecting differently women and/or impact positively their empowerment for IWRM (as identified in the TDA), with target groups and competent institutions.
		Travel costs (workshop/events) related to the implementation of a binational environmental education plan for IWRM.
		Travel costs (workshop/events) associated with the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions.
		Travel costs (workshop/events) associated with the technical support process to incorporate environmental management of harmful chemicals
		Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Panama (10 field mission days).
		Travel costs associated with 15 environmental national training sessions in Panama with 20 participants each.
		Travel costs (DSA and ground transportation) associated with obtaining consensus on M&E indicators for assessing or human and environmental health effects of pollutants and plastic wastes disposal.
5	381,000.00	Company to analyze (using GIS and Landscape Analysis Tools) the status and dynamics of changes in degradation that take place at the landscape level in the Sixaola river basin as well as to assess the impact of sustainable agriculture production on reducing deforestation and water pollution.
		Company to provide detailed maps of current land use using aerial imagery through remote sensing and drones.
		Company on Groundwater Analysis to analize aquifer recharge rates through the application of new isotopic tracer analysis techniques to determine recharge times at different sites in the basin.
		Company for physical, chemical and bacterial surface water quality analyses.
		Company on Disaster Risk Management to design the establishment of weather stations and flood monitoring stations in the SIxaola River Basin.
		Company on environmental toxicity to design a monitoring program of human and environmental health effects of U-POPs emissions and organic wastes disposal, including key indicators**.**
		Company to develop a Restoration Plan plan for the restoration of river banks throughout the basin (identifying species, techniques, and implementation mechanisms with local stakeholders).

		Company to develop a groundwater water quality monitoring system for drinking water aqueducts in Costa Rica.
		Agriculture/food systems company to analyze the different production systems in the basin and develop a typology of farming systems according to their impact on human development and water quality. It will use GIS and integrate information form other social experts of the project.
6	13,000.00	Materials required for hydrogeological studies, including material for hydrogeological sampling.
7	23,395.00	Office stationary and other supplies required for preparation of TDA and support to the operation of the CBCRS
		Stationery for meetings and workshops, office supplies, etc. for development of SAP and NSAPs.
		Supplies for IWRM training workshops.
		Supplies for gender mainstreaming workshops;
		Supplies for information exchanges between Costa Rica and Panama
		Supplies related to the implementation of a binational environmental education plan for IWRM.
		Office stationary and other supplies for implementation of outputs under Component 2
8	28,000.00	IT equipment and software to support development and use of groundwater and surface water databases.
		Computer (4) and software for National Project Specialists and Admin Support (IWRM, Risk Management, and Sustainable Production)
		IT equipment (hardware and software) to enhance the capability of the Environmental Information Systems for using remote-sensing technology to monitor water quality and share information.
9	68,600.00	Publication and electronic copies of TDA for multiple stakeholders.
		Printing of SAPs and NSAPs for dissemination to different relevant stakeholders.
		Printed materials for capacity building.
		Production of video summarizing the sustainable agricultural practices for awareness raising process.
		Printed materials for capacity building for the reduction of harmful chemicals (U-POPs).
		Materials for public environmental awareness-raising for the reduction of harmful chemicals (U-POPs).
		Production of video summarizing the achievements of the CBCRS.
		Communication materials for dissemination of the Project outcomes and its integration with IWRM to different relevant stakeholders.
10	12,500.00	Unforeseen events related to preparation of TDA and other costs related to currency conversion, etc.
		Unforeseen events related to preparation of SAPs and NSAPs, etc., and the implementation of outputs and other costs such as currency conversion
11		**TDA Participatory process (informative event):** Two participatory workshops with stakeholders identified in the Stakeholders Plan, Gender Action Plan and PPPI to inform about the TDA and collect key information (two events per country) 15% estimated to indigenous peoples - related budget (usd 2000 per event)

	78,200.00	**TDA Participatory process (informative meetings in indigenous territories):** Six informative meetings (in each of the indigenous territories to inform about the TDA and collect key information.
		TDA Participatory process (final presentation and validation): Two national events for TDA Presentation with key stakeholders in each country (as identified in the Stakeholder Plan, the Gender Action Plan and the IPP). 15% estimated to indigenous peoples - related budget
		TDA Participatory process (final presentation meetings in indigenous territories): Six meetings to present TDA results (in each of the indigenous territories)
		Workshops and/or meetings costs regarding the **participative process on gender mainstreaming** to prepare and elaborate of proposals for the SAP. (Special considerations regarding specific needs, such as childcare services, will be included under this budget line)
		Workshops and/or Meetings associated with p**articipative process for SAP elaboration regarding the dialogue processes for SAP discussion with Indigenous Peoples** to be defined with the IPCC during first semester of project implementation. An estimation of two events/meeting per territory are foreseen.
		Potential indigenous participatory, consultative or FPIC process: Meetings costs for needed participative, consultative of FPIC process with indigenous peoples on pilot projects (pilot 1 and 3) final location (unitary cost: $5,000 for participatory and dialogue process related to consultation and FPIC)
		Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, worker0s unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Costa Rica.
		Workshops/Meetings to present and validate the ESMP with key stakeholders and Indigenous Peoples territorial authorities (in their territories) and deliover training on the grievance mechanism.
		Workshops with national authorities to discuss and approve proposals for updating the regulatory framework for preventing non-point source pollution.
		Workshop costs for IWRM training in Costa Rica and Panama (10 training events with target stakeholders included in the Stakeholder Plan)
		Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, workers unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Panamá.
12	24,000.00	**Pilot 2.** Expert on multistakeholder dialogues and private sector engagement to support actions in Panama
13	166,000.00	**Pilot 1-** Conservation Biology / Agroforestry Expert to identify productive nature based solutions restoration approaches for the riverine forest of the Sixaola River. He/She will also identify potential option to restore wetlands.
		Pilot 1. Indigenous Peoples Ecology/Agroforestry Expert to identify sites and communities to implement conservation practices for the establishment of biological corridors and restoration of river banks, using traditional knowledge and native species. 100% estimated to indigenous territories - related budget
		Pilot 2. Political sociology expert to develop a **s**takeholder analisys, as a baseline to establish the muktistakeholder dialogue platform roadmap in Costa Rica and Panamá.
		Pilot 2. Agricultural Extensionist consultant to document best practices among agricultural *Musa spp.* producers (including groups or individual female farmers) to reduce pollution risks (from agrochemical) and mitigate the impact on shared marine, coastal and freshwater ecosystems in the Sixaola river basin.

		Pilot 3. Community based agriculture expert to develop a road map and options for the rescue and protection of traditional cocoa varieties and expansion of native organic cocoa production under agroforestry systems in indigenous territories of the binational basin. 100% estimated to indigenous territories - related budget
		Pilot 1. GIS expert to develop cartography and erosion model for the basin, in order to design the restoration practices.
		Pilot 1. Environmental legislation expert to develop a transboundary wetland management system, supporting international initiatives to declare the Gandoca Manzanillo and San San Pond Sak wildlife refuges as binational wetlands of international importance.
14	263,000.00	**Binational Project Coordinator (PMU):** coordination support for implementation of innovative pilot initiatives for the RM and oversight of outputs for Component 3.
		National Project Specialist (CR) / Sustainable Production Specialist
		National Project Specialist (PAN) / Rural / Agricultural Specialist
15	77,125.00	Travel cost for **Binational Project Coordinator** in oversight of outputs under Component 3. (Includes DSA and ground transportation)
		Travel cost for **National Project Specialists** Costa Rica to outputs under Component 3. (Includes DSA and ground transportation)
		Travel cost for **International and Local Consultants** in support of outputs under Component 3. (Includes DSA and ground transportation; and estimate of 25 days of field visits days per consultant)
		Pilot 2. DSA and expenses for training/exchange women programme on Land Management Tools
		DSA Pilot Project Manager Panama.
16	510,000.00	**Pilot 1.** Implementation of the ecosystem restoration programme. Identification and monitoring of degraded areas through the definition of qualitative and quantitative monitoring variables (restoration and self-sustainability). GIS analysis. Strenthening the agroforestry nurseries capacities in both countries.
		Pilot 1. Sustainable production programme (*Musa spp.*) focused on women groups
		Pilot 1. Identification and monitoring of degraded areas. Implementation of biological corridors in indigenous territories in both countries.
		Pilot 2. Company support to identify priorities for research, information transfer and extension services on alternatives to agrochemicals and/or on good practices in the use of agrochemicals, as well as on best sustainable production and practices for pollution prevention in Costa Rica and Panama. Extension services desing specifically desing for farmer women and indigenoud farmers will be included.
		Pilot 2. Company (Green Commodities Program) to provide strategic orientation to increase private sector involvement in the processes needed to address the root causes of the environmental and social externalities of banana production, by securing corporate engagement services with banana buyers to ensure alignment between banana purchasing policies in the binational basin and best practices in Costa Rica and Panama.
		Pilot 3. Company to design an investment plan in post-harvest management processes, processing and agro-industrial production of cocoa derivatives for community-based entreprises (indigenous farmers)
		Pilot 1. Local communication plan and public campaing desing and implementation for sustainable agriculture and transition systems
		Pilot 1. Company/organization to implement coastal wetland restoration efforts

17	13,000.00	Desks (3) (pilot projects in Costa Rica) and equipment for the Indigenous
		Chairs, and other office equipment (pilot projects in Costa Rica)
		Desks (2) for pilot projects PN
		Computer and Printer (2) for pilot projects.
18	10,200.00	Office supplies (pilot projects)
		Panama Office and IT supplies.
		Stationery for meetings and workshops, office supplies, etc. for development of outputs under Component 3. Amount per year
19	26,500.00	Digital camera or web camera (3) for pilot projects.
		Computer and Printer (3) for pilot projects.
		Computer (2) and software for National Project Specialist and Admin Support
		Computer (1), printer, scanner, software, video bean and screen / Panama
		IT maintenance, software licences per year (pilot projects), per year for 4 computers
20	4,000.00	Incidental expenses associated to pilot projects.
21	8,000.00	**Pilot 2.** Workshop costs for the reduction of harmful chemicals through training and environmental education with stakeholders inclided in the Stakeholders Plan, Gender Action Plan and IPP
		Pilot 1. A training/exchange programme (four events, 2 of them binational) for women to discuss and improve the understanding of Land Management Tools (i.e., micro-corridors, live fences, protection zones; establishing nurseries of endemic species), their ecosystem services and benefits, and potential risks. 15% estimated to indigenous peoples - related budget
22	36,000.00	**Finance Expert** to design a Binational investment plan for flood risk management in the basin, including needed infrastructure and mechanism to avoid risk to indigenous populations
23	93,000.00	Communications specialized in community-based approaches to develop specific early warning dissemination and communication protocols to ensure that warnings reach all people at risk with clear messages containing simple, useful and usable information to enable adequate preparedness and response of organizations and communities, indigenous peopples using multiple communication channels, languages and currently available technology.
		Consultant to provide assistance to riparian communities and train them to apply simple monitoring tools, such as drones, to monitor flood waters, to complement and support automated monitoring mechanisms.
24	373,000.00	**Binational Project Coordinator (PMU)**: coordination support to diagnostic analysis of the surface and groundwater resources of the Sixaola River Basin.
		Gender and Participation Specialist (PMU): to conduct a detailed assessment of gender aspects and gathering of baseline data on agreed upon gender indicators.

		National Project Specialist (CR) / IWRM and Goverrnance Specialist: in charge of conducting and overseing integrated water resources management work under all components of the project and of providing technical assistance to the binational governance structures (CBCRS) of the Sixaola river basin
		National Project Specialist (CR) / Risk Management Specialist: to develop a series of flood response protocols that will form the legal and technical basis for a binational Early Warning System.
		Communications Specialist PMU. Communication activities and documentation and systematization of lessons learnt and best practices, including cost of documentation and systematization of lessons learned and best practices.
25	22,000.00	Travel costs for expert on risk management.
		Travel costs for Community risk monitoring expert:
		Travel costs for Communications expert.
		Travel costs for Disaster risk management expert.
		Travel costs to flood monitoring and early warning system workshop.
		Travel costs to Binational Workshop on Early Warning Systems.
26	80,000.00	Company to design the systematic data collection and analysis to understand the nature and behavior of flood hazards, as well as the identification of related vulnerable groups, critical infrastructure and exposed assets, to design evacuation strategies that include evacuation routes and safe areas, and to expand warning messages.
		Company specialized in Applied Hidrometeorology to provide technical assistance to expand the network of hydrometeorological stations located in the Sixaola river basin and to provide guidelines for the early detection, monitoring, analysis and forecasting of flood hazards and potential consequences to provide forecasts and warnings, including the development of specific hydrometeorological models, as well as increasing automated hydrometeorological monitoring infrastructure to produce and deliver accurate thresholds for determining the activation of warnings at strategic sites in the binational basin.
27	20,000.00	Printing of leaflets and communications materials for Early Warning System public Campaign.
28	9,600.00	Workshop on Hidrometeorological monitoring and flood prevention and early warning for 40 participants from Costa Rica and Panama: Two days; equivalent to 80 field mission days
29	33,000.00	Mid-term project review.
		Terminal project independent evaluation.
30	7,000.00	Mid-term GEF Tracking Tools update.
		Terminal GEF Tracking Tools update.
31	439,000.00	**Binational Project Coordinator PMU**: project planning, monitoring, support to M&E related activities, project reporting, maintaining key relationships among stakeholders.
		Gender and Participation Specialist (PMU). Monitoring of gender mainstreaming (Gender Mainstreaming Plan).

		Monitoring & Evaluation Specialist (PMU): Project activities (including monitoring of indicators in project results framework - PRF, Gender Action Plan, ESMF, IPPF and IPP when applicable). This person will monitor the measures contained in the ESMF to enhance the effectiveness of the project's social and environmental benefits. This activity will be carried out by the Monitoring and Evaluation PMU specialist under his/her responsibilities (15% of time estimated to ESMF/IPP-related activities)
		Communications Specialist PMU. Communication activities and documentation and systematization of lessons learnt and best practices, including cost of documentation and systematization of lessons learned and best practices.
32	25,750.00	Travel costs for the Binational Project Coordinator and representatives from Costa Rica and Panama to participate in the International Waters Conference.
		Travel costs for mid-term review.
		Travel costs for terminal evaluation (TE)
		Travel costs for mid-term review of pilot projects.
		Travel costs related to knowledge management, knowledge sharing, and M&E
33	9,300.00	Computer (4), printer, scanner, software and video beam and screen (PMU office) / Project coordinator, Gender Sp., M&E Sp., Comm Sp.
34	54,000	Translations of key documents into local indigenous languages if needed (sumary of TDA, 15 pages; summary of SAP, 15 pages). Translation of ESMP summary (max of 15 pages) and grievance mechanism (max 15 pages) to 4 indigenous languages.
		Audivisual production of promotion materials and lessons learnt. Develop specific targeted content of interest of women organizations.
		Digital and Printed - Publications related to knowledge management and communication. Develop specific targeted content of interest of women and indigenous organizations. 15% indigenous peoples estimated related activities
35	20,900.00	Project Inception Workshop
		Organization Binational exchange spaces for women from Panama and Costa Rica to skills and knowledge to accessing the information platform on the Sixaola River Basin on website.
		Workshops/meeting for monitoring (m&e) safeguards and addressing grievances.
		Pilot Project Inception Workshop (2) Panama
		Mid-term review related workshops.
		Terminal evaluation related workshops.
36	190,000.00	**Binational Project Coordinator (PMU, Costa Rica)**: project planning, day-to-day management of project activities, project reporting, maintaining key relationships among stakeholders.
		Financial/Administrative Support (PMU, Costa Rica): financial management of the project, accounting, purchasing, and reporting and Administrative and logistical support for implementation of innovative pilot initiatives for the IRBM of the Sixaola River Basin and implementation outputs.
		Financial/Administrative Support (Panama): financial management of the project, accounting, purchasing, and reporting.

37	17,500.00	External audit

X. Legal Context

370. This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Costa Rica and UNDP, signed on (7/08/1973) and between the government of Panama and UNDP, signed on (23/08/1973). All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

371. This project will be implemented by the Ministry of Environment and Energy of Costa Rica ("Implementing Partner") and the Ministry of Environment in Panama in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

372. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

XI. Risk Management

373. Consistent with the Article III of the SBAA [or the Supplemental Provisions to the Project Document], the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
b) assume all risks and liabilities related to the Implementing Partner's security, and the full implementation of the security plan.

374. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

375. The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml.

376. The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

(a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General's Bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse" ("SEA").
(b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment ("SH"). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment.

377. a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities), and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and

investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:

i. Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;
ii. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;
iii. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;
iv. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and
v. Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

378. The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

379. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

380. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

381. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

382. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

383. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.

384. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP's regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.

385. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

386. Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of

Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

387. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

388. Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

389. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

390. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

391. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management Standard Clauses" are included, mutatis mutandis, in all sub-contracts or sub-agreements entered into further to this Project Document.

XII. MANDATORY ANNEXES (SEE ADJOINING DOCUMENT)

Annex 1: Project map and Geospatial Coordinates of project sites (see separate file)

Annex 2: Multi Year Work Plan (see separate file)

Annex 3: Monitoring Plan (see separate file)

Annex 4. SESP, Stakeholder Analysis and Engagement Plan, IPPF and GAP (see separate file)

- Annex 4a: Social and Environmental Safeguards SESP
- Annex 4b: Stakeholder Analysis and Engagement Plan
- Annex 4c: Environmental and Social Management Framework (ESMF)
- Annex 4d: Gender Action Plan
- Annex 4e: Indigenous Peoples Participation Planning Framework

Annex 5: UNDP Risk Log (see separate file)

Annex 6: Terms of References and overview of Technical Consultancies (see separate file)

Annex 7: GEF Core indicators (see separate file)

Annex 8: GEF 7 Taxonomy (see separate file)

Annex 09: Literature (see separate file)

Annex 10: Project preparation studies: Sixaola Biomonitoring (see separate file)

Annex 11: Project preparation studies: Sixaola Water Quality monitoring (see separate file)

Annex 12. Project preparation studies: technical aspects for the design of an EWS in the Sixaola Binational River Basin (see separate file)

Annex 13. Co-Financing Letters (see separate file)

Annex 14. GEF TBWP

Annex 14. GEF TBWP

Expenditure Category	Detailed Description	Component (USDeq.)							Total (USDeq.)	Responsible Entity
		Component 1		*Component 2*	*Component 3*	*Sub-total*	*M&E*	*PMC*		(Executing Entity receiving funds from the GEF Agency)[1]
		Sub-component 1.1	*Sub-component 1.2*							
Equipment	13,000.00 Materials required for hydrogeological studies, including material for hydrogeological sampling.	13,000				13,000			13,000	OET
Equipment	28,000.00 IT equipment and software to support development and use of groundwater and surface water databases. Computer (4) and software for National Project Specialists and Admin Support (IWRM, Risk Management, and Sustainable Production) IT equipment (hardware and software) to enhance the capability of the Environmental Information Systems for using remote-sensing technology to monitor water quality and share information.	9,000				9,000			9,000	OET
Equipment	28,000.00 IT equipment and software to support development and use of groundwater and surface water databases. Computer (4) and software for National Project Specialists and Admin Support (IWRM, Risk Management, and Sustainable Production) IT equipment (hardware and software) to enhance the capability of the Environmental Information Systems for using remote-sensing technology to monitor water quality and share information.		19,000			19,000			19,000	OET
Equipment	13,000.00 Desks (3) (pilot projects in Costa Rica) and equipment for the Indigenous Chairs, and other office equipment (pilot projects in Costa Rica) Desks (2) for pilot projects PN Computer and Printer (2) for pilot projects.			13,000		13,000			13,000	OET
Equipment	26,500.00 Digital camera or web camera (3) for pilot projects. Computer and Printer (3) for pilot projects. Computer (2) and software for National Project Specialist and Admin Support Computer (1), printer, scanner, software, video bean and screen / Panama IT maintenance, software licences per year (pilot projects), per year for 4 computers			26,500		26,500			26,500	OET

Equipment	9,300.00 Computer (4), printer, scanner, software and video beam and screen (PMU office) / Project coordinator, Gender Sp., M&E Sp., Comm Sp.					-	9,300		9,300	OET
Contractual services-Individual	781,000.00 Binational Project Coordinator (PMU): coordination support to diagnostic analysis of the surface and groundwater resources of the Sixaola River Basin. Gender and Participation specialist (PMU): to conduct a detailed assessment of gender aspects and gathering of baseline data on agreed upon gender indicators. National Project Specialist (CR) / IWRM and Goverrnance Specialist: in charge of conducting and overseing integrated water resources management work under all components of the project and of providing technical assistance to the binational governance structures (CBCRS) of the Sixaola river basin Social and Human Rights Expert (with background on Social Sciences) to develop the IPP final document, as well as a binational capacity building plan on governance and provide support to the IPCC on Indigenous Peoples, with gender perspective. This person, provides support the grievance mechanism. He/she will also develop the training program for the PMU, CBCRS, institutional and local partners. IWRM and Governance Specialist (PMU) Technical Assistant on watershed management (based in MiAmbiente, Panama)	277,000				277,000			277,000	OET
Contractual services-Individual	781,000.00 Binational Project Coordinator (PMU): coordination support to diagnostic analysis of the surface and groundwater resources of the Sixaola River Basin. Gender and Participation specialist (PMU): to conduct a detailed assessment of gender aspects and gathering of baseline data on agreed upon gender indicators. National Project Specialist (CR) / IWRM and Goverrnance Specialist: in charge of conducting and overseing integrated water resources management work under all components of the project and of providing technical assistance to the binational governance structures (CBCRS) of the Sixaola river basin Social and Human Rights Expert (with background on Social Sciences) to develop the IPP final document, as well as a binational capacity building plan on governance and provide support to the IPCC on Indigenous Peoples, with gender perspective. This person, provides support the grievance mechanism. He/she will also develop the training program for the PMU, CBCRS, institutional and local partners. IWRM and Governance Specialist (PMU) Technical Assistant on watershed management (based in MiAmbiente, Panama)		504,000			504,000			504,000	OET
Contractual services-Individual	263,000.00 Binational Project Coordinator (PMU): coordination support for implementation of innovative pilot initiatives for the RM and oversight of outputs for Component 3. National Project Specialist (CR) / Sustainable Production Specialist National Project Specialist (PAN) / Rural / Agricultural Specialist			263,000		263,000			263,000	OET

Contractual services-Individual	373,000.00 Binational Project Coordinator (PMU): coordination support to diagnostic analysis of the surface and groundwater resources of the Sixaola River Basin. Gender and Participation Specialist (PMU): to conduct a detailed assessment of gender aspects and gathering of baseline data on agreed upon gender indicators. National Project Specialist (CR) / IWRM and Goverrnance Specialist: in charge of conducting and overseing integrated water resources management work under all components of the project and of providing technical assistance to the binational governance structures (CBCRS) of the Sixaola river basin National Project Specialist (CR) / Risk Management Specialist: to develop a series of flood response protocols that will form the legal and technical basis for a binational Early Warning System. Communications Specialist PMU. Communication activities and documentation and systematization of lessons learnt and best practices, including cost of documentation and systematization of lessons learned and best practices.				373,000	373,000			373,000	OET
Contractual services-Individual	439,000.00 Binational Project Coordinator PMU: project planning, monitoring, support to M&E related activities, project reporting, maintaining key relationships among stakeholders. Gender and Participation Specialist (PMU). Monitoring of gender mainstreaming (Gender Mainstreaming Plan). Monitoring & Evaluation Specialist (PMU): Project activities (including monitoring of indicators in project results framework - PRF, Gender Action Plan, ESMF, IPPF and IPP when applicable). This person will monitor the measures contained in the ESMF to enhance the effectiveness of the project's social and environmental benefits. This activity will be carried out by the Monitoring and Evaluation PMU specialist under his/her responsibilities (15% of time estimated to ESMF/IPP-related activities) Communications Specialist PMU. Communication activities and documentation and systematization of lessons learnt and best practices, including cost of documentation and systematization of lessons learned and best practices.					-	439,000		439,000	OET
Contractual services-Individual	190,000.00 Binational Project Coordinator (PMU, Costa Rica): project planning, day-to-day management of project activities, project reporting, maintaining key relationships among stakeholders. Financial/Administrative Support (PMU, Costa Rica): financial management of the project, accounting, purchasing, and reporting and Administrative and logistical support for implementation of innovative pilot initiatives for the IRBM of the Sixaola River Basin and implementation outputs. Financial/Administrative Support (Panama): financial management of the project, accounting, purchasing, and reporting.					-		190,000	190,000	OET

Contractual services-Company	381,000.00 Company to analyze (using GIS and Landscape Analysis Tools) the status and dynamics of changes in degradation that take place at the landscape level in the Sixaola river basin as well as to assess the impact of sustainable agriculture production on reducing deforestation and water pollution. Company to provide detailed maps of current land use using aerial imagery through remote sensing and drones. Company on Groundwater Analysis to analize aquifer recharge rates through the application of new isotopic tracer analysis techniques to determine recharge times at different sites in the basin. Company for physical, chemical and bacterial surface water quality analyses. Company on Disaster Risk Management to design the establishment of weather stations and flood monitoring stations in the SIxaola River Basin. Company on environmental toxicity to design a monitoring program of human and environmental health effects of U-POPs emissions and organic wastes disposal, including key indicators. Company to develop a Restoration Plan plan for the restoration of river banks throughout the basin (identifying species, techniques, and implementation mechanisms with local stakeholders). Company to develop a groundwater water quality monitoring system for drinking water aqueducts in Costa Rica. Agriculture/food systems company to analyze the different production systems in the basin and develop a typology of farming systems according to their impact on human development and water quality. It will use GIS and integrate information form other social experts of the project.	146,000				146,000			146,000	OET
Contractual services-Company	381,000.00 Company to analyze (using GIS and Landscape Analysis Tools) the status and dynamics of changes in degradation that take place at the landscape level in the Sixaola river basin as well as to assess the impact of sustainable agriculture production on reducing deforestation and water pollution. Company to provide detailed maps of current land use using aerial imagery through remote sensing and drones. Company on Groundwater Analysis to analize aquifer recharge rates through the application of new isotopic tracer analysis techniques to determine recharge times at different sites in the basin. Company for physical, chemical and bacterial surface water quality analyses. Company on Disaster Risk Management to design the establishment of weather stations and flood monitoring stations in the SIxaola River Basin. Company on environmental toxicity to design a monitoring program of human and environmental health effects of U-POPs emissions and organic wastes disposal, including key indicators. Company to develop a Restoration Plan plan for the restoration of river banks throughout the basin (identifying species, techniques, and implementation mechanisms with local stakeholders). Company to develop a groundwater water quality monitoring system for drinking water aqueducts in Costa Rica.		235,000			235,000			235,000	OET

	Agriculture/food systems company to analyze the different production systems in the basin and develop a typology of farming systems according to their impact on human development and water quality. It will use GIS and integrate information form other social experts of the project.									
Contractual services-Company	510,000.00 Pilot 1. Implementation of the ecosystem restoration programme. Identification and monitoring of degraded areas through the definition of qualitative and quantitative monitoring variables (restoration and self-sustainability). GIS analysis. Strenthening the agroforestry nurseries capacities in both countries. Pilot 1. Sustainable production programme (Musa spp.) focused on women groups Pilot 1. Identification and monitoring of degraded areas. Implementation of biological corridors in indigenous territories in both countries. Pilot 2. Company support to identify priorities for research, information transfer and extension services on alternatives to agrochemicals and/or on good practices in the use of agrochemicals, as well as on best sustainable production and practices for pollution prevention in Costa Rica and Panama. Extension services desing specifically desing for farmer women and indigenoud farmers will be included. Pilot 2. Company (Green Commodities Program) to provide strategic orientation to increase private sector involvement in the processes needed to address the root causes of the environmental and social externalities of banana production, by securing corporate engagement services with banana buyers to ensure alignment between banana purchasing policies in the binational basin and best practices in Costa Rica and Panama. Pilot 3. Company to design an investment plan in post-harvest management processes, processing and agro-industrial production of cocoa derivatives for community-based entreprises (indigenous farmers) Pilot 1. Local communication plan and public campaing desing and implementation for sustainable agriculture and transition systems Pilot 1. Company/organization to implement coastal wetland restoration efforts			510,000		510,000			510,000	OET

Contractual services-Company	80,000.00 Company to design the systematic data collection and analysis to understand the nature and behavior of flood hazards, as well as the identification of related vulnerable groups, critical infrastructure and exposed assets, to design evacuation strategies that include evacuation routes and safe areas, and to expand warning messages. Company specialized in Applied Hidrometeorology to provide technical assistance to expand the network of hydrometeorological stations located in the Sixaola river basin and to provide guidelines for the early detection, monitoring, analysis and forecasting of flood hazards and potential consequences to provide forecasts and warnings, including the development of specific hydrometeorological models, as well as increasing automated hydrometeorological monitoring infrastructure to produce and deliver accurate thresholds for determining the activation of warnings at strategic sites in the binational basin.				80,000	80,000			80,000	OET
International Consultants	156,000.00 TDA Senior Expert: gathering, analysis and consolidation of information and writing of TDA; facilitation of meetings to validate accuracy of information in TDA; development of materials to summarize TDA for different stakeholders; provision of reliable data to GIS expert for inclusion in database, which includes data analysis and harmonization of information. (15% of time dedicated to gender-activities) Water pollution consultant. To produce a diagnosis on transboundary waste and wastes disposal mechanism in Costa Rica and Panama with differentiated information for men and women, as well for indigenous populations. (15% of time dedicated to gender-activities) International Law Expert to prepare recommentations for updating the statutes and norms for the strengthening the regulations of the CBCRS, to include gender considerations and the protocols FPIC. International consultant to develop an Environmental and Social Impact Assessment (ESIA) International consultant to develop an ESMP	90,000				90,000			90,000	OET
International Consultants	156,000.00 TDA Senior Expert: gathering, analysis and consolidation of information and writing of TDA; facilitation of meetings to validate accuracy of information in TDA; development of materials to summarize TDA for different stakeholders; provision of reliable data to GIS expert for inclusion in database, which includes data analysis and harmonization of information. (15% of time dedicated to gender-activities) Water pollution consultant. To produce a diagnosis on transboundary waste and wastes disposal mechanism in Costa Rica and Panama with differentiated information for men and women, as well for indigenous populations. (15% of time dedicated to gender-activities) International Law Expert to prepare recommentations for updating the statutes and norms for the strengthening the regulations of the CBCRS, to include gender considerations and the protocols FPIC. International consultant to develop an Environmental and Social Impact Assessment (ESIA) International consultant to develop an ESMP		66,000			66,000			66,000	OET

International Consultants	24,000.00 Pilot 2. Expert on multistakeholder dialogues and private sector engagement to support actions in Panama			24,000		24,000			24,000	OET
International Consultants	36,000.00 Finance Expert to design a Binational investment plan for flood risk management in the basin, including needed infrastructure and mechanism to avoid risk to indigenous populations				36,000	36,000			36,000	OET
International Consultants	33,000.00 Mid-term project review. Terminal project independent evaluation.					-	33,000		33,000	OET
Local Consultants	206,750.00 Environmental toxicology/pollution consultant to produce an inventory of specific or diffuse sources of pollution and support the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions and plastic wastes disposal. He/she will also deliver capacity building to Ministries of Environment and local staff from Talamanca municipalities. Groundwater consultant for the identification of water recharge areas and the implementation of the National Irrigation and Drainage Service (SENARA) methodology. Socio-economic consultant for collection and analisys of socioeconomic information and gathering of baseline data on agreed upon socioeconomic indicators, including dissagregated gender information, indigenous peoples, with a differentiated analysis for of urban and rural context. (15% of time estimated to gender-related activities) GIS consultant for development of GIS database to consolidate hydrogeological information, socio-demographic information and environmental pollution inventory of point and diffuse sources of pollution. Communication specialist (with experience on multicultural approaches) to develop a grievance mechanism, as well as socialize and train key stakeholders. Consultant with background on Social Sciences to discuss Project Components (pilot projects final location and rest of components) with all key stakeholders in order to develop a final ESMP document. This person will also be a trainer of the Training Program for the PMU and the CBCRS and institutional partners. ESIA/SESA Consultant - Development of binational ESIA study (SESA Stydy developed by a consultant in Panama) ESIA/SESA Consultant - Development of binational SESA study Public Finance Expert for reviewing options and designing a 10-year binational investment plan for the Strategic Action Plan. He/she will support binational task group to ensure technical, scientific, and economic support for SAP implementation. Information Management Expert to assess and update existing Environmental Information Systems in Costa Rica and Panama, and to design a strategy on the Sixaola river basin to generate and share information with key stakeholders. Rural development and agriculture/food systems consultants, in the framework of the SAP elanboration, to support the discussion on the transition of production systems in the basin according to reccomendations, existing farming systems and their impact on human development and water quality. Capacity building instructors to deliver capacity building plan given to MiAmbiente and local staff from Changuinola municipalities. Workshop facilitator for 2 events/ information exchanges on sustainable	91,500				91,500			91,500	OET

	food/agriculture production systemon sat the local level in Costa Rica and Panama. Policy consultant for incorporating the principal findings of the TDA in the Municipal and Regional Development Plans and/or Investments planning in Costa Rica and Panama. ESIA/SESA Consultant - Development of binational SESA study									

Local Consultants	206,750.00 Environmental toxicology/pollution consultant to produce an inventory of specific or diffuse sources of pollution and support the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions and plastic wastes disposal. He/she will also deliver capacity building to Ministries of Environment and local staff from Talamanca municipalities. Groundwater consultant for the identification of water recharge areas and the implementation of the National Irrigation and Drainage Service (SENARA) methodology. Socio-economic consultant for collection and analisys of socioeconomic information and gathering of baseline data on agreed upon socioeconomic indicators, including dissagregated gender information, indigenous peoples, with a differentiated analysis for of urban and rural context. (15% of time estimated to gender-related activities) GIS consultant for development of GIS database to consolidate hydrogeological information, socio-demographic information and environmental pollution inventory of point and diffuse sources of pollution. Communication specialist (with experience on multicultural approaches) to develop a grievance mechanism, as well as socialize and train key stakeholders. Consultant with background on Social Sciences to discuss Project Components (pilot projects final location and rest of components) with all key stakeholders in order to develop a final ESMP document. This person will also be a trainer of the Training Program for the PMU and the CBCRS and institutional partners. ESIA/SESA Consultant - Development of binational ESIA study (SESA Stydy developed by a consultant in Panama) ESIA/SESA Consultant - Development of binational SESA study Public Finance Expert for reviewing options and designing a 10-year binational investment plan for the Strategic Action Plan. He/she will support binational task group to ensure technical, scientific, and economic support for SAP implementation. Information Management Expert to assess and update existing Environmental Information Systems in Costa Rica and Panama, and to design a strategy on the Sixaola river basin to generate and share information with key stakeholders. Rural development and agriculture/food systems consultants, in the framework of the SAP elanboration, to support the discussion on the transition of production systems in the basin according to reccomendations, existing farming systems and their impact on human development and water quality. Capacity building instructors to deliver capacity building plan given to MiAmbiente and local staff from Changuinola municipalities. Workshop facilitator for 2 events/ information exchanges on sustainable food/agriculture production systemon sat the local level in Costa Rica and Panama. Policy consultant for incorporating the principal findings of the TDA in the Municipal and Regional Development Plans and/or Investments planning in Costa Rica and Panama. ESIA/SESA Consultant - Development of binational SESA study		115,250			115,250			115,250	OET

Local Consultants	166,000.00 Pilot 1- Conservation Biology / Agroforestry Expert to identify productive nature based solutions restoration approaches for the riverine forest of the Sixaola River. He/She will also identify potential option to restore wetlands. Pilot 1. Indigenous Peoples Ecology/Agroforestry Expert to identify sites and communities to implement conservation practices for the establishment of biological corridors and restoration of river banks, using traditional knowledge and native species. 100% estimated to indigenous territories - related budget Pilot 2. Political sociology expert to develop a stakeholder analisys, as a baseline to establish the muktistakeholder dialogue platform roadmap in Costa Rica and Panamá. Pilot 2. Agricultural Extensionist consultant to document best practices among agricultural Musa spp. producers (including groups or individual female farmers) to reduce pollution risks (from agrochemical) and mitigate the impact on shared marine, coastal and freshwater ecosystems in the Sixaola river basin. Pilot 3. Community based agriculture expert to develop a road map and options for the rescue and protection of traditional cocoa varieties and expansion of native organic cocoa production under agroforestry systems in indigenous territories of the binational basin. 100% estimated to indigenous territories - related budget Pilot 1. GIS expert to develop cartography and erosion model for the basin, in order to design the restoration practices. Pilot 1. Environmental legislation expert to develop a transboundary wetland management system, supporting international initiatives to declare the Gandoca Manzanillo and San San Pond Sak wildlife refuges as binational wetlands of international importance.			166,000		166,000			166,000	OET
Local Consultants	93,000.00 Communications specialized in community-based approaches to develop specific early warning dissemination and communication protocols to ensure that warnings reach all people at risk with clear messages containing simple, useful and usable information to enable adequate preparedness and response of organizations and communities, indigenous peopples using multiple communication channels, languages and currently available technology. Consultant to provide assistance to riparian communities and train them to apply simple monitoring tools, such as drones, to monitor flood waters, to complement and support automated monitoring mechanisms.				93,000	93,000			93,000	OET
Local Consultants	7,000.00 Mid-term GEF Tracking Tools update. Terminal GEF Tracking Tools update.					-	7,000		7,000	OET

Training, Workshops, Meetings	78,200.00 TDA Participatory process (informative event): Two participatory workshops with stakeholders identified in the Stakeholders Plan, Gender Action Plan and PPPI to inform about the TDA and collect key information (two events per country) 15% estimated to indigenous peoples - related budget (usd 2000 per event) TDA Participatory process (informative meetings in indigenous territories): Six informative meetings (in each of the indigenous territories to inform about the TDA and collect key information. TDA Participatory process (final presentation and validation): Two national events for TDA Presentation with key stakeholders in each country (as identified in the Stakeholder Plan, the Gender Action Plan and the IPP). 15% estimated to indigenous peoples - related budget TDA Participatory process (final presentation meetings in indigenous territories): Six meetings to present TDA results (in each of the indigenous territories) Workshops and/or meetings costs regarding the participative process on gender mainstreaming to prepare and elaborate of proposals for the SAP. (Special considerations regarding specific needs, such as childcare services, will be included under this budget line) Workshops and/or Meetings associated with participative process for SAP elaboration regarding the dialogue processes for SAP discussion with Indigenous Peoples to be defined with the IPCC during first semester of project implementation. An estimation of two events/meeting per territory are foreseen. Potential indigenous participatory, consultative or FPIC process: Meetings costs for needed participative, consultative of FPIC process with indigenous peoples on pilot projects (pilot 1 and 3) final location (unitary cost: $5,000 for participatory and dialogue process related to consultation and FPIC) Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, worker0s unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Costa Rica. Workshops/Meetings to present and validate the ESMP with key stakeholders and Indigenous Peoples territorial authorities (in their territories) and deliover training on the grievance mechanism. Workshops with national authorities to discuss and approve proposals for updating the regulatory framework for preventing non-point source pollution. Workshop costs for IWRM training in Costa Rica and Panama (10 training events with target stakeholders included in the Stakeholder Plan) Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, workers unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Panamá.	18,600				18,600			18,600	OET

Training, Workshops, Meetings	78,200.00 TDA Participatory process (informative event): Two participatory workshops with stakeholders identified in the Stakeholders Plan, Gender Action Plan and PPPI to inform about the TDA and collect key information (two events per country) 15% estimated to indigenous peoples - related budget (usd 2000 per event) TDA Participatory process (informative meetings in indigenous territories): Six informative meetings (in each of the indigenous territories to inform about the TDA and collect key information. TDA Participatory process (final presentation and validation): Two national events for TDA Presentation with key stakeholders in each country (as identified in the Stakeholder Plan, the Gender Action Plan and the IPP). 15% estimated to indigenous peoples - related budget TDA Participatory process (final presentation meetings in indigenous territories): Six meetings to present TDA results (in each of the indigenous territories) Workshops and/or meetings costs regarding the participative process on gender mainstreaming to prepare and elaborate of proposals for the SAP. (Special considerations regarding specific needs, such as childcare services, will be included under this budget line) Workshops and/or Meetings associated with participative process for SAP elaboration regarding the dialogue processes for SAP discussion with Indigenous Peoples to be defined with the IPCC during first semester of project implementation. An estimation of two events/meeting per territory are foreseen. Potential indigenous participatory, consultative or FPIC process: Meetings costs for needed participative, consultative of FPIC process with indigenous peoples on pilot projects (pilot 1 and 3) final location (unitary cost: $5,000 for participatory and dialogue process related to consultation and FPIC) Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, worker0s unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Costa Rica. Workshops/Meetings to present and validate the ESMP with key stakeholders and Indigenous Peoples territorial authorities (in their territories) and deliover training on the grievance mechanism. Workshops with national authorities to discuss and approve proposals for updating the regulatory framework for preventing non-point source pollution. Workshop costs for IWRM training in Costa Rica and Panama (10 training events with target stakeholders included in the Stakeholder Plan) Training program for the PMU, CBCRS, institutional partners, and local partners (local governments, NGOs, workers unions, private sector) around the following themes: (i) legal framework of indigenous peoples' rights; (ii) ancestral knowledge and indigenous worldview and the relationship of indigenous peoples with their natural heritage; and (iii) identification of opportunities to reduce inequalities based on gender and age. Two events in Panamá.		62,600			62,600			62,600	OET

Training, Workshops, Meetings	8,000.00 Pilot 2. Workshop costs for the reduction of harmful chemicals through training and environmental education with stakeholders inclided in the Stakeholders Plan, Gender Action Plan and IPP Pilot 1. A training/exchange programme (four events, 2 of them binational) for women to discuss and improve the understanding of Land Management Tools (i.e., micro-corridors, live fences, protection zones; establishing nurseries of endemic species), their ecosystem services and benefits, and potential risks. 15% estimated to indigenous peoples - related budget			8,000		8,000			8,000	OET
Training, Workshops, Meetings	9,600.00 Workshop on Hidrometeorological monitoring and flood prevention and early warning for 40 participants from Costa Rica and Panama: Two days; equivalent to 80 field mission days				9,600	9,600			9,600	OET
Training, Workshops, Meetings	20,900.00 Project Inception Workshop Organization Binational exchange spaces for women from Panama and Costa Rica to skills and knowledge to accessing the information platform on the Sixaola River Basin on website. Workshops/meeting for monitoring (m&e) safeguards and addressing grievances. Pilot Project Inception Workshop (2) Panama Mid-term review related workshops. Terminal evaluation related workshops.					-	20,900		20,900	OET

Travel	105,890.00 Travel costs (DSA and ground transportation) for ESMP, IPPF, SESA and ESIA consultants- *Travel costs (workshop/meetings) associated with the socializing and training of the grievance mechanism. 10 field mission days. *Travel costs (workshop/meetings regarding the collection of socioeconomis information. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESIA y SESA. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESMP. 30 field mission days. Travel costs (DSA and ground transportation) for Groundwater and TDA consultants to gather baseline data and carry out consultations and meetings for preparation of TDA. --> 50 field missions days in total. Travel cost (DSA and ground transportation) for Binational Project Coordinator in oversight of Component 1. --> Twenty 2-day trips: $150/day, during 24 months Travel cost (only ground transportation) for National Project Specialists to oversight and coordinate logistics of Component 1. Travel cost for policy expert to support municipalities in incorporating the principal findings of the TDA in the Municipal Development Plans and/or Investment Plans in Costa Rica and Panama. --> Six 3-day trips: $120/day, during 8 months Travel costs (missions) of Binational Project Coordinator and National Specialists to prepare the NSAP for Costa Rica ensuring articulation and participation indicated in the Stakeholder Plan, PPPI and folowing guidelines from the Gender Action Plan Travel costs (missions) for Binational Project Coordinator and National Specialists to participate on meetings to prepare, share drafts and agree upon SAP. Travel costs (missions) of Binational Project Coordinator and National Specialist regarding the coordination with the Sixaola Binational Commission (initiation of the project, establishment of coordination mechanisms, the IPCC , and other to follow up and mantain a smooth coordination and commmunication) Travel costs of Binational Project Coordinator and M&E Specialist associated with obtaining consensus on M&E indicators. Travel costs (missions) of Binational Project Coordinator and International Law Expert regarding the strenthening the Sixaola Binational Commission. Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Costa Rica (10 field mission days). Travel costs (workshop/events) regarding the participative process for SAP elaboration with relevant stakeholders as indicated in the Project Stakeholders Plan. Travel costs (workshop/events) regarding the participative process for SAP elaboration on gender mainstreaming, to elaborate of proposals to address issues affecting differently women and/or impact positively their empowerment for IWRM (as identified in the TDA), with target groups and competent institutions.	33,360				33,360			33,360	OET

	Travel costs (workshop/events) related to the implementation of a binational environmental education plan for IWRM. Travel costs (workshop/events) associated with the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions. Travel costs (workshop/events) associated with the technical support process to incorporate environmental management of harmful chemicals Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Panama (10 field mission days). Travel costs associated with 15 environmental national training sessions in Panama with 20 participants each. Travel costs (DSA and ground transportation) associated with obtaining consensus on M&E indicators for assessing or human and environmental health effects of pollutants and plastic wastes disposal.									

Travel	105,890.00 Travel costs (DSA and ground transportation) for ESMP, IPPF, SESA and ESIA consultants- *Travel costs (workshop/meetings) associated with the socializing and training of the grievance mechanism. 10 field mission days. *Travel costs (workshop/meetings regarding the collection of socioeconomis information. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESIA y SESA. 20 field mission days. *Travel costs (workshop/meetings regarding the development of the ESMP. 30 field mission days. Travel costs (DSA and ground transportation) for Groundwater and TDA consultants to gather baseline data and carry out consultations and meetings for preparation of TDA. --> 50 field missions days in total. Travel cost (DSA and ground transportation) for Binational Project Coordinator in oversight of Component 1. --> Twenty 2-day trips: $150/day, during 24 months Travel cost (only ground transportation) for National Project Specialists to oversight and coordinate logistics of Component 1. Travel cost for policy expert to support municipalities in incorporating the principal findings of the TDA in the Municipal Development Plans and/or Investment Plans in Costa Rica and Panama. --> Six 3-day trips: $120/day, during 8 months Travel costs (missions) of Binational Project Coordinator and National Specialists to prepare the NSAP for Costa Rica ensuring articulation and participation indicated in the Stakeholder Plan, PPPI and folowing guidelines from the Gender Action Plan Travel costs (missions) for Binational Project Coordinator and National Specialists to participate on meetings to prepare, share drafts and agree upon SAP. Travel costs (missions) of Binational Project Coordinator and National Specialist regarding the coordination with the Sixaola Binational Commission (initiation of the project, establishment of coordination mechanisms, the IPCC , and other to follow up and mantain a smooth coordination and commmunication) Travel costs of Binational Project Coordinator and M&E Specialist associated with obtaining consensus on M&E indicators. Travel costs (missions) of Binational Project Coordinator and International Law Expert regarding the strenthening the Sixaola Binational Commission. Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Costa Rica (10 field mission days). Travel costs (workshop/events) regarding the participative process for SAP elaboration with relevant stakeholders as indicated in the Project Stakeholders Plan. Travel costs (workshop/events) regarding the participative process for SAP elaboration on gender mainstreaming, to elaborate of proposals to address issues affecting differently women and/or impact positively their empowerment for IWRM (as identified in the TDA), with target groups and competent institutions.		72,530			72,530			72,530	OET

	Travel costs (workshop/events) related to the implementation of a binational environmental education plan for IWRM. Travel costs (workshop/events) associated with the implementation of environmental education activities regarding human and environmental health effects of U-POPs emissions. Travel costs (workshop/events) associated with the technical support process to incorporate environmental management of harmful chemicals Travel costs (workshop/events) for the Social and Human Right Expert regarding the participative process with indigenous people to prepare the SAP in Panama (10 field mission days). Travel costs associated with 15 environmental national training sessions in Panama with 20 participants each. Travel costs (DSA and ground transportation) associated with obtaining consensus on M&E indicators for assessing or human and environmental health effects of pollutants and plastic wastes disposal.									

Travel	77,125.00 Travel cost for Binational Project Coordinator in oversight of outputs under Component 3. (Includes DSA and ground transportation) Travel cost for National Project Specialists Costa Rica to outputs under Component 3. (Includes DSA and ground transportation) Travel cost for International and Local Consultants in support of outputs under Component 3. (Includes DSA and ground transportation; and estimate of 25 days of field visits days per consultant) Pilot 2. DSA and expenses for training/exchange women programme on Land Management Tools DSA Pilot Project Manager Panama.			77,125		77,125			77,125	OET
Travel	22,000.00 Travel costs for expert on risk management. Travel costs for Community risk monitoring expert: Travel costs for Communications expert. Travel costs for Disaster risk management expert. Travel costs to flood monitoring and early warning system workshop. Travel costs to Binational Workshop on Early Warning Systems.				22,000	22,000			22,000	OET
Travel	25,750.00 Travel costs for the Binational Project Coordinator and representatives from Costa Rica and Panama to participate in the International Waters Conference. Travel costs for mid-term review. Travel costs for terminal evaluation (TE) Travel costs for mid-term review of pilot projects. Travel costs related to knowledge management, knowledge sharing, and M&E					-	25,750		25,750	OET
Office Supplies	23,395.00 Office stationary and other supplies required for preparation of TDA and support to the operation of the CBCRS Stationery for meetings and workshops, office supplies, etc. for development of SAP and NSAPs. Supplies for IWRM training workshops. Supplies for gender mainstreaming workshops; Supplies for information exchanges between Costa Rica and Panama Supplies related to the implementation of a binational environmental education plan for IWRM. Office stationary and other supplies for implementation of outputs under Component 2	8,000				8,000			8,000	OET
Office Supplies	23,395.00 Office stationary and other supplies required for preparation of TDA and support to the operation of the CBCRS Stationery for meetings and workshops, office supplies, etc. for development of SAP and NSAPs. Supplies for IWRM training workshops. Supplies for gender mainstreaming workshops; Supplies for information exchanges between Costa Rica and Panama Supplies related to the implementation of a binational environmental education plan for IWRM. Office stationary and other supplies for implementation of outputs under Component 3		15,395			15,395			15,395	OET

Office Supplies	10,200.00 Office supplies (pilot projects) Panama Office and IT supplies. Stationery for meetings and workshops, office supplies, etc. for development of outputs under Component 3. Amount per year			10,200		10,200			10,200	OET
Other Operating Costs	68,600.00 Publication and electronic copies of TDA for multiple stakeholders. Printing of SAPs and NSAPs for dissemination to different relevant stakeholders. Printed materials for capacity building. Production of video summarizing the sustainable agricultural practices for awareness raising process. Printed materials for capacity building for the reduction of harmful chemicals (U-POPs). Materials for public environmental awareness-raising for the reduction of harmful chemicals (U-POPs). Production of video summarizing the achievements of the CBCRS. Communication materials for dissemination of the Project outcomes and its integration with IWRM to different relevant stakeholders.	5,000				5,000			5,000	OET
Other Operating Costs	12,500.00 Unforeseen events related to preparation of TDA and other costs related to currency conversion, etc. Unforeseen events related to preparation of SAPs and NSAPs, etc., and the implementation of outputs and other costs such as currency conversion	2,000				2,000			2,000	OET
Other Operating Costs	68,600.00 Publication and electronic copies of TDA for multiple stakeholders. Printing of SAPs and NSAPs for dissemination to different relevant stakeholders. Printed materials for capacity building. Production of video summarizing the sustainable agricultural practices for awareness raising process. Printed materials for capacity building for the reduction of harmful chemicals (U-POPs). Materials for public environmental awareness-raising for the reduction of harmful chemicals (U-POPs). Production of video summarizing the achievements of the CBCRS. Communication materials for dissemination of the Project outcomes and its integration with IWRM to different relevant stakeholders.		63,600			63,600			63,600	OET
Other Operating Costs	12,500.00 Unforeseen events related to preparation of TDA and other costs related to currency conversion, etc. Unforeseen events related to preparation of SAPs and NSAPs, etc., and the implementation of outputs and other costs such as currency conversion		7,500			7,500			7,500	OET
Other Operating Costs	4,000.00 Incidental expenses associated to pilot projects.			4,000		4,000			4,000	OET
Other Operating Costs	20,000.00 Printing of leaflets and communications materials for Early Warning System public Campaign.				20,000	20,000			20,000	OET

Other Operating Costs	54,000 Translations of key documents into local indigenous languages if needed (sumary of TDA, 15 pages; summary of SAP, 15 pages). Translation of ESMP summary (max of 15 pages) and grievance mechanism (max 15 pages) to 4 indigenous languages. Audivisual production of promotion materials and lessons learnt. Develop specific targeted content of interest of women organizations. Digital and Printed - Publications related to knowledge management and communication. Develop specific targeted content of interest of women and indigenous organizations. 15% indigenous peoples estimated related activities					-	54,000		54,000	OET
Other Operating Costs	17,500.00 External audit					-		17,500	17,500	OET
Grand Total		**693,460**	**1,160,875**	**1,101,825**	**633,600**	**3,589,760**	**588,950**	**207,500**	**4,386,210**	