



## **Transboundary cooperation for the conservation, sustainable development and integrated management of the Pantanal - Upper Paraguay River Basin**

### **Part I: Project Information**

#### **GEF ID**

10554

#### **Project Type**

FSP

#### **Type of Trust Fund**

GET

#### **CBIT/NGI**

CBIT **No**

NGI **No**

#### **Project Title**

Transboundary cooperation for the conservation, sustainable development and integrated management of the Pantanal - Upper Paraguay River Basin

#### **Countries**

Regional, Bolivia, Brazil, Paraguay

#### **Agency(ies)**

IADB, UNEP

#### **Other Executing Partner(s)**

WWF-US

#### **Executing Partner Type**

GEF Agency

#### **GEF Focal Area**

International Waters

#### **Taxonomy**

Focal Areas, Land Degradation, Sustainable Land Management, Restoration and Rehabilitation of Degraded Lands, Integrated and Cross-sectoral approach, Ecosystem Approach, Sustainable Pasture Management, Sustainable Agriculture, Improved Soil and Water Management Techniques, International Waters, Fisheries, Freshwater, Aquifer, River Basin, Transboundary Diagnostic Analysis and Strategic Action Plan Preparation, Strategic Action Plan Implementation, Pollution, Nutrient pollution from all sectors except wastewater, Nutrient pollution from Wastewater, Learning, Biodiversity, Mainstreaming, Agriculture and agrobiodiversity, Tourism, Biomes, Tropical Dry Forests, Wetlands, Protected Areas and Landscapes, Terrestrial Protected Areas, Productive Landscapes, Climate Change, Climate Change Adaptation, Climate resilience, Ecosystem-based Adaptation, Influencing models, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Convene multi-stakeholder alliances, Deploy innovative financial instruments, Transform policy and regulatory environments, Stakeholders, Private Sector, SMEs, Capital providers, Individuals/Entrepreneurs, Financial intermediaries and market facilitators, Type of Engagement, Participation, Information Dissemination, Partnership, Consultation, Local Communities, Communications, Behavior change, Awareness Raising, Education, Civil Society, Community Based Organization, Non-Governmental Organization, Academia, Indigenous Peoples, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Beneficiaries, Gender results areas, Capacity Development, Knowledge Generation and Exchange, Participation and leadership, Capacity, Knowledge and Research, Knowledge Generation, Innovation, Theory of change, Adaptive management, Knowledge Exchange, Targeted Research

**Sector**

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 1

**Submission Date**

2/28/2022

**Expected Implementation Start**

10/1/2022

**Expected Completion Date**

10/1/2026

**Duration**

48In Months

**Agency Fee(\$)**

778,050.00

**A. FOCAL/NON-FOCAL AREA ELEMENTS**

<b>Objectives/Programs</b>	<b>Focal Area Outcomes</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
IW-3-6	Enhanced regional and national co-operation on shared freshwater surface and groundwater basins	GET	5,090,000.00	104,314,303.00
IW-3-7	Investments in water, food, energy and environmental security	GET	3,100,000.00	25,828,576.00
<b>Total Project Cost(\$)</b>			<b>8,190,000.00</b>	<b>130,142,879.00</b>

## B. Project description summary

### Project Objective

To promote water security through strengthening transboundary water governance, sustainable development, balancing multiple-use and promoting integrated management of the Pantanal-Upper Paraguay River Basin for the social and economic well-being of the population and for the conservation of the freshwater ecosystem, its services, its biodiversity and connectivity.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1: Strengthening cooperation for integrated river basin management (UNEP).	Technical Assistance	Outcome 1: Improved understanding of water security and regional cooperation for sustainable use and integrated management.	<p>1.1 A proposal of alternatives for tri-national coordination of the basin (input to Core Indicator 7).</p> <p>1.2 Proposed water management principles and targets (as input to the Strategic Action Programme (SAP)) (input to Core Indicator 7).</p> <p>1.3 A proposed framework for improved management and protection of the aquatic ecosystem (input to Core Indicator 7 &amp; 11).</p>	GET	550,000.00	6,473,290.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2: Consolidating and sharing knowledge, and developing a common understanding of the Pantanal-Upper Paraguay Basin. (UNEP/IDB).	Technical Assistance	Outcome 2: Improved understanding and consensus between the three countries regarding the key transboundary issues and the drivers of change in the region including enhanced capacity for joint monitoring and information exchange.	<p>2.1 A region wide Transboundary Diagnostic Analysis (TDA) complementing and building upon countries' experience and knowledge, further defining the La Plata Basin diagnostic (input to Core Indicator 7 &amp; 11) (UNEP).</p> <p>2.2 Basin wide ecosystem modelling including inter alia environmental flow modeling, water balance, climate change scenarios (input to Core Indicator 11) (IDB-UNEP).</p> <p>2.3 Basin wide information exchange protocol and an integrated hydro-climatic reporting system including inter-country capacity development (input to Core Indicator 11) (UNEP).</p> <p>2.4 A strategic plan for a Basin-wide water monitoring network (incl. hydromet, water quality, sediment and groundwater relevant networks</p>	GET	1,900,000.00	29,051,092.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3: Towards trilateral planning for sustainable management of the basin. (IDB/UNEP)	Technical Assistance	Outcome 3: Enhanced countries commitment to sustain joint, equitable cooperation actions and to support priority reforms and investments.	<p>3.1 A region wide Strategic Action Programme (SAP) signed by relevant Ministries. (input to Core Indicator 7 &amp; 11) (UNEP).</p> <p>3.2 A proposal for land management actions to reduce threats (non-point source pollution and sediment loads) (input to Core Indicator 7) (UNEP).</p> <p>3.3 A proposal for achieving environmental flow regimes in at least 2 critical sub-basins (IDB-UNEP).</p> <p>3.4 A sustainable financing strategy to support implementation of the SAP and key priority activities (input to Core Indicator 7) (IDB).</p> <p>3.5 A series of integrated municipal water and sanitation plans (input to Core Indicator 11) (IDB).</p>	GET	2,100,000.00	34,524,382.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 4: On-the-ground interventions promoting integrated water resources management and sustainable finance. (IDB/UNEP)	Technical Assistance	Outcome 4: Demonstrated on the ground benefits of and stress reduction from environmentally sound and, cost effective approaches and technologies for replication in the SAP.	<p>A series of interventions and targeted actions, including documented results for replication focusing on, inter-alia:</p> <p>4.1 Sustainable land use and water management practices implemented in critical sites to reduce stresses, including sediment and pollution loads, amongst others in at least 600 ha. (input to Core Indicator 4) (UNEP).</p> <p>4.2 Water/food/energy nexus interventions for enhanced water and land security considering competing water uses in at least 1 location (input to Core Indicator 11) (IDB).</p> <p>4.3 Best Practices for efficient irrigation tested in 50 ha with optimization of water demand targets towards an efficient water use allocation system (input to Core Indicator 4</p>	GET	2,950,000.00	49,628,893.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 5: Awareness building, stakeholder involvement (UNEP)	Technical Assistance	Outcome 5: Improved visibility of the Pantanal as a system of global significance, increased awareness and participation among stakeholders for integrated management and, strengthened gender equality and women empowerment to facilitate adoption of the SAP agenda.	<p>5.1 A stakeholder engagement and communication plan including awareness building products (such as audio-visuals, education package, etc.).</p> <p>5.2 A training/capacity building program on sustainable water and land management for utilities, management authorities, water users, civil society, amongst others (input to Core Indicator 11).</p> <p>5.3 Gender equity, women empowerment and mainstreaming Plan and implementation (input to Core Indicator 11).</p> <p>5.4 Documented IW:LEARN support including knowledge sharing, experience notes, twinning program and dialogues and, IW conferences participation (1% of GEF grant) (input to Core Indicator 7 &amp; 11).</p>	GET	300,000.00	4,315,561.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
				<b>Sub Total (\$)</b>	<b>7,800,000.00</b>	<b>123,993,218.00</b>
<b>Project Management Cost (PMC)</b>						
GET			390,000.00		6,149,661.00	
<b>Sub Total(\$)</b>			<b>390,000.00</b>		<b>6,149,661.00</b>	
<b>Total Project Cost(\$)</b>			<b>8,190,000.00</b>		<b>130,142,879.00</b>	

Please provide justification

**C. Sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
Recipient Country Government	Bolivia: Ministry of Environment and Water, bilateral and multilateral funding (1)	In-kind	Investment mobilized	23,624,763.00
Recipient Country Government	Bolivia: Ministry of Environment and Water	In-kind	Recurrent expenditures	6,389,722.00
Recipient Country Government	Brazil: Ministry of Regional Development	In-kind	Investment mobilized	60,000,000.00
Recipient Country Government	Brazil: National Water and Sanitation Agency	In-kind	Investment mobilized	9,372,500.00
Recipient Country Government	Brazil: National Water and Sanitation Agency	In-kind	Recurrent expenditures	500,000.00
Recipient Country Government	Paraguay: Ministry of Environment and Sustainable Development; Ministry of Foreign Affairs, bilateral and multilateral funding	In-kind	Recurrent expenditures	14,975,573.00
Donor Agency	World Wildlife Foundation ? Paraguay Office	In-kind	Investment mobilized	14,280,321.00
Donor Agency	Inter-American Development Bank	Grant	Investment mobilized	1,000,000.00
<b>Total Co-Financing(\$)</b>				<b>130,142,879.00</b>

**Describe how any "Investment Mobilized" was identified**

Recurring expenditures and mobilized investments were identified by each government using the GEF Co-financing guidelines (<https://www.thegef.org/documents/co-financing>). Countries strategically selected and compiled their in-kind co-financing to support the project implementation period and in alignment with project's outcomes and outputs. Staff time and institutional support was identified for each country (BO,

BR, PY). Investment mobilized originated mainly from projects in the area of the Pantanal - UPRB related to land and water management, environmental sustainability, water security and watershed planning and management, hydrological studies data and information monitoring, sanitation and water infrastructure, strengthening governance and institutional capacity for water resources management, agricultural productivity and ecosystem management and protection, sustainable development, among others with a view to complement the GEF investment and address the specific knowledge needs of the projects as identified during co-development of the project components. Specifically, in-kind recurring resources from each country (i.e. Bolivia's water related ministries and municipal governments, Brasil Water Agency (ANA) and Ministry of Regional Development and, the Ministry of Environment (MADES) in Paraguay) will contribute to the delivery of all the project components. In contrast, investments mobilized by each country through various on-going projects and initiatives whose resources will not directly be managed by the project but whose objectives and activities align with those of the project and, as such are considered as in-kind contributions, will contribute to the various project components as follows. In-kind investments mobilized by Bolivia have been secured to contribute to component 1 on trinational governance and with the formulation of a framework for improved management and protection of the aquatic ecosystem. In component 2, the inputs from Bolivia emanating from parallel investments will help support the formulation of the TDA and ecosystem modelling including environmental flow modelling, water balance, climate change scenarios. Bolivia's parallel initiatives will help support the formulation of the SAP in component 3 including work on water quality and sanitation. Finally, Bolivia in-kind investment are mobilized to support the pilots and on-site interventions in component 4 mostly on land and water management, regulating instruments and irrigation. Bolivia's investments are mostly coming from EU, the Netherlands and IDB funded initiatives as well as WWF funded programmes. Brazil mobilized in kind resources through parallel initiatives from ANA which are also supporting component 1 on trinational governance as well as component 2 on the TDA and basin wide ecosystem modelling including environmental flow modelling, water balance, climate change scenarios. ANA's body of work will also support the SAP formulation (component 4) with emphasis on land management actions to reduce threats (non-point source pollution and sediment loads) and the pilots which will help formulating the SAP specifically on land and water management and on water quality and sanitation. Finally, ANA's parallel activities will support awareness building and stakeholder involvement supporting IWRM training and gender mainstreaming. The in-kind investments mobilized directly by the Government of Paraguay (MADES) will also complement the governance work under component 1. It will contribute to the TDA formulation and help with the formulation of a basin wide information exchange protocol and an integrated hydro-climatic reporting system including inter-country capacity development and basin modeling. Paraguay's in-kind contribution to component 3 will focus on land management actions to reduce threats (non-point source pollution and sediment loads) and on environmental flows based on their experience in the Gran Chaco. Paraguay's in-kind investment mobilized will enrich all pilots in component 4. Finally, component 5 will also benefit from WWF- Paraguay in-kind investment mobilized in support of stakeholder engagement and communication matters as well training on land and water management and, gender mainstreaming. Additionally, the IDB has a number of technical cooperation projects in the region that contribute to the project. Similarly, WWF is also investing significantly in Paraguay in climate, forestry and water management projects in critical ecosystems.

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

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
IADB	GET	Regional	International Waters	International Waters	4,200,000	399,000	4,599,000.00
UNEP	GET	Regional	International Waters	International Waters	3,990,000	379,050	4,369,050.00
<b>Total Grant Resources(\$)</b>					<b>8,190,000.00</b>	<b>778,050.00</b>	<b>8,968,050.00</b>

**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

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Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

**F. Project Preparation Grant (PPG)**

PPG Required **true**

**PPG Amount (\$)**

200,000

**PPG Agency Fee (\$)**

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
IADB	GET	Regional	International Waters	International Waters	102,000		<b>102,000.00</b>
UNEP	GET	Regional	International Waters	International Waters	98,000		<b>98,000.00</b>
<b>Total Project Costs(\$)</b>					<b>200,000.00</b>	<b>0.00</b>	<b>200,000.00</b>

## Core Indicators

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
650.00	650.00	0.00	0.00

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

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

**Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)**

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

Type/Name of Third Party Certification

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
650.00	650.00		

**Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided**

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

**Documents (Please upload document(s) that justifies the HCVF)**

Title

Submitted

**Indicator 7 Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Shared water Ecosystem</b>	Pantanal	Pantanal		
<b>Count</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>

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

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Pantanal	1	1		
<b>Select SWE</b>				<input type="checkbox"/>

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

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Pantanal	1	1		
<b>Select SWE</b>				<input type="checkbox"/>

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

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Pantanal	1	1		
<b>Select SWE</b>				<input type="checkbox"/>

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

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Pantanal	1	1		
<b>Select SWE</b>				<input type="checkbox"/>

**Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**

	<b>Number (Expected at PIF)</b>	<b>Number (Expected at CEO Endorsement)</b>	<b>Number (Achieved at MTR)</b>	<b>Number (Achieved at TE)</b>
<b>Female</b>	88,672	88,107		
<b>Male</b>	83,058	89,954		
<b>Total</b>	171730	178061	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

## **Part II. Project Justification**

### **1a. Project Description**

#### **a. the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description);**

##### **Overall context**

Increasing threats to water security is a challenge to sustainable development across the planet. Finding the balance between food supply, energy production, sustaining livelihoods, and conserving ecosystems for future generations demands multi-sectoral approaches, which in an international water basin equates to cooperation and coordination across multiple levels of jurisdiction. Economic development trends and expanding population growth rates in the Upper Paraguay River Basin (UPRB) will undoubtedly result in growing demands on water resources for domestic and municipal uses, industrial processes, agricultural production, navigation, and hydropower energy. This, combined with the uncertainty associated with climate change, will place increasing importance on the need to sustainably manage wetlands as a key contributor to economic, social, and environmental well-being of the region.

In the Upper Paraguay River Basin and specifically the Pantanal (wetland), it is of particular importance to balance competing demands to ensure sustained growth for the region, but also for the conservation of an ecosystem of global significance. Globally, wetlands account for less than 8% of our land area, yet they are of paramount importance to sustainable development as wetland ecosystem services far exceed those of terrestrial ecosystems. They provide critical food supplies, including rice, freshwater and fish, as well as fiber and fuel. They are a source and purifier of water and are connected often to important groundwater resources. They provide regulating services, influence climate and hydrological regimes, and reduce both pollution and disaster risk. They are the most biodiverse land-systems and an efficient sink storing more carbon than any other ecosystem. In summary, their ecosystem services far outweigh those of any other terrestrial ecosystem. However, despite this global importance, globally wetlands are being lost at a rate three times greater than that of forests.

The Pantanal ? Upper Paraguay River Basin (Pantanal-UPRB), shared between Bolivia, Brazil and Paraguay, with a variety of interconnected and interdependent biomes is no exception. In the northwest, it contains the Chiquitano Dry Forests bordering the Amazon biome. Most of the basin consists of wooded and forested savannah (Cerrado), one of the richest savannahs in the world, with 11,627 species of catalogued native plants, 199 species of mammals, and 837 of birds. The Pantanal is the world's largest tropical wetland covering around 158,000 km<sup>2</sup>. It is important to balance competing demands to ensure sustained growth for the region, but also conserve this ecosystem of global significance.

The region is characterized by a clear division between the Pantanal floodplain and the highland plateau (Meseta) within the Cerrado. Despite being two regions with very different characteristics, they are unquestionably interdependent. The ecological processes and environmental balance of the

floodplains are influenced by events in the highlands of the basin. The Meseta (plateau) is responsible for most of the water runoff that maintains the flood pulse in the Pantanal plain. Additionally, the higher rainfall rate in the Meseta, together with the soil types and land use and occupation in the region, set the conditions for high sediment yield in the lower wetland area. The sediments are carried by the waterways to the lowland regions and deposited in the plains, where the low velocity flow favours sedimentation.

The floodplains have a low rate of runoff. Consequently, under the rainfall regime, extensive flooding can occur in as much as 110,000 km<sup>2</sup> of the plains. Large areas can remain underwater for up to eight months due to the overflow of rivers and floods resulting from local rain and from the increased level of the water table. The plateau supplies water to the plains and its hydrology is characterized by continuous runoff and a high correlation between rainfall and rainwater flow. During the period of low rainfall, the floodplains are slowly reduced in size as the waters flow southwards through the multiple tributaries and channels associated with the Paraguay River. This decrease of floodwater is of vital importance to the downstream La Plata Basin for which the Pantanal serves as a hydrological buffer.

Similar to the significant annual wetlands of the Tonle Sap in Cambodia or the Okavongo floodplain in southern Africa, the flood and drought cycles in the Pantanal is also extremely sensitive to variations of rainfall in the uplands and annual variations of a few decimetres may cause considerable changes in the Pantanal's flooded areas. This delicate balance between the flood and drought cycles has given rise to a rich diversity of plant life and commensurate animals and is considered to have the greatest diversity of freshwater aquatic plants in the world. Furthermore, as development in the region has been, until recently, fairly limited it is counted among one of the major wilderness areas on the planet and its location makes it an access point for a diversity of South American mammals. Within the Pantanal, the 'Pantanal Boliviano' (Bolivia), 'Pantanal Matogrossense' (Brazil), 'SESC Pantanal' (Brazil), and 'Rio Negro' (Paraguay) have been designated as Ramsar Sites with a collective area of over 34,000 km<sup>2</sup>.

## **Threats**

Currently, the Pantanal remains relatively intact. However, a growing number of environmental pressures, ranging from unsustainable land management to untreated waste pollution, and forest fires, threaten to destabilize the regional ecosystem and the benefits it provides people and wildlife.

A preliminary identification of threats to the Pantanal, that will be reassessed in the planned Transboundary Diagnostic Analysis (to be undertaken in Component 2), can be summarized as:

- ? Land-use change and habitat loss
- ? Pollution and degraded water quality
- ? Climate change and extreme hydrological events
- ? Wildlife loss
- ? Lack of coordinated management
- ? Hydroelectric development
- ? Potential infrastructure development

**Land-use change:** The rate of deforestation within the Pantanal has quadrupled in recent years, with more than 12 per cent of the forest cover already lost. It is estimated that by 2015 more than 50 per cent of the upland areas draining into the Pantanal had been converted to pasture and croplands and that the rate of land conversion exceeds that of the Amazon. At the current rate, the Pantanal's native vegetation will disappear by 2050 if no measures are taken to combat this trend.

The expansion of the agricultural and livestock sector is a topic of great relevance in the Pantanal-UPRB, which currently already exerts significant pressures on water resources in quantitative and qualitative aspects, especially in the plateau region, where most of the areas dedicated to pasture and agriculture are concentrated.

Soybean plantations cover over 2,100,000 ha in the region, including 200,000 ha in the Pantanal. Other important crops are cotton, corn (maize), rice, and sorghum. On the Plateau, no-till agriculture techniques are used. There has been a trend to transform native vegetation, especially Cerrado, into pastureland for cattle and soybean fields.

The Chaco ecoregion, part of the Pantanal-UPRB, is suffering from changes in land cover and land use. For example, between 2016 and 2018 there has been a 19.5% increase in agricultural fields, a decrease of 6.2% in dry forests and a decrease of 16.3% in flooded savannahs. During the same period 10.8% of the dry and hydrophilic forest loss was found in areas converted to agricultural fields. The increase of agricultural fields occurred not only in forest areas, but also in flooded savannahs, shrublands, wetlands, water bodies and marshlands.[1]<sup>1</sup>

Farmers traditionally set fire to the land during the dry season to clear the brush and make way for new growth on which to graze their cattle. These fires often spread, destroying extensive areas of forest and wildlife habitat. Between 1 January and 4 August 2020, the area affected by forest fires throughout the Pantanal covered around of 768,000 ha. In Bolivian territory, 147,000 ha (19%) were burned, in Paraguay 86,000 ha (11%) and in Brazil 534,000 ha (70%) were burned.[2]<sup>2</sup>

Poorly planned land use has resulted in the large-scale conversion of native vegetation into fields with monocultures of grain and pasture-oriented grasslands that often encroach on springs, aquifer recharge areas and riparian forests. Land degradation, erosion, and siltation are among the consequences of ineffective land-use planning and the difficulty of putting laws into effect, especially owing to insufficient enforcement.

Due to agricultural practices associated with land use change in the tributaries of the Paraguay River in the Pantanal, average annual concentration of sediments has gone up to 500 mg/L, which corresponds to an average erosion of 146 t/km<sup>2</sup>/year. As reference the La Plata Basin average sediment load is 150 mg/L.[3]<sup>3</sup>

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**Pollution and degraded water quality:** Pollution in the region stems from several sources; discharge of sewage and industrial effluents and, in some specific areas, from mining activities; and resulting from agricultural activity. Basic sanitation is lacking in most municipalities where an estimated 85 per cent of wastewater is untreated. There are low rates of waste collection and treatment, and a high percentage of solid waste is being sent to open dumps. There is little or no effective on-farm management of nutrients or sediment loading resulting in large scale non-point source pollution of the water discharged into the Pantanal and Paraguay River.

Mineral extraction in the Upper Paraguay River Basin is diversified. Gold, diamonds, iron, manganese and limestone stand out. Engaged in primarily by companies, mining is the cause of pollution and silting of the rivers, as has occurred in the municipalities of Alto Paraguai, Pocon? and Diamantino, among others. There are currently 14 large-scale gold mining operations and 200 ?prospectors? in Pocon?, who engage in manual labour in the company mines. An average of 80 kg of gold are extracted each month. Just as in various other regions, the activity is frequently practiced illegally, and government supervision is precarious.[4]<sup>4</sup> Pollutants from mining and industrial smelting, for example in Corumb?/Lad?rio, are problematic and have resulted in high mercury levels in fish.

Agriculture contaminants and heavy metals are affecting several sub-basins. Manufacturing industries in the Bolivian portion of the Upper Paraguay Basin may result in increasing pollution loads. A sub-basin of concern is the Apa River shared between Paraguay and Brazil ? home to the cities of Bella Vista (Brazil) and Bella Vista Norte (Paraguay), as well as agricultural development. The valley is also subject to water use conflicts related to non-consumptive uses, fisheries and irrigated agriculture.

Surface water contamination from municipal discharges have wide-ranging (transboundary) impacts when considering the cumulative effect across the Pantanal basin. This has particularly large effects in wetlands where nutrient loading can upset assimilation, particularly with nitrogen.

**Climate change and extreme hydrological events:** As global temperatures rise, climate extremes, including droughts and floods will become more frequent and intense in the region, with changes in precipitation patterns affecting river flows that support the viability of the entire ecosystem and alter species distribution, habitat viability and resilience. Climate alteration will additionally affect dynamic processes involving evaporation, saturation of the soil, and many others. Water uses are also potentially affected by climate change, whether because of increased consumption due to higher temperatures or because of higher unpredictability of the cycle of rain and, consequently greater need of water storage. The Pantanal acts as a natural storage to attenuate floodwaters in the Upper Paraguay basin and may be increasingly needed as flood patterns change. Also, it is not sure how climate alteration will affect the vegetation, evaporation, and functioning of the wetland ecosystem and thus its effect on species and habitat. Climate change impacts require further studies to understand the associated impacts.

The Pantanal and its surrounding areas have large carbon stock capabilities. The Pantanal wetlands have an average carbon stock value of between 20.5 and 13.5 tC/ha.[5]<sup>5</sup> This availability as a sink is

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being threatened by the recurring fires that are occurring more frequently due the combination of droughts followed by heatwaves.

**Wildlife loss:** The 2016 La Plata Basin TDA stated that land use change and unsustainable practices are threatening the loss of biodiversity throughout the La Planta Basin, but mainly in the Pantanal.<sup>[6]</sup> Large predators and herbivores used to be found in large numbers in the Pantanal. Today, at least 50 species are threatened or endangered in the Brazilian Pantanal alone. The main sources of pressure on biodiversity appear to be anthropogenic effects: habitat destruction, poaching, overfishing and trafficking. Hunting, either through illegal trade or in retaliation for livestock predation, still occurs. Habitat loss, population isolation, and mercury poisoning continue to pose risks to iconic animals such as jaguars, as well as others trying to survive in a changing Pantanal.

**Lack of coordinated management:** The Upper Paraguay River Basin comprises the Upper Paraguay River Basin per se and the Pantanal. It includes a series of transboundary binational sub-watersheds between Brazil and Bolivia or Paraguay. Water resources management with those countries is primarily based on rules of customary law they have accepted or consented to. Brazil shares with Bolivia some sub-basins west of the Pantanal-Upper Paraguay River Basin and Laguna Caceres, where the Tamengo Canal is located. It is an area of conflicts and intense negotiations over navigation in that stretch, where Bolivia has access to the Paraguay River. The construction of transportation infrastructure and manufacturing industries in the Bolivian portion of the basin is a reality that may likely increase pressure on the natural resources in Brazilian territory. With Paraguay, Brazil shares the Apa river sub-basin, also subject to water use conflicts related to non-consumptive uses, fisheries and irrigated agriculture. The Apa river basin is home to several Brazilian and Paraguayan towns, including Bella Vista (Brazil) and Bella Vista Norte (Paraguay).

**Hydroelectric development:** More than 40 hydroelectric dams already exist in the Upper Paraguay River Basin tributaries and over 101 more are planned for the next few years, primarily in the uplands. These dams would likely result in significant changes in the hydrological regime, with eventual loss of the typical flood pulse in the Pantanal plain and changes in the flow of nutrients and water quality, impacting multiple use and aquatic ecosystems in all three countries, including sustainable fisheries and tourism, among others. Dams can also have a direct impact on local communities, an example of which was the construction of the Manso hydropower plant in the Guimaraes Plateau (Chapada dos Guimar?es, Mato Grosso), which flooded areas inhabited by traditional communities. However, when conducted with consideration for communities and ecosystems, energy production can be sustainable in certain locations in the Upper Paraguay Basin.

**Potential infrastructure development:** Structural changes in the river system could cause irreparable damage by altering the floodwater retention capacity of the wetland, shifting the flood pulse of the river downstream, severely altering natural habitats, and impacting the regional tourism industry and the livelihoods of fisherfolk. For example, one area of concern is the Tamengo Canal in Bolivia between the Laguna Caceres and the Paraguay River, which serves as a transportation route but is limited to smaller vessels due to water depth.

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## **Root causes and main barriers**

The root causes of the main problems will be established during the planned TDA. Preliminary work has identified the likely causes, at the basin level, as: lack of resources (financial, facilities, equipment and trained personnel); inadequate awareness and knowledge of the importance and benefits of the ecosystem services provided by the Pantanal-UPRB; lack of information to facilitate the management of the resources and socioeconomic activities in the basin; and poor enforcement of existing regulations.

The barriers to addressing the ecosystem and water resources problems in the basin have been identified as:

**Barrier 1 - Weak Transboundary water governance and coordination:** Despite the region falling under the mandate of the Inter-governmental Coordination Committee of the La Plata Basin, the region lacks a focused trilateral coordination of actions across the Pantanal ? Upper Paraguay River Basin. The lack of a formal coordination mechanism is hindering the region's ability to develop harmonized standards and approaches for IWRM. A regional mechanism would benefit trilateral dialogue and planning, reducing tension over potential competing demands for water resources. Moreover, this will help reduce increasing environmental degradation and unsustainable land use, erosion and increasing sedimentation of the rivers which affects the bio-aquatic ecosystems and water quality in the basin.

**Barrier 2 - Limited basin-wide technical, financial and administrative capacity:** Across the whole basin there is limited capacity to adopt and implement innovative and integrated actions, to provide the necessary functions required for water and ecosystem management. Without capacity-building to support coordinated actions for sustainable national and regional IWRM, there is a high probability that water development in the Pantanal ? Upper Paraguay Basin will not be harmonized (or coordinated) between countries, and degradation of vulnerable resources will continue. This will create tensions over the quantity, quality (including sedimentation) and use of water resources within the basin, leading to inefficient water use and poor land management by the productive sectors, resulting in water quality and quantity problems. Lack of regulations and protocols for the productive sectors in terms of water use and land management practices are also a source of water quality and quantity problems. This is particularly relevant as the region is also home to several Ramsar sites, hence the importance of adequate integrated water resources planning and management.

**Barrier 3 - Insufficient basin-wide information:** Effective basin-wide management and governance of the region requires reliable and frequent information on the state of, and pressures on, the environment. While there are significant environmental monitoring networks in Brazil, there is a need to enhance systems in Bolivia and Paraguay, and promote standardized data gathering, monitoring protocols, and information analysis. In addition, there is a regional need to strengthen information derived from monitoring data through modelling (of water resources, water demand, climate scenarios, etc.), and the analysis of the data to provide management information to enable improved policymaking.

**Barrier 4 - Lack of basin-wide sustainable approaches to land-water management:** Current unsustainable practices in agriculture, and forestry (and the clearing of forests) have led to excess

pollution, soil loss (and consequential sediment transport issues) and overuse of water for irrigation. There is a lack of sustainable approaches and regulations that could be used to reduce these threats to surface and groundwater sources of water. In addition, there is limited regional information on new and emerging approaches based on economic and permitting approaches to assist with stress reduction.

**Barrier 5 - Weak understanding and awareness of the importance of the water resources, biodiversity and their services in the Pantanal-UPRB:** There is limited appreciation of the multiple ecosystem services that the Pantanal provides at all levels. This includes not only the countries of the Upper Paraguay River Basin, but also those downstream in the La Plata system. A greater understanding of the importance of the Pantanal will help enhance political will at a regional, national and state level to address the current threats.

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[1] Gill, EA; Da Ponte, E; Insfr?n, KP & Gonz?lez, LR. WWF (World Wildlife Fund), DLR (German Aerospace Center).2020. Atlasof the Paraguayan Chaco. Asunci?n, Paraguay. 98 p

[2] FAN, Fundaci?n Amigos de la Naturaleza. 2020. Incendios transfronterizos y din?mica del fuego en el Pantanal. SantaCruz, Bolivia.  
[http://incendios.fanbo.org/Satirfo/reportes/2020/Reporte\\_Incendios\\_Pantanal\\_07\\_Ago\\_2020.pdf](http://incendios.fanbo.org/Satirfo/reportes/2020/Reporte_Incendios_Pantanal_07_Ago_2020.pdf)

[3] CIC Plata (2017). An?lisis Diagnostico Transfronterizo de la Cuenca del Planta?ADT. 1? ed.Ciudad Aut?noma de Buenos Aires.

[4] Schlesinger, S. (2014). The whole Pantanal, not just the half. Soy, waterway and other threats to the integrity of thePantanal.Ecosystem Alliance

[5] Gill, EA; Da Ponte, E; Insfr?n, KP & Gonz?lez, LR. WWF (World Wildlife Fund), DLR (German Aerospace Center).2020. Atlasof the Paraguayan Chaco. Asunci?n, Paraguay. 98 p

[6] CIC Plata (2017). An?lisis Diagnostico Transfronterizo de la Cuenca del Planta?ADT. 1? ed. Ciudad Aut?noma de Buenos Aires.

## **b. the baseline scenario and any associated baseline projects;**

### **Regional**

The proposed project meets international water law principles with respect to equitable and reasonable use, equitable participation, the obligation not to cause significant damage, cooperation and regular exchange of information, and supports good practices set out in the Treaty of the Plata Basin (1969).

On 23 April 1969, Argentina, Bolivia, Brazil, Paraguay and Uruguay signed the La Plata Basin Treaty in Brasilia to promote areas of mutual interest and enhance development. The Treaty noted as key objectives, among others the rational utilization of water resources, in particular regulation of watercourses and their multipurpose and equitable development; the conservation and development of animal and plant life; and, a comprehensive knowledge-sharing across the basin. To help implement the Treaty, they established the Intergovernmental Coordinating Committee (CIC). The La Plata basin has spawned a series of subsidiary agreements, principally concerned with bilateral joint development of hydro-power generation, but also including the 1994 agreement between Brazil and Paraguay on the

Conservation of Aquatic Fauna in Frontier Rivers. The CIC's scope is very broad and over a large geographic area of some 3,182,000 km<sup>2</sup>.

In 2001, the CIC began to address challenges associated with water resources management in the La Plata basin and develop an Action Plan to guide management. For almost two decades, with the support of the GEF, UNEP and OAS, the Plata countries and the CIC have been advancing transboundary management of the basin. This led to the formulation of a basin-wide TDA/SAP agreed by all countries in 2016. Given its relative importance in the Plata Basin, the Plata SAP provides the overall strategic management framework for the Pantanal-Upper Paraguay Basin.

While the CIC has identified wetlands and the Pantanal, as a critical area for management there, is no concerted technical committee that focuses on coordinating management either in the Upper Paraguay river basin or the Pantanal.

There are, however, several protected areas in the basin. Parts of the Pantanal have been declared National Heritage sites by the 1988 Brazilian Constitution. It was also listed as an area of international importance in 1993 by the Ramsar Convention on Wetlands, and as a Biosphere Reserve in 2000 by UNESCO. In 2015, at the Ramsar COP 12 in Uruguay, the governments of Bolivia, Brazil and Paraguay agreed to discuss a sustainable development path for the Pantanal. This agreement (Resolution XII.8/RAMSAR COP 12, 2015) was followed by three more tri-national technical meetings in Santa Cruz (July 2016), Brasilia (February 2018), and Asunci n (April 2019).

In March 2018, at the 8<sup>th</sup> World Water Forum in Brasilia, spearheaded by WWF, the Environment Ministers from the three countries signed the Declaration for the Conservation, Integrated and Sustainable Development of the Pantanal. This initiative provides Bolivia, Brazil and Paraguay with a conservation mandate to ensure that development in the Pantanal is sustainable and economically viable for the long-term, while improving the well-being of its more than 2 million inhabitants and preserving the ecological processes that sustain this globally unique ecosystem and the wildlife that resides in it. The declaration also commits to meeting the 2030 Agenda for Sustainable Development, in particular Goal 6 ? to ensure the availability and sustainable management of water and sanitation for all. The tri-national Pantanal Declaration of 2018 also confirmed the Pantanal Boliviano, the Pantanal Matogrossense, the SESC Pantanal and Rio Negro as designated Ramsar sites with an area of over 34,000 km<sup>2</sup>.

The project builds on regional activities undertaken and planned, including:

- ?Water Funds: A Conservation Climate Resilient Model for Stressed Watersheds in Latin America and the Caribbean ?(GEF ID: 10048) is developing water fund mechanisms for five Latin American cities by connecting water users in urban areas with upper watershed land stewards that produce important hydrological benefits through healthy watersheds. There is potential for learning exchange from examples of innovative funding, particularly related to outcome 4.2.
- ?Preparing the Ground for the Implementation of the La Plata Basin Strategic Action Programme? (GEF ID: 10038) ? The project will set the scene for the implementation of the priority national and regional actions identified in the SAP, agreed upon by the countries sharing the La Plata Basin and aimed at improving water security, climate resilience and ecosystem health; it will do so by fostering the consolidation of regional cooperation, the

alignment of national and regional priorities, and by promoting integration across sectors and funding sources. This project is complementary in that it will focus on the Pantanal ? Upper Paraguay Basin, which is a sub-basin of the La Plata system and will foster regional cooperation.

- ?Implementation of the Strategic Action Programme to Ensure Integrated and Sustainable Management of the Transboundary Water Resources of the Amazon River Basin Considering Climate Variability and Change? (GEF ID: 9770) was launched in February 2020. The countries of the Amazon Basin, including Brazil and Bolivia, have already gone through the process of developing a TDA, SAP, and establishing a joint environmental monitoring system. These are all key project activities, with lessons learned which can be transferred.
- ?Taking Deforestation Out of the Soy Supply Chain? (GEF ID: 9617) is dedicated to reducing the threat to biodiversity that the advancing agricultural frontier is posing in the Matopiba region, through a supply chain approach that solves the underlying root causes of deforestation from soy. The lessons learned will be important to understand when developing actions for sedimentation control in Output 3.2 and piloting interventions in 4.1.
- ?Realizing the Biodiversity Conservation Potential of Private Lands? (GEF ID: 9413) has the objective of promoting sustainable land management and contributing to biodiversity conservation and ecosystem services provision on private land. The lessons learned will be applicable when working with the private sector in the Cerrado to address water efficiency and sediment control.
- ?Innovative Use of a Voluntary Payment for Environmental Services Scheme to Avoid and Reduce GHG Emissions and Enhance Carbon Stocks in the Highly Threatened Dry Chaco Forest Complex in Western Paraguay? (GEF ID: 5668) is helping to promote conservation through sustainable management and land use in the Chaco area. It is being implemented by Guyra Paraguay and the Secretariat of the Environment (Ministerio del Ambiente y Desarrollo Sostenible). The lessons learned will be helpful in identifying best practices for water use efficiency and preserving forest cover in the Cerrado and plateau of the Pantanal.
- ?Strengthening the Integral and Sustainable Management of Biodiversity and Forests by Indigenous Peoples and Local Communities in Fragile Ecosystems of the Dry Forests of the Bolivia Chaco? (GEF ID: 10393) has just been approved by the GEF secretariat. Linkages will be established with this project in relation to developing land and water management best practices to reduce sediment loading. The project is being executed by the Ministry of Environment and Water which is the key national agency in this project.
- ?Food Systems, Land Use and Restoration (FOLUR)? Impact Programme Addendum (GEF ID: 10397). Within the impact programme, there is a specific project dealing with sustainable commodities production (deforestation-free), land use, and restoration in Paraguay. It is currently being formulated and likely to be activated in Fuerte Olimpo and Bahia Negra in the development of local land use plans which might prove a useful input to the proposed Pantanal project.
- The Sustainable Forest Landscapes of the Chiquitano and Cerrado (Paisajes Sostenibles en el Bosque Chiquitano Cerrado y Pantanal). Funded by the European Union (B4Life) and implemented by WWF, this project works to consolidate protected areas, advance economic activities within ecosystems and improve governance structures for protected area management across Paraguay, Bolivia and Brazil. The goals of the project are in direct alignment with the goals of sustainable land management for improving water resources in the Cerrado. The project is being implemented between 2020 and 2021. There will be opportunities to glean inputs from the project in the proposal development phase and build upon successes and experiences during the implementation phase.

?The strengthening of professionals for indigenous youth and women in Distrito Carmelo Peralta project (2021-2025)? empowers indigenous women and youth to participate more in civic affairs, decision-making, and in providing opportunities for alternative income generation. It is funded by the

European Union and executed by WWF Paraguay. The project will help inform methods of enhancing public participation in decision-making and engaging civil society.

GIZ's Integrated management for reducing deforestation is operating in the Chiquitanía, and focuses on strengthening forest management practices for soft wood. The project will run from 2019-2022 and there is a possibility to exchange experiences in working with local communities on land resource issues.

UNEP and WMO are developing a programme in support of the Water and Climate Coalition (a multi-stakeholder initiative under SDG6) that will involve piloting a Global Hydrological Model that supports flood and drought warning and for regional water availability assessments in a changing climate. A proposed testing of the approach would be to perform intercomparison with, for example, existing hydrological models in Brazil and to develop an appropriate modelling approach specific to the Pantanal basin and for wetlands in general.

## Basin wide baseline actions

Most of the studies on the Pantanal have been carried out in the Brazilian Pantanal-UPRB. Bolivia and Paraguay have relatively limited information from projects and actions. It is expected that this project will provide technical, environmental, economic, and social information for a better understanding of the basin and to aid decision-making.

The following information briefly summarizes the historic baseline actions that have been undertaken related to IWRM in the Pantanal-UPRB.

The current project is supportive of water management principles on equitable and reasonable use, equitable participation, the obligation not to cause significant damage, cooperation and regular exchange of information, and supports the practices established in the 1969 Treaty of the Plata Basin.

Previous studies and programmes undertaken that will benefit this GEF project include:

- The Diagnostic Analysis, which supported the formulation of the GEF-Brazil Pantanal SAP (2006), elaborated issues affecting the Pantanal Upper Paraguay River Basin. However, it remained strictly a national (Brazil) diagnostic and did not address transboundary matters.
- Investments in drinking water and sanitation projects have doubled in Bolivia (from more than \$100 million in 2010, to \$200 million in 2014) in the project area. Municipalities have poor drinking water and sewerage services.[1]
- La Plata River Basin: The 2017 TDA/SAP indicated there is an asymmetry across the whole La Plata Basin regarding the management of water resources, public health, and legal structures.[2] The recommendation was to promote programmes and plans for wastewater treatment, final disposal of solid waste and coordination between country institutions. The TDA/SAP identified the need to strengthen basin coordination and management. One of the main differences between the current GEF project and previous projects is the scale and scope of the work. While the 2017 TDA/SAP focuses on the whole La Plata Basin and transboundary issues, this project will focus on the specifics of what makes the Pantanal a strategic ecological region, as well as on pertinent development issues of interest to the local population.

- Monitoring of changes in vegetation cover and land use in the Upper Paraguay River Basin has been systematically carried out by NGOs and Embrapa Pantanal.
- Hydroclimatic monitoring is very country-specific. For instance, Brazil's National Water Agency (ANA) has access to one of the most comprehensive and extensive monitoring networks. On the other hand, both Bolivia and Paraguay lack an extensive network in space and time. The few data points that are available in these countries are not easily accessible to the public, or have limited data.
- Bolivia has six hydromet stations in the project area, while Brazil has more than 52 hydromet stations in the Pantanal ? Upper Paraguay River Basin. Paraguay has three river stage sensors in the Paraguay River within the project area and six hydromet stations, some of which are privately owned while others are government stations. A basin-wide information exchange protocol/database is lacking.
- Transboundary fire events highlight the challenge of establishing strategies and effective coordination mechanisms between countries that allow timely responses to these events to mitigate their impacts. Comprehensive mechanisms are also needed to prevent and reduce risks in fire and landscape management.

Current and planned activities supporting the GEF Pantanal-UPRB project are shown in Table 1 for each country. As can be seen in the table, many projects implemented by WWF have a trinational character and seek to sustainably manage the area from a watershed management and land use planning perspective (Component 4); with a climate change approach (Component 2); including sustainable agronomic practices (Component 4), and sensitizing civil society (Component 5).

Specifically, the Pantanal Initiative implemented in Bolivia, Brazil and Paraguay by WWF, together with national and regional governments, developed a trinational plan for the conservation and sustainable development of the Pantanal. It may serve as the basis for the preparation of the proposal for a trinational coordination mechanism in the basin (Component 1).

Another group of actions carried out between the countries (Bolivia and Paraguay) and the IDB complement project activities. For example, increasing the coverage of drinking water and sanitation (related to Output 3.5); developing a Disaster and Risk Assessment and Land Use Plan for Carmelo Peralta (Output 3.3 and 4.1); and development of Regional Hydrological Modelling of the Pantanal (Outputs 2.1 - TDA, 2.2 and 3.1 - SAP).

Other projects in Paraguay will support the GEF Pantanal-UPRB project. For example, the construction of a PV farm (nexus pilot Output 4.2); environmental studies in the construction of the Carmelo Peralta-Puerto Murtinho bridge (Outputs 2.1, 2.2, 3.1, 3.3); projects related to water supply and treatment (Output 3.5); and the studies for the implementation of the Strategic Action Programme of the Plata Basin (mainly outcomes 1, 2 and 3).

In Brazil, programmes related to the Pantanal ? Upper Paraguay River Basin project are being implemented by the government and include: the consolidation of the National Pact for Water Management-Progestion (Component 4); strengthening River Basin Committees (Components 1, 3, 5); complementing the National Hydrometeorological Network and access to data from the National Water Resources Information System (outcomes 2, 3 and 5); studies on the impact of the implementation of hydroelectric plants (Outputs 2.2 and 3.3 mainly); Water Quality Data Disclosure Stimulation Programme (outcomes 2, 3 and 4); and Investment in Sanitation Infrastructure (Output 3.5).

The recent five-year 'Power of Voices' Project, executed by WWF in Bolivia, Brazil and Paraguay, seeks to amplify voices that are not being heard in climate change debates, with a focus on gender, indigenous communities, youth and vulnerable groups, thus allowing them to influence political and financial decisions. Within the 'Power of Voices' project, gender diagnoses were carried out for the Pantanal Upper Paraguay River Basin that may be an important input for Output 5.3.

[1] Mejía, A., Uzcátegui, G., & Valverde, O. (2017). Agua y saneamiento en el Estado Plurinacional de Bolivia. Corporación Andina de Fomento (CAF).

[2] CIC Plata (2017). Análisis Diagnóstico Transfronterizo de la Cuenca del Plata ADT. 1ª ed. Ciudad Autónoma de Buenos Aires.

**Table 1. Current and planned activities supporting the GEF Pantanal-UPRB project**

**Bolivia**

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
1.	Cerrado Pantanal: forests and wetlands, supports for our life and future (WWF)	SERNAP: PN ANMI Otuquis ANMI San Matías APM/UCPN Tucabaca GAD Santa Cruz GAM: Roboré, Puerto Quijarro Fegasacruz Asociaciones regionales y locales de ganaderos ONGs: FAN, NATIVA, SBDA, MLA	Support Cerrado-Pantanal sustainable development, conserving culture, biodiversity and ecosystem functions of international importance, contributing to improve human well-being	01.01.2000 ? 31.12.2021	<b>Invested</b> 2016-2019: 755.750 <b>Planned</b> 2020-2022: 384.481

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
2	Pantanal Initiative (WWF)	Ministerio de Relaciones Exteriores Ministerio de Medio Ambiente y Agua GAD Santa Cruz Comisi?n de Ambiente, Desarrollo Sustentable y Cambio Clim?tico del ZICOSUR	Develop a trinational plan for the conservation and sustainable development of the Pantanal	01.01.2016 ? 30.03.2020	<b>Invested</b> 2016-2019: 133.816 <b>Planned</b> 2020: 5.625
3	Shared Resources Joint Solutions in the Cerrado Pantanal (PaCha) Bolivia ? Paraguay (WWF)	GAD Santa Cruz GAM: Robor?, GAIOC Charagua SERNAP: PN ANMI Otuquis PN ANMI Kaa Iya Comisi?n T?cnica Inter Institucional de BPG Fegasacruz Asociaciones locales de ganaderos ONGs: FAN, NATIVA, SBDA, MLA, NATURA	Maintain healthy ecosystems in Pantanal and Chaco, with the participation of civil society, to ensure the conservation of International Public Goods	01.01.2016 ? 31.12.2020	<b>Invested</b> 2016-2019: 1.517.926 <b>Planned</b> 2020: 352.669

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
4.	Regional model of sustainable, participatory, inclusive and climate-smart development in interconnected areas of the Cerrado, Pantanal and Chiquitano Dry Forest of Bolivia, Brazil, and Paraguay (WWF)	GAD Santa Cruz APM/UCPN Tucabaca Asociaciones Locales de Ganaderos Proveedores de servicios turísticos en Robor? SERNAP: PN ANMI Otuquis y ANMI San Matias GAM: Robor?, Puerto Quijarro ONG: SBDA, FAN, AMANDES, NATIVA	The preservation of biodiversity, ecosystem and cultural services and functions in the Cerrado, Pantanal and Chiquitano Dry Forest has made it possible to ensure sustainable productive development, helping to improve human well-being, and in particular that of the inhabitants of the project area.	January 2018 ? December 2020	<b>Invested</b> 2018-2019: 371.871 <b>Planned</b> 2020: 234.624
5.	Forest fire response (WWF)	GAD Santa Cruz APM/UCPN Tucabaca SERNAP: PN ANMI Otuquis PN ANMI Kaa Iya ANMI San Matias GAM: Robor?, Puerto Quijarro GAIOC Charagua ONG: SBDA, FAN, NATIVA, CEJIS, ORE, MHNNKM Organizaciones indígenas chiquitanas	Help reduce the impacts caused by fires. Strengthen fire monitoring and fighting capabilities.	01.08.2019 ? 30.12.2020	<b>Invested</b> 2019: 462.714 <b>Planned</b> 2020: 1.058.616

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
6	Connecting landscapes in the Chiquitano Dry Forest, the Cerrado and the Pantanal of Bolivia and Brazil for the sustainability of productive development, the conservation of their environmental values and adaptation to climate change ? ECCOS (FCBC ? FAN ? GADSC)	Financing: UE Socios: FCBC, FAN, GAD Santa Cruz, Savia, Bosques del Mundo, ECOA	Management strengthens protected area systems integrated into productive landscapes in priority sectors for connectivity; based on participatory and inclusive governance and greater quality and effectiveness in the implementation of public policies aimed at comprehensive management of the territory; promoting environmentally sustainable production practices and ecosystem-based adaptation to climate change.	January 2018 ? May 2021	
7	Water and sanitation programme for intermediate and minor cities (BO-L1184) Loan proposal	The MPD must approve and sign the loan proposal	Improve living conditions in environmental and health terms of the population living in intermediate and smaller cities in Bolivia by increasing the coverage of Potable Water and Sanitation (AyS).	5 years	<b>Planned</b> 79.000.000
8	Comprehensive water management programme in urban areas (BO-L1192) Loan proposal	The MPD must approve and sign the loan proposal	Contribute to the improvement of the comprehensive water resources management in urban areas of Bolivia through: (i) increasing and improving access to Potable Water (PA) services, including necessary works to collect and treat wastewater; (ii) improvement of planning and comprehensive management of the Water and Sanitation services; and (iii) support for the development and implementation of strategic actions for water security.	5 years	<b>Planned</b> 150.500.000

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
9	Technical cooperation: Integrated Management of Transboundary Water Resources in Latin America	TBD	Develop a methodology for the integrated management of transboundary inland water systems (surface and groundwater) in Latin America and the Caribbean, supporting the governments of the region to develop technical information systems for decision-making and international coordination and planning mechanisms.	2019-2023	800.000

### Brazil

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
1.	Programa de Consolida??o do Pacto Nacional pela Gest??o das ?guas - Progest??o	State Management Bodies and Water Users	Promote the effective links between the processes of water management and regulation of its uses, conducted at the national and state levels	2020- 2022	1.122.500
2.	Programa Nacional de Fortalecimento dos Comit?s de Bacias Hidrogr?ficas - Procomit?s	State Management Bodies and Water Users	Contribute to the consolidation of committees as effective spaces for the implementation of the water resources policy.	2020- 2022	900.000
3.	Rede Hidrometeorol?gica Nacional	State Management Bodies and Water Users	Monitor river-related parameters such as levels, flows, water quality and sediment transport.	2020- 2026	2.000.000
4.	Acesso aos dados do Sistema Nacional de Informa??es de Recursos H?dricos	State Management Bodies and Water Users	Provide information on water in Brazil, contributing to the dissemination of knowledge about water resources.	2020- 2026	3.000.000
5.	Estudos sobre o impacto da implanta??o das hidroel?tricas	State Management Bodies and Water Users	Develop hydrological and sedimentological studies of RH-Paraguay, evaluating the effects of the implementation of hydroelectric plants on the hydrological regime and on the dynamics of flooding in the Pantanal plain	2019- 2020	1.500.000

	<b>Project/Programme</b>	<b>Partners/ beneficiaries</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget (USD)</b>
6.	Programa de Estímulo ? Divulga??o de Dados de Qualidade de ?gua - QUALI?GUA	State Management Bodies and Water Users	Encourage the standardization of water quality monitoring criteria and methods in the country	2019-2026	1.000.000
7.	Investimento em Infraestrutura de Saneamento na Regi?o Hidrogr?fica do Paraguai	State Management Bodies, Sanitation Companies, State Sanitation Company, Municipalities and general population	Financing infrastructure works for basic sanitation services in municipalities	2019-2026	60.000.000
8.	Support the Implementation of the Water Resources Management Plan for the Paraguay River Hydrographic Region (BR-T1448)	IDB - ANA	Design of specific strategies, instruments and tools to articulate and to support the PRH-Paraguay implementation and to consolidate a detailed multisectoral investment master-plan (including water, sanitation, irrigation, tourism, land protection and conservation).	2021-2023	450.000

#### Paraguay

	<b>Project/Programme</b>	<b>Co-ordinating Body</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget</b>
1.	Construction of the Carmelo Peralta ? Puerto Murtinho bridge	Ministry of Public Works and Communications	Connect Paraguay and Brazil through an international bridge across Carmelo Peralta and Puerto Murtinho. Project has environmental conditions it has to meet in order to go forward.	2022 - 2024	42.500.000
2.	Construction of PV farm in Bahia Negra	National Electricity Administration (ANDE)	Develop a hybrid PV farm for the town of Bahia Negra in the northern part of the Paraguayan Pantanal which is isolated from the integrated electric system.	2022 - 2025	3.800.000
3.	Development of Disaster and Risk Assessment and Land Use Plan for Carmelo Peralta	Interamerican Development Bank (IDB)	IDB Technical Cooperation RG-T3206, the object of which is the "Preparation Studies Binational Bridge Carmelo Peralta - Porto Mourinho"	2020 - 2022	368.000

	<b>Project/Programme</b>	<b>Co-ordinating Body</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget</b>
4.	Expansion, repair, and improvements to existing water systems in western Paraguay	Ministry of Public Works and Communications, and the Directorate of Drinking Water and Sanitation (DAPSAN)	Improve and update local infrastructure related to water and sanitation services.	2020 - 2023	100.000
5.	Construction of a treatment plant, improvement, and expansion of the network of the Drinking Water System of the Carmelo Peralta District	Ministry of Public Works and Communications, and the Directorate of Drinking Water and Sanitation (DAPSAN)	Co-management with local government (1.2); organizational strengthening; greater and better access to drinking water (4.1.3)	2020	323.000
6.	Integrated Management of Transboundary Water Resources in Latin America	Interamerican Development Bank (IDB)	IDB Technical Cooperation RG-T3489 for the development of the Regional Hydrological Modelling of the Pantanal and an EWS.	2021 - 2023	800.000
7.	Preparing the ground for the implementation of the Strategic Action Programme of the Plata Basin.	Global Environmental Facility (GEF), Ministry of the Environment and Sustainable Development (MADES) and Ministry of Foreign Relations (MRE)	Promote the management of shared water resources, cooperation and regional integration to achieve the sustainable development of the countries of the Plata Basin and the well-being of their inhabitants.	2020 - 2023	997.500
8.	Sustainable Landscapes in the Chiquitano Cerrado and Pantanal Forest (Brazil, Bolivia and Paraguay)	WWF	Consolidation of protected areas, advancement of economic activities within ecosystems, improvement of governance structures.	2020 - 2021	400.000
9.	Cerrado Project	WWF	Promoting sustainable land management of the Pantanal and best practices and incentives to reduce stress	2020 - 2025	1.050.000
10.	Project Forest Fires	WWF	Training and emergency funds for monitoring and communication. Promotion of actions in protected areas and indigenous communities in response to current fires in the region.	2020 - 2022	150.000

	<b>Project/Programme</b>	<b>Co-ordinating Body</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget</b>
11.	Power of Voices; Amplifying Voices for Just Climate Action	WWF	Train communities in understanding the climate crisis, low-carbon and climate-resilient future, just climate transition, local climate-based solutions; focus on women, youth, slumdweller, IP and marginalized groups to amplify their voices on climate change.	2021 - 2026	3.500.000
12.	Sulu 3 Project	WWF	Safeguarding overlooked ecosystems: Protect, manage and restore grasslands and savannas in Argentina, Colombia and Paraguay through multisectoral engagement and knowledge-sharing. Promote sustainable land management practices	2022 - 2026	2.300.000

#### **Regional**

	<b>Project/Programme</b>	<b>Co-ordinating Body</b>	<b>Goal/Actions</b>	<b>Date</b>	<b>Budget</b>
1.	Framework Programme for La Plata Basin (GEF)	Governments of Argentina, Bolivia, Brazil, Paraguay and Uruguay	Focused on defining a TDA by performing surface and subsurface water balances, technology needs assessments and stakeholder analysis. Finished with a basin-wide SAP	2010 - 2016	64.500.661

#### **c. the proposed alternative scenario with a brief description of expected outcomes and components of the project;**

This project will support the principles of international law that regulates the use of international waters (including principles of use, equitable and reasonable participation, the obligation not to cause significant damage, cooperation and regular exchange of information) and the good practices set out in the Treaty of the Plata Basin (1969). The Treaty of the Plata Basin has the following objectives: (i) the rational utilization of water resources, in particular by the regulation of watercourses and their multipurpose and equitable development, (ii) the conservation of animal and plant life, and (iii) comprehensive knowledge of the River Plata Basin, among others.

The project is aligned with the objectives of the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971) that all countries are full parties to. The convention's objective is the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.

The project is also aligned with the March 2018 Declaration for the Conservation, Integrated and Sustainable Development of the Pantanal which supports the sustainable development of the Pantanal. The project also assists in the countries' commitments to the Sustainable Development Goals, in particular Goal 6, but also goals 2, 11, 13 and 15.

### **Project Rationale**

The project seeks to promote water security through strengthening transboundary water governance for the well-being of the population and for the conservation of freshwater ecosystems in the Pantanal-UPRB. The project seeks to achieve a paradigm shift in water governance and management through a shift from countries addressing national water management to a proposed regional approach between the three countries. The proposed framework for concerted governance will be supported by a regionally signed SAP, with proposed management actions and a financing strategy aiming to identify \$500 million to facilitate the implementation of the SAP. This approach offers significant advantages over previous GEF supported TDA/SAP projects by building in a cost-effective means to initiate the implementation of the SAP that will lead to improved socioeconomic and ecosystem conditions. To achieve this long-term goal, the project will undertake interlinked actions that lead to the expected project outcomes, summarized as:

**Improving the understanding of water security and regional cooperation** for sustainable use and integrated management through the development of proposals for regional coordination of the Pantanal-UPRB; the development of water management principles and targets; and the proposal of a regional framework for the protection of the aquatic ecosystem.

**Improved understanding of the transboundary issues** through undertaking a joint TDA to develop the scientific understanding and identify transboundary problems and drivers of change; basin-wide ecosystem modelling; establishing an information sharing system; and proposing a basin-wide monitoring network for surface and groundwaters.

**Engendering country commitments to implement joint and shared actions to address problems in the basin through Ministerial signature of a regional SAP;** proposing plans to minimize land/water pollution; proposing acceptable environmental minimum flows in two sub-basins; proposing a sustainable financing strategy for long-term sustainable development and SAP implementation; and developing plans for municipal water and sanitation actions.

**Piloting approaches to reduce stress on ecosystems and identify means for resource upscaling of pilot actions** through sustainable land and water management practices; water/food/energy nexus actions to enhance water and land security; improving efficiency irrigation approaches; testing aquifer recharge protection measures; testing innovative permitting approaches for sewage discharges; and, identifying and testing novel economic and financial instruments to support water and land management. The results from the pilot actions will be integrated into the SAP for basin-wide upscaling and replication with the support of the financing strategy.

**Increasing awareness and participation of stakeholders of integrated management and the strengthening of gender equality** and empowerment to facilitate the SAP through development of

plans to enhance awareness, engagement and effective communication; implementing training programmes on sustainable water and land management; advocating gender equality and women's empowerment; and, ensuring that the wider GEF IW community is aware of the experiences and lessons from the GEF Pantanal-UPRB Project.

A Problem Tree outlining the issues impacting the Pantanal-UPRB (Figure 1) identifies a preliminary assessment of the main problems, their causes and their effects and was used to identify the priority activities that are required to achieve the agreed outcomes and objectives of this GEF project. The Problem Tree assisted with the definition of the project Theory of Change (Figure 2 and UNEP-Appendix 09).

The Problem Tree identifies four main problems that will be addressed by this project to reduce the remaining barriers (see section 2.2.2 and below) that will mitigate the root causes and reduce ecosystem and socioeconomic impacts. The main problems identified are:

- ? Problem 1: Non-existent cross-border coordination to manage wetland water and natural resources;
- ? Problem 2: Uncertainty on impacts from climate change and lack of adaptation measures identified;
- ? Problem 3: Destabilization of ecosystem services and no quantification of environmental threshold;
- ? Problem 4: Expansion of the urban and agricultural frontier without adequate land and water planning and management.

The ToC (Figure 2) illustrates the logic of the project from the above problems that will be addressed by the planned outputs and their expected outcomes. Through the implementation of the project's five interlinked components, it is expected that the project will result in the long-term impact of 'Improved ecosystem status and services enabling sustainable socioeconomic development for Pantanal communities'. The ToC also summarizes the key expected intermediate states that will be achieved and the main assumptions that are reflected in the Project Results Framework (UNEP-Appendix 2) and section 3.4 (Logic and Assumptions).

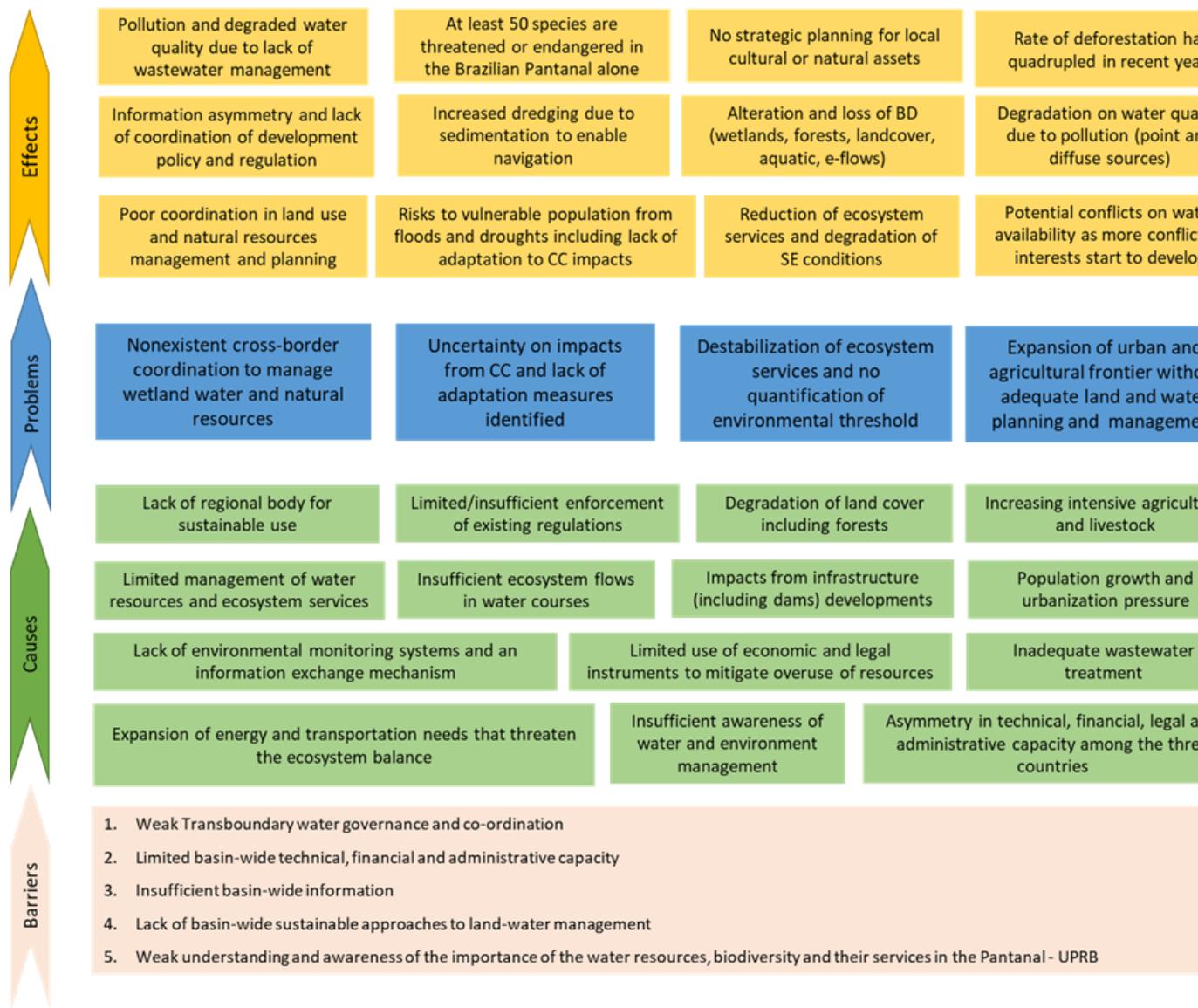
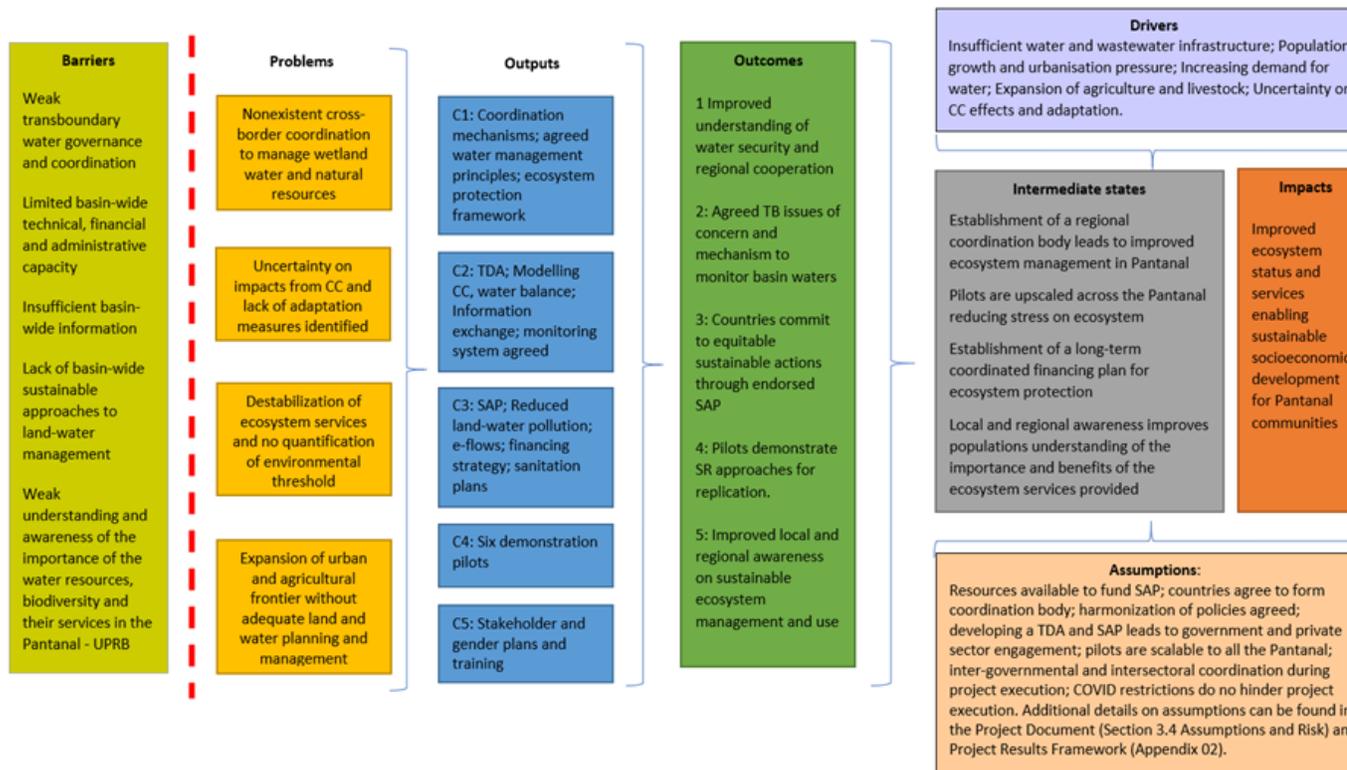


Figure 1. Pantanal-UPRB ? Problem Tree



**Theory of change summary:** If the three countries can establish governmental coordination mechanisms (from regional to national levels) (C1) and harmonized monitoring and reporting systems (C5); if those coordination mechanisms support a diagnosis of the most relevant transboundary water issues and a strategic action program (C2 & 3), informed by a series of pilots (C4); then governance and decision making will be strengthened and result on improved integrated water resource management for water, food, energy and ecosystem security in the Pantanal ? Upper Paraguay River Basin.

**Figure 2. Theory of Change Pantanal ? Upper Paraguay River Basin**

## Project Components

The project is divided into five linked components designed to deliver five outcomes aimed at achieving the project objective (*to promote water security through strengthening transboundary water governance, sustainable development, balancing multiple use and promoting integrated management of the Pantanal-UPRB for the social and economic well-being of the population and for the conservation of the freshwater ecosystem, its services, its biodiversity and connectivity*). As outlined in Figure 3 and further explained in UNEP-Appendix 3 (Workplan), the activities of each component can start simultaneously, without interference, but as time progresses the interdependencies of the results and objectives intertwine and become more relevant.

The strength of the project lies in these interdependencies where the components feed into each other to strengthen the outcomes. For instance, Component 1 focuses on developing a proposal for an overarching transboundary coordination. This component in its initial phase can focus on developing a

diagnostic analysis of existing policy frameworks, but as time progresses it would need inputs from the TDA (Component 2) and SAP (Component 3) to understand what type of transboundary coordination best addresses the issues and the strategy of the region. Similarly, the diagnostic analysis of the existing policy framework feeds into the TDA, which will, in turn, eventually feed into the SAP.

Figure 3 presents in a schematic format the interconnections between project components and outputs. The figure tries to represent the dependencies and how outputs flow from one component to another. Though the project separates components across themes, their outputs cross the themes and provide information to other activities.

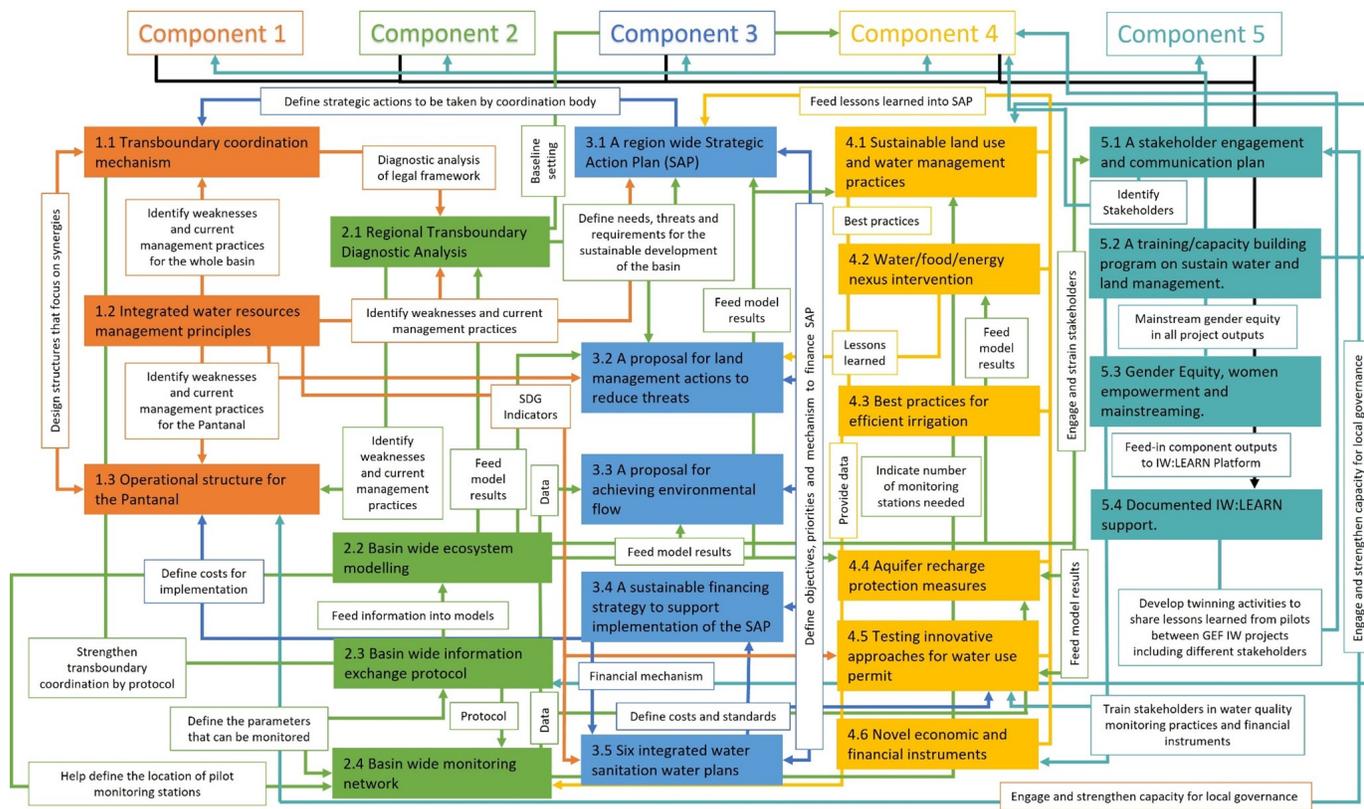
The purpose of Figure 3 is to show how interconnected the whole project is at the output level. Even though there are some dependencies between outputs, a lot of the outputs and their activities can occur in parallel. Starting with Component 1 it can be seen that all the products are focused on defining the coordination and these primarily feed into Component 2 and 3 which define the TDA and SAP, respectively. Within Component 1, Output 1.1 'Transboundary coordination mechanism' and Output 1.3 'Operational structure' have a feedback loop because one cannot be defined without input from the other.

Similarly, Component 2 'TDA' feeds directly into the SAP (Component 3) and the Pilots (Component 4). Most of the results of Component 2 provide data, protocols, and models to the aforementioned Components. On the other hand, very few outputs feed into Component 2 except for Component 1 which provides an analysis of current legal frameworks and Component 5 which is a cross-cutting Component.

Outputs from Component 3 feed into activities in the same Component and also Component 1 relating to the transboundary coordination body. In this sense Components 1, 2 and 3 are interlinked and provide information loops to each other.

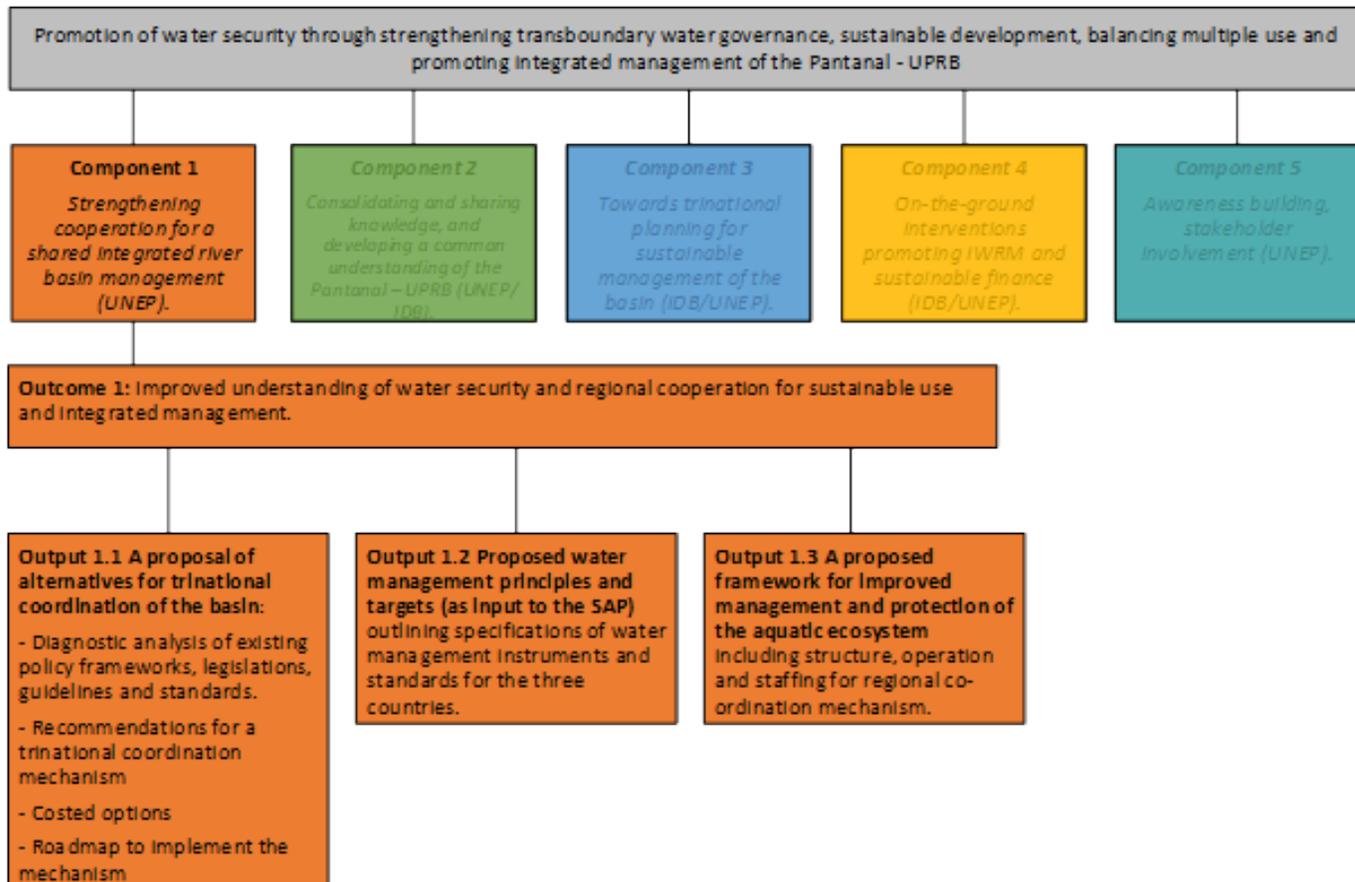
Component 4 feeds from information developed during Component 2, as mentioned before, and in turn provides knowledge and justification for the strategic actions and financial mechanisms to be developed in Component 3.

Lastly, Component 5 is a cross-cutting component where the outputs feed directly to the rest of the components. Component 5 specifically defines how information from pilots will be distributed, as well as to how each pilot, as well as the SAP, will include gender equity issues.



**Figure 3. Flowchart of project outputs and components and their connections**

**Component 1: Strengthening cooperation for integrated river basin management**



Currently, the three countries have been coordinating matters related to the Pantanal ? Upper Paraguay River Basin through ad-hoc meetings, but each country has its own regulations and approach to development within the basin. Outputs 1.1 and 1.2 will identify potential mechanisms to improve basin-wide coordination and will propose relevant management principles and ecosystem targets respectively that could lead to improved overall ecosystem and water status.

As mentioned in the previous section, there is an overarching treaty of the La Plata Basin, as well as several declarations that state the intention to develop the basin in a sustainable manner. However, to-date, there is little to no coordination. Hence the need to enhance the coordinated management of the water and related ecosystems in the basin, including sensitive areas, e.g. Ramsar sites. By addressing one of the key threats associated with water management in aquatic ecosystems (Output 1.3), Component 1 will aim to enhance water management for the whole basin in a coordinated fashion. Currently, there are 34,000 km<sup>2</sup> of protected wetland areas in the region, and the 2018 Pantanal Declaration calls for stronger commitments to conserve ecosystems and resources in the basin.

Component 1 will thus support countries to identify potential governance approaches for the whole basin (Output 1.1) and for aquatic ecosystems specifically, such as the Pantanal (Output 1.3), resulting in improved ecosystem health, water security and regional cooperation; it will also link the alternatives for trilateral coordination to a harmonized management principle that will feed into the SAP (Output 3.1) to support the sustainable management of the region and biodiversity conservation.

The main target of Component 1 is the proposal for a trinational coordination arrangement to support the sustainable management of the region and biodiversity conservation. The key outputs associated with this component are:

**Output 1.1: A proposal of alternatives for a trinational coordination mechanism of the basin.** The three countries have a mandate to sustainably develop the Pantanal. However, there is no current trinational coordination. The project will examine various options with stakeholders, national agencies and line ministries to identify opportunities for improved coordination and for coordinating regional SAP actions over time, while National Action Programs (NAPs) will be implemented nationally.

Under this component, the project will also conduct a rapid water and land governance diagnostic, including an assessment of gaps and opportunities as input to the TDA in Component 2 (Output 2.1). To support the formulation of necessary priority actions in the SAP, it will be necessary to understand the legislative and regulatory mechanisms in each of the countries and identify gaps and needs across the three countries. The project will analyse the current institutional and legal framework for water resources management under the CIC Plata Treaty, as well as the CIH (Paraguay-Parana Waterway), FONPLATA, and other mechanisms to understand its strengths and weaknesses as well as the synergies that could be exploited.

Proposals for the potential governance structure will include a costed analysis of its implementation and ongoing operation, and a financial design to achieve the sustainability of the governance/coordination mechanism.

The following activities are anticipated to be undertaken:

Activity 1.1.1: Diagnostic analysis of existing policy frameworks, legislation, guidelines and standards in support of a Transboundary Coordination Mechanism.

Activity 1.1.2: Analysis of potential governance structures, with a costed analysis as well as financial structuring.

Activity 1.1.3: Design of regional cooperation mechanism, socialization of governance structure and adjustment with the aim of providing a draft proposal submitted to PSC.

**Output 1.2: Proposed integrated water resources management principles and targets** as input to the TDA and SAP. Water management principles and targets will be developed, based on international principles and the La Plata Treaty (1969), among others (e.g. Brazil's Progestao initiative model). They will be tested to guide the TDA and SAP development in Components 2 and 3.

The principles, instruments, standards, etc., defined for the integrated water resources management of the Pantanal ? Upper Paraguay River Basin will be compatible with SDG 6, and will feed into activities 3.5 (integrated municipal water and sanitation), 4.1 (sustainable land use and water management practices), 4.3 (water use efficiency), and 4.5 (wastewater monitoring and permitting) among others.

The following activities are anticipated to be undertaken:

Activity 1.2.1: Analysis, justification, and gap analysis for specification of water management instruments and standards for the three countries.

Activity 1.2.2: Diagnostic of the SDG 6 baseline for each country, and the Pantanal as a whole, and costed gap analysis for each country.

Activity 1.2.3: Design recommendations for harmonized set of transboundary principles and parameters submitted for approval to countries.

**Output 1.3: A proposed framework for improved management and protection of aquatic ecosystems.** Currently, the three countries have been coordinating matters in an ad-hoc manner ? essentially through meetings. However, there is a need to enhance management coordination of sensitive areas, in particular the designated Ramsar sites. By addressing one of the key threats associated with water management in the wetlands (and thus loss of habitat) this Output will be aimed at enhancing water management in a coordinated fashion. Currently, there are 34,000 km<sup>2</sup> of protected wetland areas in the region and the 2018 Pantanal Declaration calls for stronger commitments to conserve ecosystems and resources in the basin.

This Output will be fed from the findings of Output 1.1 which will design a coordination committee. It will develop an action plan for implementation that will also feed into the SAP (Output 3.1). Activities are set to start midway through the project and end before definition of the SAP.

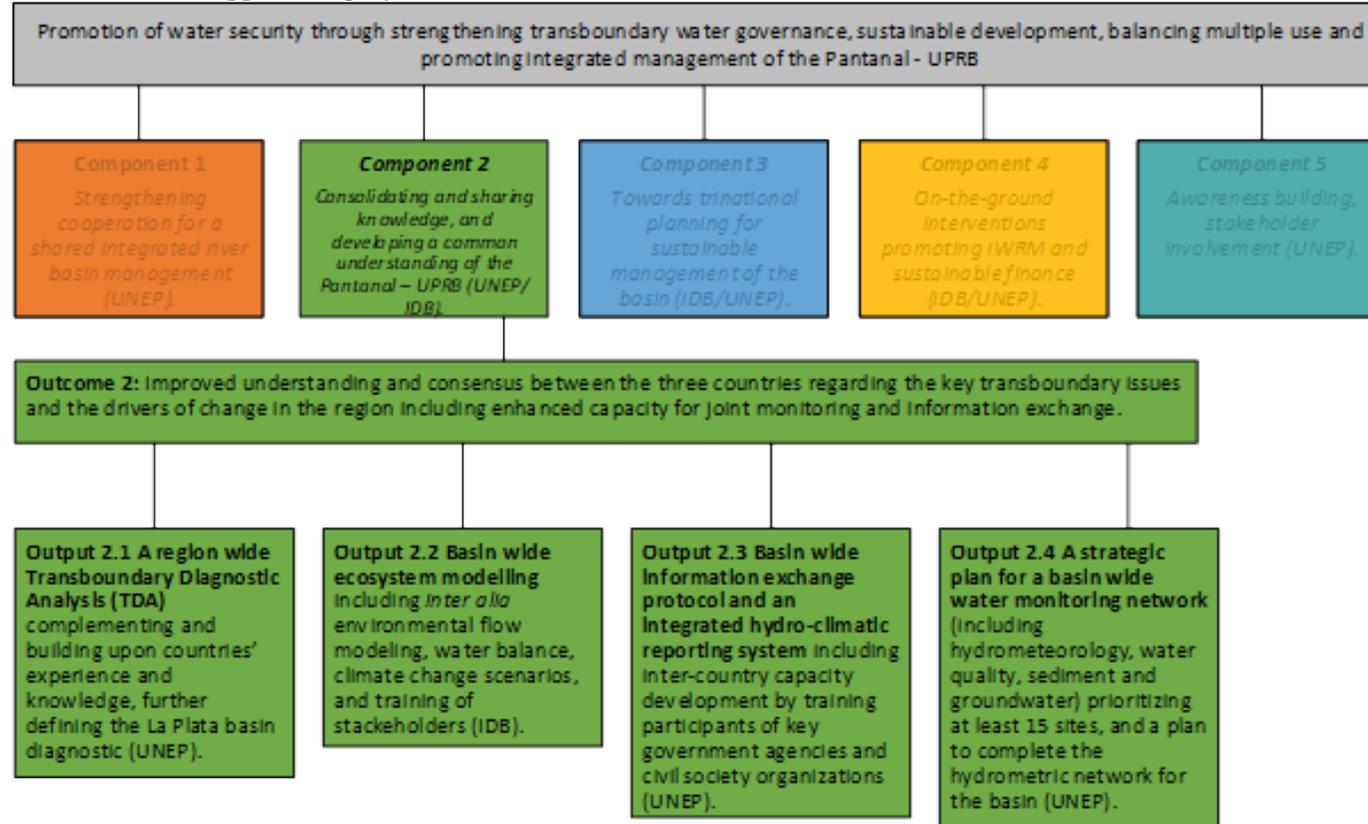
Stakeholders (local communities and government) will be identified to serve as enforcers and stewards of the Pantanal (including consideration of gender representation). The activity will define a financial structure for the operation of governance and will be strengthened by the stakeholder engagement plan that will focus on awareness and capacity-building (Activity 5.1).

The following activities are anticipated to be undertaken:

Activity 1.3.1: Proposal for framework including structure, operation and staffing for regional coordination mechanism for aquatic ecosystems.

Activity 1.3.2: Development of Organizational Chart, function description, stakeholder responsibilities, budgets, and internal procedures.

## Component 2: Consolidating and sharing knowledge, and developing a common understanding of the Pantanal ? Upper Paraguay Basin



Joint fact-finding and exchange of information between the participating countries (Bolivia, Brazil and Paraguay) in the project will facilitate improved understanding and consensus between the three countries regarding the key transboundary issues and the drivers of change in the region (Outcome 2). Additionally, the component will emphasize greater understanding of the potential impacts associated with development scenarios and the implications of climate change and ensure that the understanding of these impacts is available to stakeholders and decision-makers (Output 5.1). This will be achieved through enhanced instruments and capacity within the region for reporting monitoring, modelling, and exchanging information.

Component 2 is focused on increasing the understanding of transboundary problems, the tools that can assist with this understanding, and on the means to ensure that data is shared across the basin. It also seeks to identify a long-term basin-wide monitoring network to provide essential data to support the understanding, assessment, and the threats to the basin's ecosystems.

Building on the information obtained in the La Plata River Basin TDA (Output 2.1), the project will undertake a detailed analysis of the transboundary problems, and their causes and impacts, to provide agreed information to guide the SAP (Output 3.1).

Strengthening ecosystem modelling (including climate change scenarios and water balance models ? Output 2.2) will feed information into the TDA and provide ongoing capacity to assist ecosystem managers in the basin.

Output 2.3 will facilitate the establishment of an information exchange system to share available data to guide management decisions and support awareness within stakeholder groups on ecosystem issues.

Monitoring networks across the basin have varying capacities. Output 2.4 will lead to a basin-wide strategic plan to strengthen current monitoring of water quality, water quantity, groundwaters, etc.

Component 2 will depend on several stakeholders providing information, data and knowledge and will, therefore, be tied to the Stakeholder Engagement and Communication Plan (Output 5.1).

**Output 2.1: A region-wide Transboundary Diagnostic Analysis (TDA)** complementing and building upon countries' assessments and knowledge, and further defining the La Plata basin TDA, will be developed. The La Plata TDA (2016) identified various issues that affected wetlands in the La Plata basin (see Section 2); however, it stopped short of going into detail on specific issues affecting the Pantanal ? Upper Paraguay River Basin.

The Diagnostic Analysis which supported the formulation of the GEF-Brazil Pantanal SAP (2006) elaborated the issues affecting the Pantanal and Upper Paraguay. However, it remained strictly a national diagnostic and did not address transboundary matters. Capitalizing on the GEF TWAP[1] methodology and other nationally available assessment methods, the formulation of a robust indicator-based scientific TDA for the entire region is critical for commensurate sound actions for the SAP, but also as an input into the demonstration activities in Component 4 and the pre-feasibility studies in support of the investment portfolio in Component 3.

The formulation of a transboundary focused TDA will be challenging and resource intensive, given not only the lack of transboundary information but most certainly the complexity of the ecohydrological dynamics of the Pantanal wetland and its upstream/downstream relationship both from a socioeconomic and environmental perspective (flooding, provision of ecosystem services, productivity, nutrient-sediment-pollutants? loading, etc.).

National information and databases have been developed, such as the informatics system at Brazil's ANA, to monitor much of the area. However, what remains lacking is a system-wide transboundary diagnostic analysis for the basin. This product will build upon existing information to complete the picture.

The formulation of the TDA will focus on the ecohydrological dynamics of the Pantanal wetland as well as its upstream/downstream relationship both from a socioeconomic and environmental perspective (Section 2). Special attention will be given in the TDA to thematic reports. These reports will cover, at a minimum, transboundary aquifers, water quality, water balance, navigational issues, the monitoring situation, water provision and sanitation and climate change vulnerability. All these reports will reflect the special ecological and socioeconomic significance of the Pantanal-UPRB.

The following activities are anticipated to be undertaken:

Activity 2.1.1: Development of baseline water security issues, biodiversity, economic and social risks due to current practices and climate change impacts.

Activity 2.1.2: Development of the socioeconomic profile of the Pantanal ? Upper Paraguay River Basin, with strengths, weaknesses and opportunities.

Activity 2.1.3: Development of the legal and institutional profile of the Pantanal ? Upper Paraguay River Basin, with strengths, weaknesses and opportunities.

Activity 2.1.4: Development of the environmental profile of the Pantanal-UPRB, with strengths, weaknesses and opportunities.

**Output 2.2: Basin-wide ecosystem modelling** will include, at a minimum, environmental flow modelling (including sediment transport), surface and subsurface water balance, regional aquifer management (all under different climate change scenarios), land use change and urbanization. Improved trinational ecosystem modelling, including water-climate development scenarios, is needed to facilitate coordinated management and decision-making. The model's results will feed into TDA formulation by month 18 of the project.

This Output will also involve knowledge exchange (Output 5.2) and capacity development between the countries to enhance national sustainability of the outputs. In this regard, workshops will be conducted to help develop capacity within the region to provide information for coordinated management and implement priority actions identified in the basin-wide SAP (Output 3.1). With the aim of reducing the amount of unnecessary exposure to COVID, and to strengthen synergies with other components, the workshops will be designed in conjunction with interventions associated with Components 3 and 4 ? specifically Outputs 3.1, 3.3, 4.2, 4.4 and 4.5.

The models developed will obviously feed into Activity 3.3 which will propose actions to achieve environmental flow regimes in up to two critical sub-basins, which will later add details and lessons learned to the SAP development.

To adequately include and understand the possible impacts of climate change, an ensemble of climate scenarios developed through general circulation models (GCM) at the global scale will be downscaled to the regional scale. This ensemble will feed the different models developed to provide a probabilistic understanding of the risks of climate change for the basin's water security. More details of this Output can be found in UNEP-Appendix 21.

The following activities are anticipated to be undertaken:

Activity 2.2.1: Development of probabilistic risk assessment methodology for analysing environmental, economic, and social threats, given current practices and climate change for the Pantanal ? Upper Paraguay River Basin.

Activity 2.2.2: Development of water quality and sedimentation computational model for the Pantanal ? Upper Paraguay River Basin.

Activity 2.2.3: Development of surface water Hydrological and Hydraulic computational model for the Pantanal ? Upper Paraguay River Basin to determine minimum ecological flows.

Activity 2.2.4: Development of groundwater computational model for transboundary aquifers.

**Output 2.3: Basin-wide information exchange protocol and an integrated hydro-climatic reporting system**, including inter-country capacity development. As mentioned in Section 2, currently there is limited exchange of hydrological and climatic data between the countries. The two main reasons for this are the lack of an agreed protocol and the lack of data from government agencies. To support TDA and SAP formulation and subsequent implementation, a comprehensive basin-wide environmental monitoring and reporting system will be developed. It will include data-sharing and transfer protocols. This will support the establishment of the basin-wide monitoring network (Output 2.4).

The data-sharing mechanism will be elaborated within the first 12 months of the project and will build on existing data and parameters that the countries already measure. Initially, the project will share data on temperature, relative humidity, solar radiation, wind speed and direction, water quality and quantity, and precipitation.

The design of the protocol will feed into a centralized database that will be hosted in one of the three countries and mirrored in the other two. Within the first 16 months each country will identify the entity responsible as well as stakeholders for the oversight of the protocol. Through activity 5.1, stakeholders with data and valuable environmental information will be identified (including government and local authorities, academic institutes, private sector representatives, NGOs/CSOs) and made part of the exchange protocol. Activity 5.2, which focuses on stakeholder capacity-building, will train authorities, water users and civil society on how to manage data that is decentralized and uploaded in a centralized database, and on how to use the information to make decisions for the sustainability of the basin.

The protocol will also focus on building up satellite data that can be used to validate and strengthen information. The protocol will focus on including different tiers of information through a common website.

The following activities are anticipated to be undertaken:

Activity 2.3.1: Design of a new data-sharing protocol between the three countries, based on analysis of each country's data handling and information capacity.

Activity 2.3.2: Development of a data collection centre, including training and support for country stakeholders, with consideration of gender representation.

**Output 2.4: A proposal for a basin-wide water monitoring network** (including hydrometeorological, water quality, sediment, and groundwater-relevant networks). As mentioned in Section 2, there is a current paucity of monitoring stations at the basin level for both water quantity

and quality. There is also an asymmetric level of detail, where Brazil has copious amounts of information and Bolivia and Paraguay do not.

This activity will start by developing a country-specific needs assessment and diagnostic analysis of the existing monitoring stations, as well as their monitoring capabilities. The diagnostic will include data from all stakeholders (i.e. private and public) within the first 12 months of the project.

Following the diagnostic and needs assessment, it is anticipated that 15 pilot hydromet monitoring sites will be tested as well as six pilot groundwater monitoring sites ? by month 36 ? to guide the choice and prioritization of a complete series of monitoring stations needed for a basin-wide hydromet network (to be fed into the SAP). The proposed location of these pilot-monitoring stations will be derived from ecosystem model outputs (Activity 2.2) which will help define which areas need monitoring stations.

The design of a basin-wide monitoring network will take inputs from current stations, current capacities, the installation of new stations during project execution, and from remote sensing data that will complement the ground data collected.

Finally, as the stations are identified, and data gathered through the exchange protocol (Output 2.3), the webpage developed (within Output 2.3) will be updated with monitoring station data collected from all stations.

The following activities are anticipated to be undertaken:

Activity 2.4.1: Baseline analysis of country-specific needs assessment and diagnostic analysis of the existing monitoring stations, as well as their monitoring capabilities.

Activity 2.4.2: Design of basin-wide monitoring network, tying in with available remote sensing data and current and future monitoring stations.

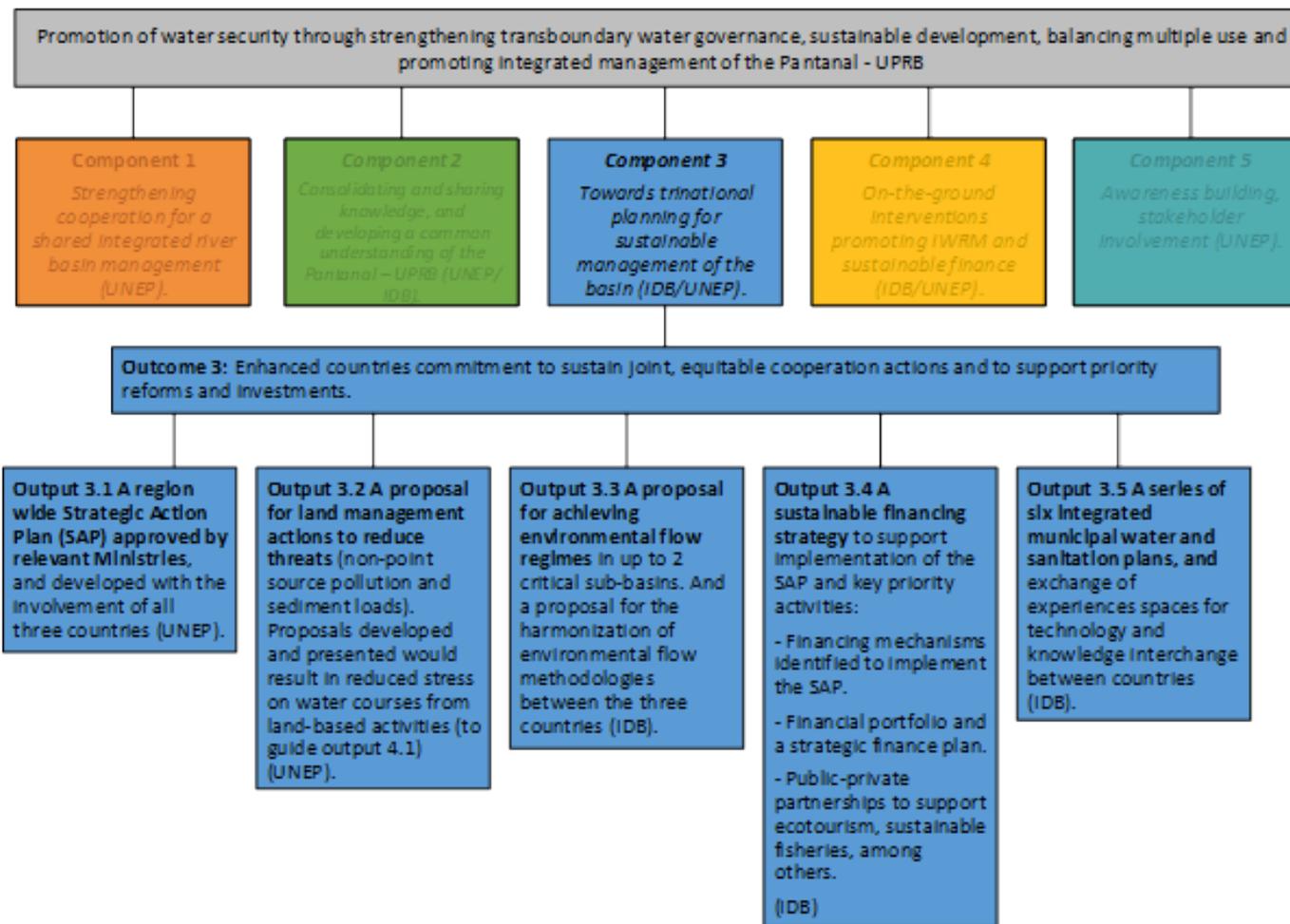
Activity 2.4.3: Installation of 15 hydrometeorological stations and six groundwater monitoring wells to link up to the Data Collection Centre.

Activity 2.4.4: Development of a web portal/atlas to collect and automate sharing of information for all three countries, which can be scalable, with more stations and regions.

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[1] GEF Transboundary Waters Assessment Programme [www.geftwap.org](http://www.geftwap.org)

### **Component 3: Towards trinational planning for sustainable management of the basin**



Component 3 will result in enhanced commitments by the three countries to sustain equitable cooperation mechanisms to support priority reforms and investments through the formulation of jointly agreed priority actions, and specific proposals for (i) land management actions (ii) environmental flows, (iii) a sustainable financing strategy, and (iv) a series of integrated water and sanitation plans.

The activities in this component will derive from the TDA (Output 2.1), as well as the activities being developed in Component 2, and the pilots being developed in Component 4. This puts the timeline for completion of the main outputs of this component to the end of the project, after other activities provide outputs. However, Output 3.3, Output 3.4 and Output 3.5 will all be implemented within the first 30 months. Output 3.2 is projected to be completed and validated by month 36.

The main output of the Component 3 will be the SAP (Output 3.1) which will aim to set short and medium-term strategies for the three countries to implement. As mentioned before, the SAP will not only include strategies and actions but will have a financial plan that will define ways of finding and securing financial resources ? this input will come from Outputs 3.4 and 4.6. The SAP will build upon and complement national planning initiatives and align with the approved La Plata SAP. This includes

overall basin-level goals, and agreement on identified priorities for systematic coordination in relation to land and water management between the three countries. The SAP will strengthen regional coordination and guide policy and institutional reforms to implement priority actions at the national and regional level. The SAP will contain among others, environmental quality objectives for both land and water; protected area management actions (La Plata SAP action III 1.1 and Pantanal Declaration 2018); targets for the water allocation objective (applying results from Output 4.3); and permitting targets (from Output 4.5).

Key activities will be initiated to identify: regional approaches for land and water management to reduce pollution and sediment loads (with practical input from pilot 4.1), proposals for achieving environmental flows (detailed in UNEP-Appendix 22), a sustainable financing strategy to facilitate SAP implementation towards regional IWRM (detailed in UNEP-Appendix 20 and inputs from pilot Output 4.6), and municipal water and sanitation plans (detailed in UNEP-Appendix 23). The conclusions of these will also guide the formulation of the SAP (Output 3.1).

**Output 3.1: A region-wide Pantanal ? Upper Paraguay Strategic Action Programme (SAP)**

signed by relevant Ministries, or same-level government authorities including water agencies. This SAP will build upon and complement national planning initiatives, including Brazil's Pantanal ? Upper Paraguay River Basin SAP (2004), and align with the approved La Plata Basin SAP (2015). This will include overall basin-level goals, and agreement on identified priorities for systematic coordination in relation to land and water management between the three countries (Output 3.2), and definition of the environmental flow needed to sustain the ecosystem and the socioeconomic importance of the Pantanal ? Upper Paraguay River Basin (Output 3.3).

The SAP will be the basis for regional coordination and guide policy and institutional reforms to implement priority actions at the national and regional level (Output 1.1). The SAP will contain, among others, environmental quality objectives for both land and water; protected area management actions; targets for the water allocation objective; and permitting targets (from Output 4.5). The SAP will be signed at ministerial level and will identify financial resources to initiate implementation (through a detailed financial strategy developed in Output 3.4).

The following activities are anticipated:

Activity 3.1.1: Development of the Strategic Action Programme for the Integrated Water Resources Management of the Pantanal ? Upper Paraguay River Basin.

Activity 3.1.2: Development of the Strategic Action Programme for Surface Water, Environmental Flows, and Nexus Approach of the Pantanal ? Upper Paraguay River Basin.

Activity 3.1.3: Development of the Water Quality, Water Distribution and Sanitation Strategic Action Programme for the Pantanal ? Upper Paraguay River Basin.

Activity 3.1.4: Development of the Groundwater, and Water Use Strategic Action Programme for the Pantanal ? Upper Paraguay River Basin.

Activity 3.1.5: Update of the La Plata Basin 2016 SAP with Pantanal ? Upper Paraguay River Basin goals adjusted, incorporating data from major pilots and outcomes from project.

**Output 3.2: A proposal for basin-wide land management actions** (through the development of three national action plans) to reduce threats from non-point source pollution and sediment loads. Specific attention will be given to adequately address the threats associated with land management practices and the effects of non-point source pollution, as well as deforestation and wildfires, all of which impact sediment loading. While some national level initiatives exist, such as *Programa Productor de Agua*, a coherent approach across the countries is needed. The main activities will be identified and derived from the development of the TDA (Output 2.1) and the Integrated Water Resources Management Principles (Output 1.2).

The land management action plans will focus on defining processes and methodologies to first identify potential sources (non-point sources and point sources) of typical pollutants such phosphorus, nitrogen, COD, BOD, as well as biological pollutants such as coliforms and heavy metals. The methodology of identifying these pollutants will take account of lessons learned from the biomonitoring pilot (Output 4.5), the ecosystem modelling (Output 2.2), and the implantation of a pilot to test land-water management practices (Output 4.1).

More importantly the National Action Plans (NAPs) will take information from the pilots in Outputs 4.1, 4.2 and 4.3. This information will feed into the implementation of the field pilots aimed at understanding the role of land management over 600 ha., the water/food/energy nexus intervention, and irrigation practices over 50 ha., respectively.

Results from computational models and field data (Output 2.2 and Output 2.4) will predict the effects of alternative management decisions on water flow, sediment yields, and chemical loading. The use of the models developed in Output 2.2, and the data of Output 2.4 and its application in Output 4.1 will define the strategies to be fed into this Output by month 36.

The following activities are anticipated:

Activity 3.2.1: Identification of potential future threats based on land management practices combined with climate change, specific for each eco-region in the Pantanal ? Upper Paraguay River Basin.

Activity 3.2.2: Development of three National Action Plans for land use management to reduce non-point source pollution and sediment loads.

**Output 3.3: A proposal for environmental/ecological flows in at least two critical sub-basins.** With the objective of preserving the ecosystem functions of the wetlands, certain minimum flows are required at key periods for the major sub-basins in the region. As a step towards this, studies will be conducted to determine environmental/ecological flows in sub-basins and a methodology using the modelling capabilities defined in Output 2.2 and monitored data provided by the hydrometeorological stations (Output 2.4). In addition to the technical information provided by the modelling and monitoring capabilities, a review of national needs and regulations will be assessed to understand the

need to harmonize regulations and country expectations on the possible ecological flows. Details of this Output and the specific activities to be carried out are detailed in UNEP-Appendix 22.

The initial Output of this activity will be to conduct studies which will focus on defining two pilot sites and a methodology to determine environmental flows utilizing computational models and monitoring. The two basins will be selected and defined based on potential sites identified during project inception aimed at understanding the effect that land use changes and river channel modifications (dams) have on the three dominant factors controlling the structure and function of the rivers, lakes and wetlands of the Pantanal floodplain: hydrology, sediments and nutrients.

The following activities are anticipated:

Activity 3.3.1: Conduct studies which will focus on defining two pilot sites and a methodology to determine environmental flows utilizing computational models and monitoring.

Activity 3.3.2: Implement a methodology of environmental flow analysis for at least 12 months to test and adjust the methodology.

Activity 3.3.3: Develop a proposal for the harmonization of environmental flow methodologies between the three countries by applying modelling and monitoring data provided by the project.

**Output 3.4: A sustainable financing strategy to support implementation of the basin-wide SAP and key priority activities.** The financial strategy will include, among other things, the design of a project preparation facility which will serve as the executing arm of the transboundary coordination (Output 1.1), Public-Private Partnerships (PPP), and an alliance of investors. The financial strategy includes a portfolio of potential blended financing options and prioritized bankable multisector investments tentatively estimated at **\$500 million** based on priorities outlined in the SAP.

The strategic finance plan will engage prospective donors and the private sector in aligning investment plans with the goals of the SAP. The financial strategy will incorporate sources other than the traditional public budget to develop public investment plans. These will include private capital and concessional finance.

The financing strategy will be a key element in securing the project's sustainability and upscaling project actions through the identification of significant potential resources to facilitate the short- and medium-term implementation of the signed SAP.

One of the specific objectives of the financial strategy will be to leverage existing financing instruments beyond IDB's public finance. These could include IDB Invest and the IDB Capital Lab for small-scale investments. The aim is to leverage capital market equity. More details of this activity are presented in UNEP-Appendix 20.

The following activities are anticipated:

Activity 3.4.1: Market analysis of products and services in the Pantanal ? Upper Paraguay River Basin, quantification of environmental and social externalities, and the identification of a pipeline of investment initiatives and gaps, in line with the needs identified in the TDA.

Activity 3.4.2: Development of cash flow analysis of investments, capital structure and cost of capital for investments.

Activity 3.4.3: Proposal of PPP Processes and Institutional Responsibilities, indicating dedicated PPP units in each country.

**Output 3.5: A series of integrated municipal water and sanitation plans:** The cumulative effect of surface water contamination from municipal discharges has wide-ranging (transboundary) impacts across the basin. This is particularly significant in wetlands where nutrient-loading can upset assimilation, particularly with nitrogen. To showcase opportunities and develop capacity to address this, integrated municipal water and sanitation plans will be developed in at least six municipalities across the three countries, and provide an opportunity for technology and knowledge exchange between the countries.

The Output will start by performing a comprehensive physical inventory of current assets, including the condition of facilities. The inventory will include but will not be limited to: (i) raw water supply (ii) water treatment facilities (iii) reservoirs, and other related infrastructure in the distribution networks (pipes, pumps, and connections).

After the comprehensive inventory, the activity will move on to designing the collection lines, interceptors, pumping stations and capacities required to provide services in accordance with design standards in each country. This will also include an analysis of alternatives for wastewater treatment and their environmental impact. The design will be costed out with levels of prioritization and potential financial mechanisms identified through linkage with Output 3.4.

Each pilot will have as a final product an action plan with critical steps for implementation, including technical, social, environmental, and economic analysis of the alternatives.

During project inception six sites out of the potential 12 identified during the Project Preparation Grant (PPG) phase will be selected. A preliminary selection of the 12 sites was made based on needs and information identified by national focal points. However, final selection of the sites will be made following field visits and conversations with local governments and communities. These visits were not carried out during the PPG phase due to COVID-19-related restrictions. Figure 4 presents the 12 potential locations identified during the PPG. Sites in Bolivia and Paraguay are riparian sites along the border with Brazil. The intention is to provide synergies with transboundary water resources management principles (Output 1.2).

The cities selected in this activity, as well as their design standards, will feed into Output 4.4 which will focus on defining a biomonitoring methodology to test water quality standards and possible permitting methodologies for wastewater disposal.

The following activities are anticipated:

Activity 3.5.1: Definition of six sites during project inception.

Activity 3.5.2: The carrying out of a physical inventory of current assets, including assessments of the condition of facilities and operational efficiency, as well as costs associated with operations.

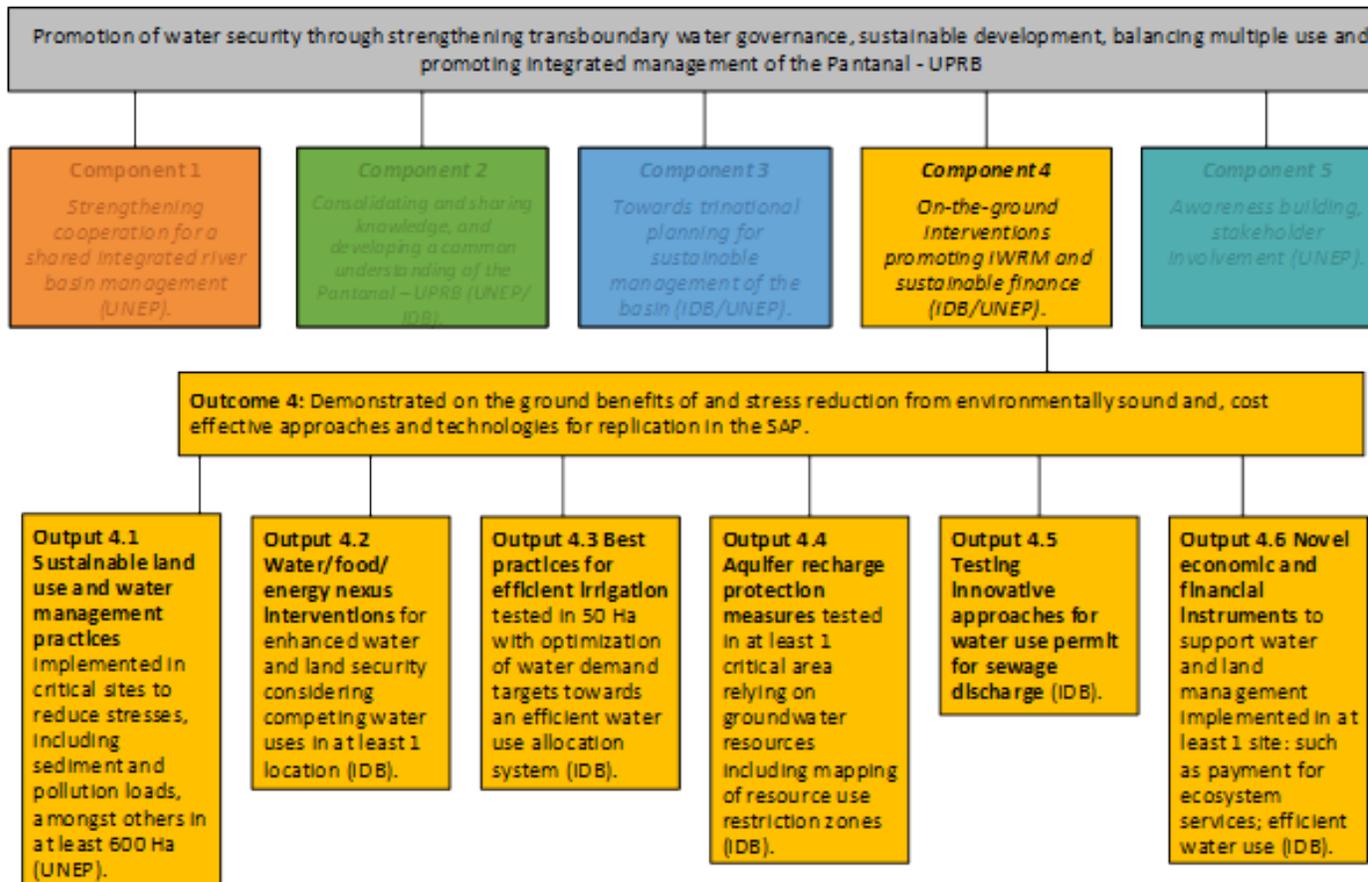
Activity 3.5.3: Development of designs and plans for water and sanitation in the six selected sites.

Activity 3.5.4: Development of cost analysis and a financial plan linked to Output 3.4



Figure 4. Potential sites/cities to be selected for the development of integrated municipal water and sanitation plans.

**Component 4: On-the-ground interventions promoting integrated water resources management and sustainable finance**



Sustained cooperation on integrated management of the water resources in the Pantanal ? Upper Paraguay River Basin will be strengthened by showcasing new technologies and sound approaches commensurate with local socio-ecological systems in the basin. This will include piloting localized innovative approaches, including financial mechanisms for replication. It is anticipated that the interventions will result in demonstrable on-the-ground benefits in terms of stress reduction and provide the requisite elements for replication and sustaining SAP delivery (Outcome 3.1).

Component 4 will initiate six pilot activities to develop on-the-ground experiences that will guide the SAP (Output 3.1) and future IWRM actions in the basin. Full details of the proposed pilots are provided in UNEP-Appendices 14 to 19.

Specifically, activities will include: piloting land and water management practices to identify good practices to reduce pollution and soil erosion that leads to sedimentation issues; piloting green infrastructure to support the water/food/energy nexus. Other pilots will be aimed at reducing water consumption through improved irrigation; protecting water supplies from aquifers from pollution; investigating innovative permitting approaches for wastewater, and the use of economic instruments to support water and land management.

Key outputs for this component at this time are proposed to be a series of interventions and targeted actions, including documented results for replication and upscaling through the SAP. Due to limited travel (due to COVID restrictions during the PPG phase), final specific locations and activities are still to be confirmed. The final decision on locations will be confirmed during the Inception Phase and will actively involve stakeholders in the pilot locations, including consideration of gender representation. Any locations with indigenous communities will ensure that these stakeholders participate in the design of the activities planned. Specifically, the pilots will address:

**Output 4.1: Sustainable land and water management practices implemented in critical sub-basins in at least 600 hectares.** The objective of this activity will be to implement pilots on good soil and water management and conservation practices, and to study the impact of these practices on water availability and water quality, as well as forest fires risk management. Details of the activity are elaborated in UNEP-Appendix 14.

During the PPG phase, the following were identified as potential sites for carrying out the pilots: the Tucavaca sub-basin in Bolivia, the Taquari sub-basin in Brazil, and Rio Negro National Park in Paraguay. The latter site would focus on fire risk mitigation measures, while the other two would focus on reducing sediment and pollution loads.

The specific field site locations (adding up to a minimum of 600 ha) will be identified within the identified basins during project inception through the stakeholder engagement and communication plan (Output 5.1). The identification will happen within the first six months of the project. The results of these interventions will inform a proposal for basin-wide land management (Output 3.2) and the SAP (Output 3.1).

The pilots implemented will focus on reducing chemical and sedimentation loads and, due to the high level of forest fires in the area as this document was being drafted, identify which practices could reduce forest fire risk.

All data gathered and lessons learned will be relayed to stakeholders through capacity - building program (Output 5.2), including consideration of gender representation.

The pilot interventions will investigate a range of good practices to reduce soil erosion and nutrient loss to water courses. Potential practices to be studied for implementation are:

- ? Application of nutrient management plans
- ? Construction of wetlands
- ? Employing buffer strips surrounding agricultural land
- ? Manure handling and storage
- ? Reducing livestock access to water courses
- ? No till and low till approaches
- ? Construction of sedimentation ponds
- ? Integrating energy crops within row crops and grassing activities
- ? Construction of terraces
- ? Protection of springs
- ? Recovery of riparian forests and vegetation on hilltops.

The following activities are anticipated:

Activity 4.1.1: Define sites of up to 600 ha and perform baseline analysis.

Activity 4.1.2: Based on baseline analyses, define pilot interventions, work plans and monitoring schemes for interventions

Activity 4.1.3: Pilot actions to reduce soil loss and pollution from land-based activities will be undertaken and monitored for two years. This includes on-the-ground training with stakeholders, ensuring gender balance.

Activity 4.1.4: Define recommendations and best practices applicable for the whole basin based on the two-year pilots.

**Output 4.2: Water/energy/food (WEF) nexus pilot for enhanced water and land security considering competing water uses.** This activity will address the management of multiple uses of water in specific sub-basins. Balancing different water uses is critical at the international level to avoid water conflicts and ensure sustainable use of water.

The WEF Nexus is a framework for integrating the three factors controlling the structure and function of human communities and ecosystems globally. Together, these influence human health and in turn are driven by economics, the ultimate factor in policy development.[\[1\]](#)

Constructed wetlands have great potential for strengthening sustainability of the WEF Nexus by reducing water use where scarce, saving energy, and potentially contributing to local economies via product development, including agriculture.[\[2\]](#)

The objectives of this pilot will be to:

- Evaluate green infrastructure, especially wetlands, as a cost-effective, highly efficient methodology for wastewater treatment and drinking water pre-treatment in urban and rural areas of the Pantanal ? Upper Paraguay River Basin.
- Evaluate the best constructed wetland design to fit local community needs as well as potential use of nearby natural wetlands.
- Assess potential constructed wetlands for increasing ecosystem services to local communities.
- Evaluate how constructed wetlands can balance the WEF Nexus for local communities, thus promoting long-term sustainability for the Pantanal and global development goals.
- Evaluate the potential of constructed wetlands as part of management planning for adaptation to climate change and future development impacts on the WEF Nexus.
- Study sites are proposed to be in Paraguay and/or Bolivia ? to be defined during project inception. More details on this pilot can be found in UNEP-Appendix 15.

In Paraguay the potential selected sites include the cities of Carmelo Peralta or Bahia Negra. Carmelo Peralta is located on the banks of the Paraguay River where urban expansion is anticipated following the construction in 2023 of an international bridge to Brazil. In view of this, Carmelo Peralta is receiving a lot of attention and technical cooperation from the IDB. The IDB is helping develop a flood risk management study, including a flood prevention infrastructure design, an urban zoning plan, and a sustainable development Action Plan to be implemented in the short term. Bahia Negra is also a potential site for this project given its large indigenous populations, its complete isolation from central

government,[3] and the fact that it is a transboundary site and an important Ramsar site where indigenous communities are sustained by fishing. This site would provide a wonderful opportunity to work on community empowerment and develop potential economic benefits for local markets. Special efforts will be made to work with local universities on a pilot project under controlled experimental conditions.

Potential sites in Bolivia are the towns of San Matias (6,000 inhabitants) and La Petas (800 inhabitants), but the final selection of pilot study sites will follow consultations with local communities, analysis of the waste stream and availability of partners and appropriate sites. Special efforts will be made to work with local universities on a pilot project under controlled experimental conditions.

The following activities are anticipated:

Activity 4.2.1: Identification of location(s) for implementation of the Nexus approach, assess wastewater streams and elaborate a pilot workplan.

Activity 4.2.2: Design of pilot wetland, construction and monitoring for two years; including on-the-ground training

Activity 4.2.3: Develop best practices? report and define potential sites to implement similar applications.

**Output 4.3: Pilot for the implementation of best practices for efficient irrigation** tested in at least 50 ha with optimization of water demand targets aimed at achieving an efficient water use allocation system, including innovative administrative methods to assess water allocation in several key sites. Details of the pilot are presented in UNEP-Appendix 16.

This pilot is motivated by the idea that information can be used to:

- Improve water allocations during the growing season to improve water use efficiency.
- Open a line of communication between farmers at the head end and tail end of an irrigation system, leading to more cooperative behavior and more efficient water use.
- Guide recommendations in SAP ? Output 3.1.
- Possible areas were identified during PPG based on the existing water balance situation by sub-basin on the Brazilian side of the Upper Paraguay river basin, but they could also be located in small irrigated areas with small producers in Bolivia. The specific site will be determined during project inception.

During PPG it was initially suggested that the pilot could be in Brazil near Caceres (southwest of Cuiaba) in Mato Grosso, but more information about irrigation areas, the organization of water users? associations and extension services, which could be obtained in the inception phase, is required in order to make a final decision on location.

The following activities are anticipated:

Activity 4.3.1: Identify site selection (for control and for pilot), define irrigation practices, define volumes, and identify sources in the Pantanal-UPRB. Establish agreements with farmers to conduct studies.

Activity 4.3.2: Definition of a user-based water monitoring protocol, key performance indicators in the irrigation system and methodology for the collection of detailed information to identify sources of water inefficiency.

Activity 4.3.3: Implement pilot on water use measurement from a controlled site as well from the pilot and perform on-the-ground training.

Activity 4.3.4: Develop best practices? report and define potential sites to implement similar applications.

**Output 4.4: A pilot focused on aquifer recharge protection measures** tested in at least one critical area reliant on groundwater resources. The objective of the pilot is to test and develop mechanisms for protecting groundwater sources as well as understand the vulnerability and risks associated with groundwater resources? overuse or contamination.

During the PPG phase, the city of Rondon?polis (population 236,000) and the town of Cox?m (population 33,000) were identified as potential pilot locations for evaluating centres with strong groundwater demand and dependencies.

Confirmation and timelines will be determined through stakeholder engagement (Output 5.1). All outputs of the model will be used to train and build capacity among stakeholders from countries within the Pantanal ? Upper Paraguay River Basin. Results, conclusions and recommendation will be directly linked to the project SAP (Output 3.1). More details on this pilot are presented in UNEP-Appendix 17.

The following activities are anticipated:

Activity 4.4.1: Define a baseline by performing a cadastre of existing wells in the three countries, identify shared aquifer maps, collect data on water levels and water quality.

Activity 4.4.2: Develop vulnerability maps for at least two municipalities to be identified during the inception phase.

Activity 4.4.3: Develop a computational model of transboundary aquifers with information gathered from different countries; train stakeholders and ensure gender balance.

Activity 4.4.4: Develop and implement regulations for the protection of priority recharge areas, as well as Well Protection Perimeters (WPP); develop a groundwater monitoring network.

Activity 4.4.5: Define best practices and develop an estimate of the cost of a detailed study to define WPP for all wells that provide water for public consumption, and design regulations for the protection of recharge areas and a monitoring network.

**Output 4.5: Testing innovative approaches for water use permits for sewage discharge.** This pilot seeks to identify, develop and test a rapid assessment protocol for the Pantanal?s water resources based on overall conditions of habitat, flow, macroinvertebrates, among others, for water quality assessment. The objective will be to provide a mechanism to collect the most information about a site in the shortest

time, with the aim of optimizing costs and performing most analyses in the field to reduce the need for expensive laboratory analysis.

Through the engagement and communication plan (Output 5.1) and the training component of the project (Output 5.2) the pilot will also establish a training programme for laboratory and field teams in the three countries to standardize data collection and provide an opportunity for technology and knowledge exchange between institutional stakeholders in each country, ensuring gender balance among participants.

Testing methods will be developed in three different sites (one in each country). During the PPG the following places were proposed: in Brazil the Fromoso River; in Bolivia the Laguna Caceres, near Puerto Quijarro; and in Paraguay a site on the Paraguay River. However, these need to be determined in the inception phase.

Details on implementation, activities and funds allocated to this pilot are presented in UNEP-Appendix 18.

The following activities are anticipated:

Activity 4.5.1: Identify potential sites for implementation and perform baseline analysis of water use and water quality.

Activity 4.5.2: Develop and test a method for assessment of water quality using innovative methods such as biomonitoring of macroinvertebrates.

Activity 4.5.3: Apply an innovative monitoring scheme in project sites to test innovative measurements, train stakeholders (including consideration of gender representation) and monitor water quality for two years.

Activity 4.5.4: Develop water discharge protocols defining concentration, monitoring schemes, and water sewage discharge restrictions in six municipalities.

**Output 4.6 Novel economic and financial instruments to support water and land management.**

The outputs produced under this activity will focus on localized innovative approaches to improve ecosystems and the services they provide through novel financial mechanisms.

It is anticipated that the interventions will result in demonstrated on-the-ground benefits in stress reduction, conservation and ecosystem services that can be incorporated into the SAP (Output 3.1).

Three financial pilots are presented as novel economic and financial instruments to support water and land management activities:

A private equity or debt fund that invests in (i) agroforestry ventures and (ii) land management or environmental areas under payment for environmental services? schemes. Some of the lessons learned from this pilot will feed into Output 3.2 and the pilot linked to Output 4.1.

Fixed Income thematic bonds for water resource management with an emphasis on groundwater. In this pilot a bond issued by the IDB or other multilateral institution will be used to implement water management investments and to ensure adequate water balance, water quality, and/or biodiversity conservation. Groundwater bond issuance for the Pantanal groundwater will go two steps further than traditional multilateral bond issuance by: (i) focusing bond proceeds on a single project site ? the Pantanal ? rather than on a debt programme to cover multiple operations and (ii) defining a coupon scheme based on impact results rather than a fixed predetermined reward to the investor.

Development of a Project Preparation Facility (PPF) for over-the-counter debt for water lifecycle management through a public-private partnership approach. The Pantanal ? Upper Paraguay River Basin will support governments, investors, and developers of water infrastructure projects by helping to define the technical, financial, legal, and/or regulatory processes involved in water infrastructure development. The PPF will be a companion resource to strengthen and promote Public Private Partnerships (PPPs) by adequately measuring risk allocation in the Pantanal-UPRB River Basin. As identified during PPG, the required investments in water supply and sanitation for the Pantanal region amount to \$1.7 billion, of which around \$500 million in water supply infrastructure and around \$1.2 billion in sanitation infrastructure. Some of the Pantanal?s neighbouring population areas have already developed water and sanitation projects that are looking for financial resources.

In Bolivia, the Department of Santa Cruz has done 33 pre-feasibility studies for total investments of \$95 million in around six municipalities. In this sense the PPF will benefit from the existing pre-feasibility studies and, following final procurement studies, will seek to attract their financial sources.

Paraguay is also experiencing a lot of new developments in and around Carmelo Peralta due to the construction of a new bridge between Paraguay and Brazil. The area will benefit from a PPF to promote other developments with sound commercial schemes. The area of Carmelo Peralta is also surrounded by indigenous lands that can benefit from the ecosystem service laws.

Details of the pilot activities, timeline and distribution of funds are presented UNEP-Appendix 19.

The following activities are anticipated:

Activity 4.6.1: Identify potential investment projects aimed at IWRM; develop a funding deck to capture Equity and Debt to start fund life

Activity 4.6.2: Develop a thematic bond framework for each country or for regional bond emission. Identify potential projects and perform bond rating, roadshows, and bond placement.

Activity 4.6.3: Set up the PPF framework, organization plan, and initial feasibility studies to promote use of the PPF.

Activity 4.6.4: Develop best practices identified, and a report to include lessons learned and strategies to include in the SAP.

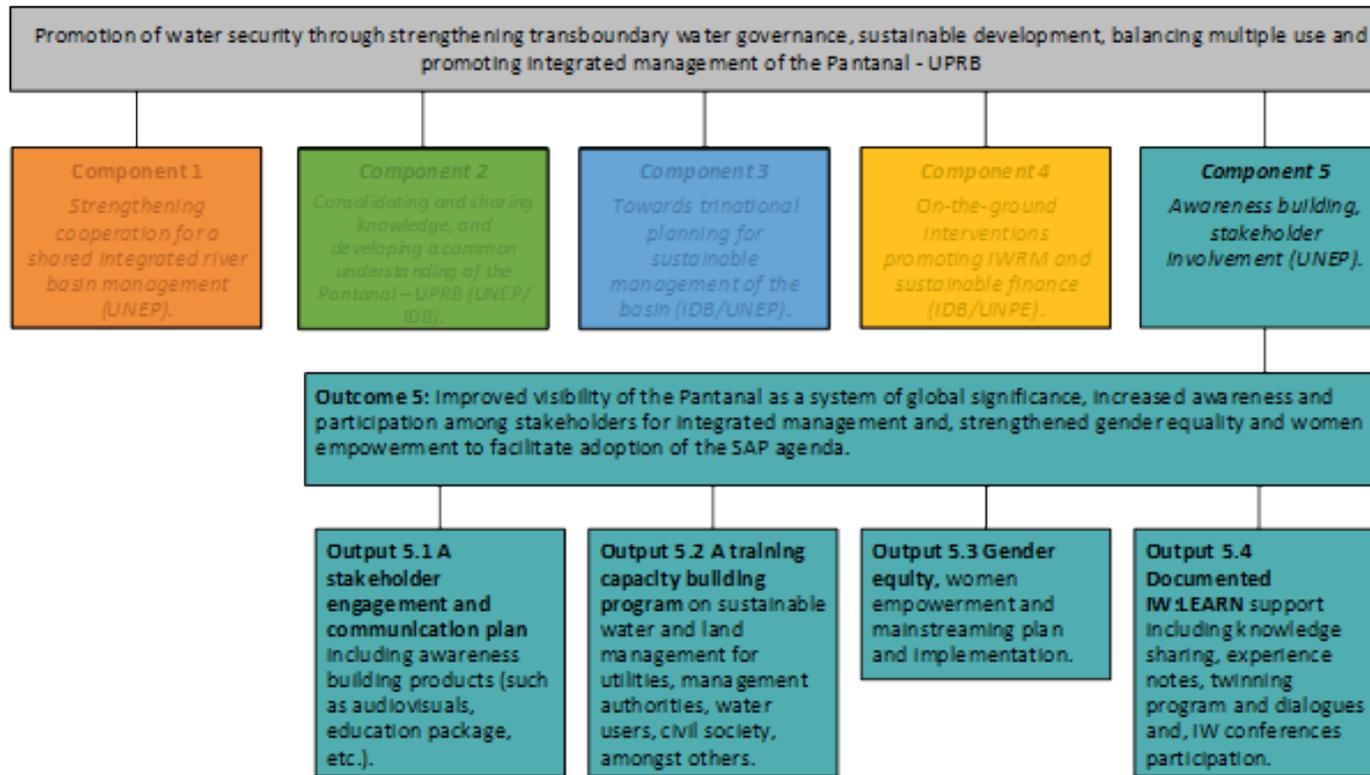
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[2] Green, P.A., C.J. Vorosmarty, I. Harrison, T. Farrell, L. Saenz and B.M. Fekete. 2015. Freshwater ecosystem services supporting humans: pivoting from water crisis to water solutions. *Global Environmental Change* 34:108-118.

[3] National electrical grid does not reach Bahia Negra, and it only has one dirt road that reached it.

### Component 5: Awareness building, stakeholder involvement



Component 5 aims to link all components together, build support for project implementation, raise awareness, mainstream gender equity, and exchange knowledge through GEF IW:LEARN and the project website.

The implementation of this Component's activities will run throughout the project and will be the first Component to start its activities and the last to finish. It will result in improved visibility of the Pantanal ? Upper Paraguay Basin as a system of global significance, increase awareness and participation among stakeholders of integrated management, and strengthen gender equality and women's empowerment. This Component will facilitate adoption of SAP priority actions at the ministerial level.

**Output 5.1: A stakeholder engagement and communication plan** developed and implemented. The entire project will be participatory and communication-oriented. Based on a Stakeholder Engagement and Communication Plan, a range of related activities will be implemented to foster (a) understanding of the issues involved by the public and the stakeholders, including water users and the private sector, thus enabling their contribution in the development and implementation of solutions; and (b) enhancement of awareness at the political level and among decision-makers, thus creating the enabling environment for action to be taken.

The Draft Communication Plan (UNEP-Appendix 11) entails having two Project Steering Committee (PSC) meetings a year (in person and through conference calls) to inform high-ranking decision-makers on project progress and approve yearly Operation and Acquisition Plans.

The Project will develop and host its own website where information regarding outputs, results and ongoing projects will be posted. The webpages will follow best practice and guidance from GEF IW:LEARN. The website will also have a section with data derived from protocols developed in Outputs 2.3 and 2.4. Details of the Knowledge Management approaches to be adopted by the project are presented in Section 3.9.

Apart from being used as an information provision hub, the website will also support the implementation of project activities. It will support and incorporate a range of tools such as a project management team working space, information database, interactive maps, forum discussions, etc.

As part of the Communication Plan during the project, an institution will be identified which will, by the end of the project, assume hosting responsibilities for project results, as well as data developed through project Output 2.4.

The project will also facilitate selective media events to involve and inform key national politicians on project deliverables and envisioned benefits. To enhance communication, several key awareness-building products will be developed such as audio-visual tools and education packages, among others.

The following activities are anticipated:

Activity 5.1.1: Establishment of a GEF IW:LEARN-compliant website and social media outlet for the project

Activity 5.1.2: Design of the Engagement and Communication Plan as well as a protocol for stakeholder engagement, a publication schedule, and determination of engagement activities (training dates, regional meetings, etc.)

Activity 5.1.3: Implementation of the Engagement and Communication Plan with periodic meetings, publications, events, and workshops relating to each activity

Activity 5.1.4: Cooperation with potential institutions that will, by the end of the project, assume hosting responsibilities for project results, as well as the data developed through project Output 2.4. Development of an operational manual for website and data management. Handover to the identified institution.

**Output 5.2: A training/capacity-building programme on sustainable water and land management** for utilities, management authorities, water users (including the private sector) and civil society, among others. Specially designed training events will develop capacity in key target groups such as management authorities, utilities, and water users with a view to (a) building ownership of, and responsibility for, the resources; (b) achieving long-term sustainability of project outcomes; and (c) providing better information on the implementation of project activities (with knowledge at national and local levels).

Outputs from project components will be funneled back into training and capacity-building programmes throughout the project. Most technical activities such as those in Components 2, 3 and 4 will end with a training workshop. As part of the development of the Communication Plan (UNEP-Appendix 11) certain workshops were predefined during the PPG phase. These training workshops will focus on general issues of the Pantanal ? Upper Paraguay River Basin.

More specific workshops and training programmes will be developed during the project as content will depend on specific outputs. For instance, workshops related to computational modelling of the basin will depend on Output 2.2; data-sharing protocols (Output 2.3); definition of environmental flow regimes (Output 2.3); results of the water/food/nexus approach to water resources management (Output 4.2); and best practices for land use management and efficient irrigation (Outputs 4.1 and 4.3), among others.

The following activities are anticipated:

Activity 5.2.1: Alongside Activity 5.1.1, identify local stakeholders that would participate in the different training workshops. Perform a needs assessment on local, regional, and national knowledge of the Pantanal-Upper Paraguay River Basin.

Activity 5.2.2: Based on the activities developed on a yearly basis, identify how many training programmes need to be developed, where they would be held, and when. If necessary, reprogramme these based on Output results.

**Output 5.3: A gender equity, women's empowerment and mainstreaming plan** developed and implemented. The project will develop a Gender Equity and Mainstreaming Plan to be adopted at the start the project. More details of the Plan are presented in UNEP-Appendix 12.

Following the GEF gender policies, IDB and UNEP Operational Policy on Gender Equity in Development, all component activities will address gender issues. For instance, when constructing the TDA (Output 3.1) a basin-wide diagnostic will be developed given that currently there are no baseline indicators disaggregated by gender. Most of the information known today is qualitative and points to issues regarding women's empowerment, decision-making processes and capacity-building within local communities.

Similarly, outputs related to certain technical activities like model developments (Output 2.2 and 3.3) will focus on training and institutional capacity-building equally across both genders.

Moreover, and aside from the trainings within Output 5.2, gender awareness-raising and empowerment workshops will be part of the design of the decision-making process and the international coordination mechanism (Output 1.1).

The results of this activity will not only assist the advancement of women's empowerment within the context of the project, but will also strive to achieve 50 per cent gender equity in all meetings and project activities, etc.

The following activities are anticipated:

Activity 5.3.1: Develop baseline analysis of women's participation using disaggregated indicators and data derived from local analysis of census and survey data.

Activity 5.3.2: Informed by the baseline analysis, streamline women's engagement within each project.

Activity 5.3.3: Develop gender-specific technical and financial planning workshops/activities on empowering women in vulnerable communities.

**Output 5.4: Documented IW:LEARN support, including knowledge sharing, experience notes, twinning programmes and dialogues, and IW conference participation.** This Output will focus on engaging the public (whether stakeholders or not) by disseminating knowledge captured during project execution. As indicated in the Communication Plan (UNEP-Appendix 11), information and knowledge will be disseminated through IW:LEARN and the project website.

This component will focus more on sharing experiences through IW:LEARN, IW Conferences and Communities of Practices which target a broader community of the IWRM network. The participation in IW:LEARN activities will be coordinated by the Project Coordination Unit (PCU) but led by stakeholders who will share their experiences and lessons learned throughout the project. Similarly, the intention will be for stakeholders, PSC, and PCU members to learn from other projects around the world.

Additionally, project monitoring will be conducted to inform adaptive management. This includes of the establishment of a PSC and annual PSC meetings, reports (PIR), and mid-term review and final evaluations.

The following activities are anticipated:

Activity 5.4.1: Establish a schedule of twinning activities, conferences and seminars for the whole project, involving national and local stakeholders.

Activity 5.1.2: Publish experience notes twice a year to communicate project results and progress.

#### **Output changes from PIF**

<b>Output title at PIF approval</b>	<b>Output title at CEO submission</b>	<b>Rationale for change</b>
1.2 Proposed water management principles and targets (e.g. on water quality and quantity objectives) as input to the SAP	Output 1.2 Proposed water management principles and targets (as input to the SAP)	Improved wording
2.1 A region wide Transboundary Diagnostic Analysis (TDA) complementing and building upon countries' experience and knowledge, further defining the La Plata basin diagnostic.	Output 2.1 - A region wide Transboundary Diagnostic Analysis (TDA) complementing and building upon countries' experience and knowledge, further defining the La Plata Basin TDA.	Improved wording
2.3 Documented established and functional basin wide information exchange sharing (including agreed & signed data sharing protocols) and an integrated hydro-climatic reporting system including inter-country capacity development	Output 2.3 Basin wide information exchange protocol and an integrated hydro-climatic reporting system including inter-country capacity development.	Improved/simplified wording for output title. The ambition of the output remains the same.
3.4 A sustainable financing strategy (including a Project Preparation Facility, public-private partnerships, an alliance of investors, etc.) to support implementation of the SAP and key priority activities.	Output 3.4 - A sustainable financing strategy to support implementation of the SAP and key priority activities.	Improved/simplified wording for output title. The ambition of the output remains the same.
3.5 Up to 6 integrated municipal water and sanitation plans	Output 3.5 - A series of integrated municipal water and sanitation plans.	Improved wording. The target is restructured stating that up to 6 municipal water and sanitation plans will be done. There is no guarantee that exactly 6 plans will be developed by the end of the project as it is contingent to factors beyond the project control (e.g. agreement by key stakeholder groups).

Output title at PIF approval	Output title at CEO submission	Rationale for change
4.1 Sustainable land and water management practices implemented in critical sites (e.g. Taquari sub-basin, Tucavaca sub-basin, etc.) to reduce stresses, including sediment and pollution loads in at least 600 Ha.	Output 4.1 Sustainable land use and water management practices implemented in critical sites to reduce stresses, including sediment and pollution loads, amongst others in at least 600 ha.	Improved wording. Three sub-basins are kept as part of the pilot. The characterization of forest fires in the Pantanal has been added as an activity of this pilot.
5.2 A training program on sustainable water and land management for utilities, management authorities, water users, civil society, amongst others, tested in 3 locations	Output 5.2 ? A training/capacity building program on sustainable water and land management for utilities, management authorities, water users, civil society, amongst others.	The project results framework maintains the target by stating that the training programme will be undertaken in each country involving 10 stakeholder groups.

**d. alignment with GEF focal area and/or Impact Program strategies;**

The project activities are designed to respond to the GEF 7 International Waters Strategy contributing to Objective 3 *Enhanced regional and national cooperation on shared freshwater surface and groundwater basins* (IW 3-6) and will also support (IW 3-7) *Investments in water, food, energy and environmental security* with a focus on proposing alternatives for tri-national coordination of the basin (Output 1b), identifying and testing novel, sustainable and innovative financial instruments (through Outputs 3.4 and 4.6), and piloting an experience on water/food/energy nexus actions to enhance water and land security (Output 4.2). In addition, the project will contribute to IW 3-6 supporting stakeholder engagement, training and encouraging diverse instances of participation and dialogue, such as workshops, meetings and publications (Output 5.2 and 5.4).

**e. incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;**

To achieve the global benefits from the project, the incremental GEF funding (\$8,190,000) and the expected co-financing (\$130,142,879) from countries will expand the ongoing baseline work of GEF, UNEP, IDB, CIC Plata and national agencies in promoting international cooperation on water issues. This will allow the authorities in the basin to move to the next and higher level of implementation and testing of on-the-ground integrated water resources management and conservation activities in the Pantanal ? Upper Paraguay Basin. These benefits, as established in the ?International Waters? Focal Area Strategy, will be achieved by promoting a broader and more effective multi-country management scheme for the Pantanal - Upper Paraguay Basin.

As described above, the Pantanal is a system of globally significant biodiversity resource dependent on competing demands for water resources and likely climate change impacts. Through this project the three countries will strengthen their understanding of the ecosystem resources and the pressures on them, leading to a regional SAP to guide sustainable development in the future.

Current governance of water resources is done separately by each country. This project will explore the potential for a regional trinational governance body responsible for the Pantanal ? Upper Paraguay River Basin. Currently, there is an asymmetry in institutional capacity, regulatory frameworks, and ownership of the Pantanal. For instance, there are substantially more studies and regulations in the Brazilian Pantanal than in the Bolivian and Paraguayan Pantanal areas together. Furthermore, the Brazilian government developed a SAP for the Pantanal in 2004. The actions of Bolivia and Paraguay in the Pantanal are mainly via NGOs or multilateral organizations. However, momentum is building in Bolivia and Paraguay, given the importance of the Pantanal as environmental regulator of the Paraguay River, which is commercially important for the transport of goods and a major source of basic water services for the population.

The project will address the main barriers. These centre around the lack of transboundary coordination between countries and the lack of an integrated strategy to develop the Pantanal in a sustainable way. These barriers are also linked to the fact that there is no real up-to-date information regarding climatological risks, environmental flows, water demands and needs in the Pantanal. A detailed overview of the barriers, the problems and the effects of these problems in the Pantanal ecosystem is presented in the previous section and in the Problem Tree that guided the formulation of the project's Theory of Change (UNEP-Appendix 9). The ministerial signing of the expected project SAP will provide a clear statement of commitment by the three countries to ensure this global resource is sustained for all.

Without GEF resources, uncoordinated and unsustainable land management, agricultural practices and water resources management, will remain business as usual resulting in exacerbated expansion of agricultural and livestock frontiers. In response to this threat, the project will firstly define a set of land management practices (Activity 4.1). Some of these will be piloted through irrigation control and aquifer recharge protection (Activity 4.1), implementation of biomonitoring techniques to develop permitting of water quality (Activity 4.5), and a water/food/energy nexus pilot aimed at integrating water needs and demands across the Pantanal (Activity 4.2).

Currently the lack of a regionally agreed SAP (and the detailed analysis that underpins this) implies that the three countries will continue to develop the Pantanal separately, without being required to share information and data, or water resources? demand likely to be impacted by climate change. GEF resources will also identify potential future options for establishing a regional trinational coordination body to facilitate overall water resources? governance in the Pantanal.

The project will use the GEF grant to encourage the adoption of measures to reduce water scarcity and pollution impacts, guided by a regional SAP. The SAP will be grounded in a robust TDA developed jointly by the three countries. It will draw on evidence from the pilot projects, with the aim of reducing stress on the environment (Component 4). Integral to these pilots, and their future upscaling through SAP implementation, will be the development of a sustainable financing plan (Output 3.4) that is

expected to identify over \$500 million of resources for the SAP. Continuing the emphasis on financial approaches, the project will also test a novel economic/financial instrument (e.g. payment for economic services) to highlight options for future management of the Pantanal. The GEF grant will also be used to analyse options for a regional coordination mechanism that will be presented to the countries to jointly enhance the overall governance and management of the Pantanal.

The GEF grant will also underpin these activities through a comprehensive capacity development programme that will bolster the sustainability of the proposed actions and facilitate long-term sustainable development of the region. Specific training will address technical water management issues and facilitate improved gender equality in the management of the basin. Stakeholders at all levels (including representatives of indigenous communities in the Pantanal) will be central to the implementation of the project (see Section 5 and UNEP-Appendix 11 ? Stakeholder Engagement) and representatives of specific groups will be invited to PSC meetings to assist with guiding the project's direction. A Communication Plan developed by the project (Output 5.1) will enhance awareness of ecosystem value and benefits to wider stakeholders, with results disseminated through the GEF IW:LEARN portal, communities of practice, twinnings, and via regional stakeholder discussions of the project at the twice yearly GEF IW Conference.

The overall incremental reasoning is two-fold. Firstly, the GEF investment will focus on the Pantanal ? Upper Paraguay Basin and enhance the work by GEF in the La Plata Basin and on the Brazil Pantanal SAP. The project will develop a region-wide SAP to address transboundary water issues in detail, and will help improve capacity for coordinated management, extend basin-wide monitoring and improve the ability to make decisions and promote sustained financing. Co-financing, mostly from riparian countries, will be enhanced by the GEF funding that will focus on developing greater coordination at international level. Around half of the co-financing is associated with water supply and sanitation, which will be enhanced through the project's design and planning aspects (Output 3.5), and informed through novel approaches for aquifer protection (Output 4.4) and water use permitting (Output 4.5). Other co-financing is associated with conservation, land use management and climate resilient sustainable development (including forest and water use, tourism and protected areas). The incremental GEF funding will provide an opportunity for nationally focused projects to learn and engage with projects in the other countries and provide information that supplements pilot projects and informs SAP development. Likewise, the GEF-funded pilot projects and TDA will help enhance the effectiveness and impact of the national-level projects.

Secondly, the GEF investment will help to build coordinated management and sustainable development in the Pantanal ? Upper Paraguay Basin. This will allow the unique ecosystem services it provides ? one of which is protecting cities and riparian rural areas in the downstream La Plata Basin from floodwaters from the Cerrado (plateau) ? to be better valued and protected.

#### **f. global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)**

##### **Global Environmental Benefits**

The region's globally important and significant biodiversity will benefit from the expected improved integrated land-water management that will be supported by recommendations for trinational governance structures for the Pantanal region. The strengthening of regional governance and

management, supported with improved monitoring and results from the pilots, will enhance the long-term sustainable development of the local population.

The project will deliver benefits to the overall basin population of approximately 2.4 million people and the globally important ecosystem of the Pantanal. The detailed technical assessment of the issues affecting the aquatic ecosystem will present a common review of the status and the pressures (including potential climate change scenarios and from population change models) to enable the countries to develop and implement mitigation measures. The testing of innovative approaches for addressing water use, pollution, groundwater protection, etc., will be supplemented by significant assessments and recommendations for long-term sustainable financing.

The TDA and the signed SAP will provide details of the problems, and the means to address the issues identified, with recommendations for monitoring and managing land and water ecosystems that will provide tangible benefits at the pilot scale to reducing stress on the environment and understanding the ecosystem services provided. These will provide important direct ecosystem benefits within the Pantanal-UPRB involving Bolivia, Brazil and Paraguay.

The integrated management approach will consider the likely impacts of climate change on the water resources of the region and identify means (tested through pilots on irrigation, groundwater protection) to conserve limited resources. These actions will assist in building resilience in the region that will have wider global environmental benefits from future upscaling through SAP implementation.

The pilot activities (Component 4 on-the-ground interventions promoting IWRM and sustainable financing) will be carried out for upscaling throughout the Pantanal-UPRB, these will lead to direct environmental benefits including:

- Tested approaches to improve land-water management and conservation practices to reduce nutrient pollution, improve water quality locally, reduce soil loss and assist in addressing potential climate change threats in at least 600 ha;
- Reducing competing water uses through nexus (water/food/energy) approaches to enhance ecosystem management and food production; and through the evaluation of constructed wetlands to balance the water-energy-food Nexus for local communities, thus promoting long-term sustainability for the Pantanal-UPRB and global development goals;
- Improving irrigation techniques to reduce water consumption in 50 ha, at the same time opening a line of communication between farmers at the head end and tail end of an irrigation system, leading to more cooperative behaviour and more efficient water use;
- Implementing aquifer recharge protection areas to reduce risks of contamination of groundwater resources used to supply potable water by mapping aquifer vulnerability and potential sources of contamination, and by stabilizing well protection perimeters, focused on groundwater sources used for human consumption;
- Testing innovative permitting approaches for wastewater discharges using biomonitoring technics; and,
- Identifying and testing novel economic instruments to support land and water management.

**g. innovativeness, sustainability and potential for scaling up. ?**

Overall, the proposed project is innovative. It will stimulate replication/upscaling while supporting the sustainability of actions for the region insofar as it will give an impetus to integrated transboundary

water resources management and address a lack of incentive mechanisms for implementation of good water and land management practices.

The innovative approach of integrating a sustainable financing strategy (with a target of \$500 million identified resources) into the SAP to facilitate SAP implementation and upscaling/replication of the pilot interventions will benefit from potential funding opportunities through FONPLATA (the financing arm of the Plata Basin organization) and IDB.

The regionally endorsed SAP and proposals for regional trinational basin governance represent a paradigm shift in moving water management/governance from the national to a regional or basin level. This will further support the sustainability and replication of project actions in the wider Pantanal-UPRB.

### **Innovation**

Specifically, the project fills a gap in current basin plans by advancing IWRM coordination between the three basin countries. Habitat in the wetlands is inextricably linked to promoting sustainable land management in the uplands through water use. By focusing on this connecting thread of water, the project will develop a coherent approach to water management based on nexus principles. On-the-ground pilots, for instance, will deploy and test innovative approaches. For example, constructed wetlands (Output 4.2) have great potential for strengthening sustainability of the WEF Nexus by reducing water use where scarce, saving energy and potentially contributing to local economies via product development, including agriculture. Unlike traditional engineering approaches, constructed wetlands do not have limited life spans and can be adapted quickly to meet unexpected development pressures and altered waste streams.

Constructed wetlands provide a cost-effective and environmentally friendly approach to wastewater treatment in rural settlements and villages unable to afford traditional engineering options. Constructed wetlands are considered a major component of adaptive management for addressing increased population demands and natural disasters, including droughts and projected climate change impacts. The incorporation of ecosystem services within Nexus-based approaches for land and water planning and management, which is innovative per se, will demonstrate the applicability of innovative approaches for mainstreaming nature-based solutions in a cost-effective way that can be replicated, not only within the Pantanal-UPRB, but also in other basins throughout the region to support upstream planning for water and land management and related investments.

The project is also innovative in that it will test and monitor locally appropriate approaches for stress reduction and the sustainability of activities, through financial mechanisms at local and basin levels. The project will identify potential improvements to the governance model of the basin and include innovative incentive-based financing mechanisms. It will also promote water use efficiency and alternative water supply solutions ? another innovation.

Output 4.5 proposes an innovative approach to monitor water quality using bioindicators. Macroinvertebrate assemblages, for example, are good indicators of localized conditions. Because many benthic macroinvertebrates have limited migration patterns or a sessile mode of life, they are particularly well-suited for assessing site-specific impacts. Degraded conditions can often be detected by an experienced biologist with only a cursory examination of the benthic macroinvertebrate assemblage. Macroinvertebrates are relatively easy to identify in terms of family; many "intolerants"

taxa can be identified to lower taxonomic levels with ease. Sampling is relatively easy, requires few people and inexpensive gear, and has a minimal detrimental effect on the resident biota. Benthic macroinvertebrates are abundant in most streams in the Pantanal. This methodology which, besides being low cost and innovative at the same time, will demonstrate its usefulness for application in vast river basins or where there is copious biomass such as the Pantanal. There is a lack of data on the Pantanal and the difficulty of access to isolated areas is one of the main barriers to data mining.

Furthermore, the project will lay the foundations for shared innovative solutions in transboundary tropical wetlands, not only in the LAC region but also in other large water ecosystems worldwide which, like the Pantanal, provide key global climate and environmental benefits while preserving biodiversity.

### **Sustainability**

The importance of developing an alliance of investors and an investment portfolio is key as line agencies in the region have funds for administration but rarely for project or programme implementation and are thus constantly seeking additional sources of funding. An important result of the project will be testing novel economic and financial mechanisms (Output 4.6) reflecting local situations for sustaining interventions that will help to identify local on-the-ground mechanisms for sustained activities. The project will increase the appeal for private funding and blended finance for the Pantanal by: developing a SAP from a programmatic perspective which will identify a multisector investment portfolio to be delivered through national sectoral master plans in the three countries, and by including new innovative financing mechanisms such as a project facilitation facility, fiscal incentives for sustainable projects, or green-resilience bonds.

The area has great potential for investment and there is a high appetite to invest in the public and private sectors (agri-business, tourism, energy, among others), but currently there is not enough information, nor a well-defined investment portfolio in the Pantanal, to support such investment. The project will improve this baseline and facilitate the enabling conditions to catalyse sustainable investments in the system.

Strengthening the capacity of key basin stakeholders and institutions, and the capacity to monitor and exchange data and information as well as the development of a basin management strategy (SAP), including sustainable financing mechanisms, will contribute to enhanced cooperation in the region and sustainable management of the basin, which are key to ensuring the sustainability of the project and implementation of the SAP in the long-term. Capacity-building will occur through the process of TDA development (with monitoring, analysis, and modelling), as well as SAP development (with strategic planning and bankable investment scoping). The importance of developing an alliance of investors and an investment portfolio is key as line agencies in the region have funds for administration but rarely for project or programme implementation and are thus constantly seeking additional sources of funding.

The project will build institutional and personal capacity among authorities within the Pantanal-UPRB to strengthen and ensure the implementation of the SAP and the sustainability of the pilot actions tested. Capacity-building will also facilitate the future revision of the basin analysis (TDA) and updates to the SAP. Strengthening capacity will facilitate the countries' decision-making processes on the final trilateral coordination mechanism.

In addition, the Implementing Agencies can help with sustainability and SAP implementation through exposure and engagement with many different initiatives and mechanisms, such as the UNEP Finance Initiative (UNEP FI), IBD Invest and IDB Lab, to identify and promote innovative financing instruments with a focus on micro- and medium-size businesses for the design of innovative financing mechanisms within the SAP, such as a Private-Public investment portfolio, the design of specific instruments for green finance and the promotion of ecosystem services-based investments and green infrastructure.

Sustainability will be assisted by financial elements incorporated in the SAP and developed through Output 3.4 and tested in Output 4.6, supported by IDB's expertise and ensuring the SAP aligns with their priorities as well as national priorities. The SAP, based on a rigorous TDA accepted as a robust and realistic baseline of the environment's degradation by the three countries, will ensure implementation measures are validated – something that will support future financing requests. Sustainability will also be facilitated by strengthening the regional governance framework proposals (Output 1.1). Sustainability also derives from the monitoring systems for updating the state of the environment (in the TDA). These will measure and assess SAP implementation progress.

If capacity-building is effective, the long-term approaches adopted by the project (periodic updating of the TDA and SAP with revision of priorities and actions) will facilitate long-term sustainability of the Pantanal-UPRB.

A key Component of project sustainability and the exit strategy will be linked to the sustainable financing plan (Output 3.4). This will support SAP implementation, including the upscaling of pilot actions to the wider basin and further refinements to the proposed trinational regional coordination framework.

### **Replication**

The project is based on a scaling-up approach. The interventions identified in Component 4 will be designed to be replicated in the basin and hence inform basin-level planning priorities determined in Component 3. Moreover, proven methods experienced in some locations will be shared between the countries to enhance uptake by other areas to promote fast-tracking of actions.

Replication will build upon the experience with existing mechanisms currently being funded and piloted by the IDB in the LAC region, as well as by other IFIs and donors, adding a new level of innovation by applying them in complex transboundary systems such as the Pantanal – a novel opportunity to scale them up at spatial and sectoral scales. For instance, in parallel to this project, the IDB, in the context of UNEP/GEF-funded project for mainstreaming water security in the Trifinio system, is doing feasibility studies to support the design of the first transboundary Water Fund. This will be explored within the project for the Pantanal, along with other finance-related mechanisms such as water markets to assist with the sustainability and replication of project actions, especially those demonstrated through the pilots (Component 4).

The project will endeavour to identify other basins and, in partnership with GEF IW:LEARN, share relevant experiences that support South-South Cooperation. These will include further sharing of TDA/SAP approaches and the innovative financing mechanisms identified and tested in Components 2 and 3.

The project in the Pantanal, will test solutions relevant to the special nature of this vast system, which is far from being a 'standard' river basin. The Pantanal, as a complex tropical wetland, presents unique and challenging eco-hydrological and socioeconomic conditions for water and natural resources? planning and management, and should provide lessons for other basins.

Replication of the pilot actions within the basin will be supported by strong knowledge management and awareness approaches promoted by the project. Knowledge management practices and learning practices will be incorporated in all the pilots. The PCU will be responsible for promoting these within basin countries. Strong links will be developed with GEF IW:LEARN to support global awareness of the results of the Pantanal-UPRB project.

**1b. Project Map and Coordinates**

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

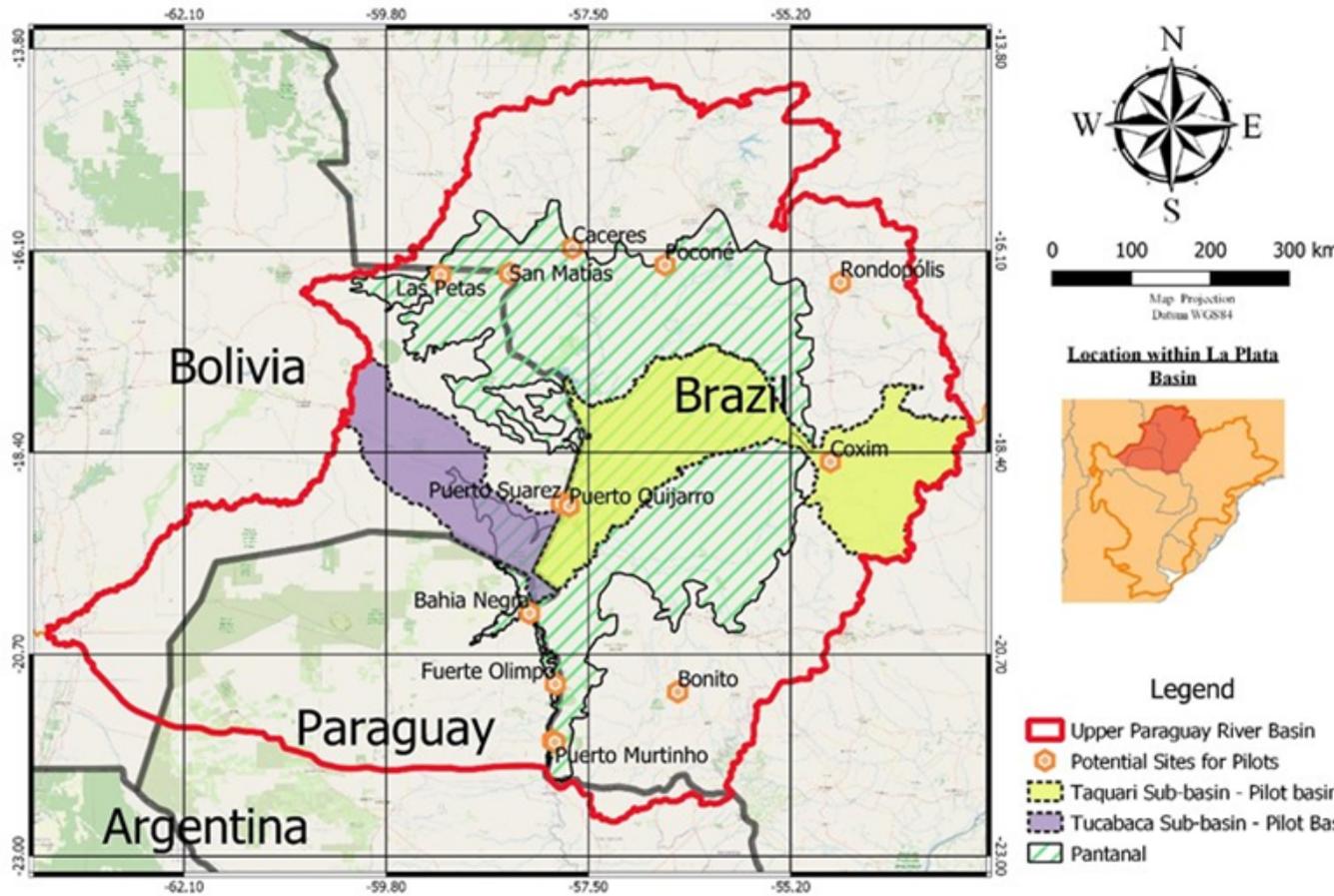


Figure 2: Upper Paraguay River Basin - Pantanal

Source: Map produced by the IDB during PIF stage with official geographic data provided by the Viceministerio de Recursos Hídricos y Riego (Bolivia), Agencia Nacional de Aguas (ANA- Brasil), Ministerio del Ambiente y Desarrollo Sostenible (Paraguay)

### **1c. Child Project?**

**If this is a child project under a program, describe how the components contribute to the overall program impact.**

N/A

### **2. Stakeholders**

**Select the stakeholders that have participated in consultations during the project identification phase:**

**Civil Society Organizations** Yes

**Indigenous Peoples and Local Communities** Yes

**Private Sector Entities** No

**If none of the above, please explain why:** No

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

The project includes a number of means to interact with stakeholders including workshops and meetings, awareness raising information publications on the project activities and achievements and a comprehensive project website aligned with GEF IW:LEARN best practices. COVID-19 restrictions have significantly limited the opportunities to discuss the project design in face-to-face meetings, especially with respect to the pilot interventions, and such meetings are planned for the project implementation phase.

The project seeks to promote water security through strengthening transboundary water governance for the wellbeing of the population and for the conservation of freshwater ecosystem in the Pantanal-UPRB. The Upper Paraguay River Basin is home to about 2.4 million people, of whom 70% reside in large urban centers (e.g. Corumbá, Cuiabá, Cáceres, etc.). There is also a significant rural population with agriculture and livestock serving as the region's main economic activities. Other notable activities include forestry, mining, fishing, tourism, river transport, and trade.

The efficiency of the proposed Transboundary Coordination of the Pantanal-UPRB depends both on strengthening technical and institutional capacities, and on the participation and ownership of key stakeholders and the Pantanal population. Activities will be executed in a participatory, constructive, responsive, accountable and transparent manner considering user groups interests and gender mainstreaming. The project will involve the specific participation and interaction of women's organizations, with a view to effective incorporation of the gender dimension in all components.

## **Indigenous people and organizations**

As defined by Brazil's Federal Decree No. 6040/2000, "Traditional Peoples and Communities are culturally differentiated groups that recognize themselves as such, that have their own forms of social organization, that occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition."

In the Pantanal-UPRB the lives and livelihoods of traditional populations ? including riverbank dwellers, artisanal fishermen, and indigenous populations ? are heavily dependent of local water resources. However, access to potable water and sanitation services in rural indigenous communities is more limited than in urban non-indigenous settings.

When specific project activities involve indigenous communities or territories, a Free, Prior and Informed Consent (FPIC) process will be conducted. In addition, if any of the project's activities take place in indigenous territories, pre-implementation assessments will be carried out to ensure that indigenous community perspectives are included in project implementation, and that the project will not have adverse effects on development priorities, decision-making mechanisms and forms of self-government of indigenous peoples as defined by them. In terms of communication, the project will ensure that indigenous community's rights and their special concerns are represented and communicated to project stakeholders. Where necessary and possible, communication materials will be translated into indigenous languages.

In **Bolivia** indigenous people's organizations in the project area include the Ayoreo group and the Chiquitano group. The Ayoreo group live in the Rinc?n del Tigre, within the San Mat?as Integrated Management Area. The Chiquitano group live in the Pantanal Community Territory of Origin (TCO ? Pantanal in Spanish) which is in the process of being reorganized.

In **Brazil** in the Pantanal ? Upper Paraguay River Basin there are 29 Indigenous Lands that are home to more than 22,000 indigenous people from 11 ethnic groups (Guat?, Pareci, Bororo, Umutina, Nambiquara, Bakairi, Chiquitano, Terena, Kadiw?u, Kiniknau and Guarani-Kaiow?), occupying an area equivalent to 2.3 per cent of the hydrographical region.

In **Paraguay** within each municipality there are indigenous communities which have their own conservation territories and a special management category. Of the total population in the Paraguayan Pantanal ? Upper Paraguay River Basin about 4,134 (26 per cent) are from different indigenous populations. Within the Paraguayan Pantanal there are at least eight different indigenous groups belonging to three different linguistic families: Ayoreo, Ybytoso (Ishir, Chamacoco) Tom?raho (Ishir, Chamacoco), Enlhet (Laguna Norte), Enxet (Laguna Sur), Guan?, Sanapan?, and Angait?. A local organization, the Union of Indigenous Communities of the Yshir Nation (UCINY), groups Yshir communities, specifically for land rights' reclamation.

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[1] Gill, EA; Da Ponte, E; Insfr?n, KP& Gonz?lez, LR.WWF (World Wildlife Fund), DLR (German Aerospace Center). 2020. Atlas of the Paraguayan Chaco. Asunci?n, Paraguay. 98

## **Stakeholder Engagement Program**

The objectives of the draft Stakeholder Engagement Plan include:

1. Promote the inclusive and meaningful participation of all stakeholders to strengthening transboundary water governance for the wellbeing of the population and for the conservation of freshwater ecosystem in the Pantanal-UPRB.
2. Involve all project stakeholders, including central government, local governments and civil society (e.g. municipalities and indigenous communities), non-government institutions (e.g. NGOs and private sector) and academic community, as early as possible in the implementation process and throughout the process, to make sure their views and input are received and taken into consideration.
3. Establish effective lines of communication and working relationships. This also includes involving public as a means of engendering ownership and as integral proponents of problem solving and solutions for the main threats in the Pantanal-Upper Paraguay River Basin.

A draft Stakeholder Engagement Plan is detailed in UNEP-Appendix 13 of the ProDoc. A full Stakeholder Engagement Plan will be prepared through Output 5.1 during the Inception Phase and submitted for approval to the first PSC/Inception Meeting.

Key stakeholders and stakeholder engagement methods are summarized in Table 1. It provides a summary of the main stakeholders at the national and regional level, their interests, and an indication of their role in project preparation and planned involvement in execution. This table includes regional bodies, national and local/regional government authorities, NGOs/CSOs and private sector bodies, and their involvement in specific activities.

The stakeholder involvement planning was further advanced with mapping and analysis of strategies for stakeholder participation and identification of levels of impact and influence, among others. A stakeholder Analysis Matrix containing details of their interests is presented in UNEP Appendix 13 of the ProDoc, and is expanding to more stakeholders who can contribute to the project.

The stakeholder engagement program will be implemented in conjunction with the Gender Mainstreaming Strategy and Action Plan thus ensuring that gender equity is maintained throughout project interactions with stakeholders. Governmental agencies and NGOs working with gender equality and/or women's empowerment will be involved in the project activities (see UNEP Appendix 12 for more details). In the case of indigenous people's communities, safeguard experts will determine appropriate engagement protocol, following the existing national guidelines and also taking into consideration traditional mechanisms for consultations and decision making.

**Table 2. Project Stakeholders, interests, and role during the project development and execution**

Stakeholders	Interests	Role during the project development and execution
<b>BOLIVIA</b>		
Ministry of Environment and Water	<ul style="list-style-type: none"> <li>- Integrated water resources management at the river basin</li> <li>- Promote drinking water and sanitation services, together with local governments</li> <li>- Promote territorial development models through integral management of water and environmental resources to contribute to food security</li> <li>- Promote environmental quality</li> <li>- Generate and obtain environmental information</li> </ul>	<ul style="list-style-type: none"> <li>- Technical and political focal points</li> <li>- In charge of carrying out diplomatic relations with Brazil and Paraguay, as</li> </ul>

Stakeholders	Interests	Role during the project development and execution
Ministry of Foreign Affairs	Consolidate cross-border cooperation and integration for water resources and ecosystem sustainable management	<p>well as with international organizations</p> <ul style="list-style-type: none"> <li>- Promote and consolidate the international agreements and mechanisms derived from the project, to ensure its execution and implementation</li> <li>- Coordinate technical actions with the countries, the executing and implementing agencies</li> <li>- Approval of technical documents (e.g. SAP)</li> <li>- Coordinate project actions with local governments (GADSC and GAMS)</li> <li>- Representation in conventions</li> </ul>

Stakeholders	Interests	Role during the project development and execution
Vice Ministry of Equal Opportunities	Promote the exercise of women's labor rights and access to decent work, access to production resources, natural resources and basic services, tangible heritage (land, housing, capital) and intangible assets (technology, training).	<ul style="list-style-type: none"> <li>- Engage the vice Ministry of Equal Opportunities in planning and implementation of the project, and specific actions in gender mainstreaming</li> </ul>
National Meteorological and Hydrological Service (SENAMHI)	<ul style="list-style-type: none"> <li>- Technical management of meteorological and hydrological activities</li> <li>- Expand water monitoring network</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinate information sharing and reporting, and monitoring systems consolidation</li> </ul>
National Service of Protected Areas (SERNAP)	Biological diversity conservation, environmental quality preservation and stakeholder's life quality improvement	<ul style="list-style-type: none"> <li>- Provide technical information for the project development</li> <li>- Participate in trainings on issues related to protected areas management, tourism, etc.</li> <li>- Coordination for pilot's implementation (e.g. nexus)</li> <li>- Coordination in research actions</li> </ul>

Stakeholders	Interests	Role during the project development and execution
Geological Mining Service (SERGEOMIN)	Generate and obtain information (hydrogeological, aquifers, etc.)	<ul style="list-style-type: none"> <li>- Participate in trainings on issues related to groundwater issues</li> <li>- Coordination for pilot?s implementation (e.g. aquifer recharge protection)</li> </ul>
National Irrigation Service (SENARI)	Regulate, plan, manage and promote public investment for irrigation development	<ul style="list-style-type: none"> <li>- Participate in trainings on issues related to irrigation issues</li> <li>- Coordination for pilot?s implementation (e.g. efficient irrigation)</li> </ul>
Departmental Government of Santa Cruz/ Municipalities of Puerto Quijarro, Puerto Suarez and San Mat?as	<ul style="list-style-type: none"> <li>- Promote sustainable economic development in the region</li> <li>- Support economic production (agricultural, livestock, fish, forestry, etc.)</li> <li>- Contribute to the environment, natural resources and protected areas protection</li> <li>- Prevent environmental pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Participate permanently in the execution of the project activities through its units</li> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research actions</li> <li>- Promotion of local awareness</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<b>Academic and research institutions:</b> University Gabriel Ren? Moreno	<ul style="list-style-type: none"> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research and local awareness actions</li> </ul>
	<b>Social/non-governmental organizations:</b> Inhabitants/local communities and CSOs, WWF, Fundaci?n para la Conservaci?n del Bosque Chiquitano (FCBC), Fundaci?n Amigos de la Naturaleza (FAN), Naturaleza, Tierra y Vida (NATIVA), Productividad Biosfera Medio Ambiente (PROBIOMA), Sociedad Boliviana de Derecho Ambiental (SBDA)	<ul style="list-style-type: none"> <li>- Provide technical information for the project development</li> <li>- Support in the definition of sites for the pilot?s implementation</li> <li>- Information exchange (e.g. TDA)</li> <li>- Coordination in research and local awareness actions</li> </ul>
	<b>Women?s organizations:</b> COPEGEB artisan Women's Committee	<ul style="list-style-type: none"> <li>- Participate in different project activities</li> <li>- Coordination in research and local awareness actions</li> <li>- Assure that women?s perspectives are incorporated in the project implementation</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<p><b>Private sector:</b> Private companies (farmers, ranchers, fishers, logging tourism developers) and Municipal water and sanitation companies (EPSA), C�mara Agropecuaria del Oriente (CAO), Asociaci�n de Productores de Oleaginosas y Trigo (ANAPO), Federaci�n de Ganaderos de Santa Cruz (FEGASACRUZ)</p>	<ul style="list-style-type: none"> <li>- Participate in different project activities</li> <li>- Participate in trainings on issues related to sustainable management</li> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research and local awareness actions</li> </ul>
	<p><b>Indigenous communities:</b> Ayoreo indigenous people and Chiquitano indigenous people</p>	<ul style="list-style-type: none"> <li>- Participate in different project activities</li> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research and local awareness actions</li> <li>- Assure that the indigenous community?s perspectives are incorporated in the project implementation</li> </ul>
<b>BRAZIL</b>		

Stakeholders	Interests	Role during the project development and execution
National Water Agency (ANA)	<ul style="list-style-type: none"> <li>- Coordinates implementation of the National Water Resources Policy.</li> <li>- Regulate the use of water by grants the use of water bodies, both to capture water and release effluents; as well as the inspection of the water bodies, to guarantee that the grants are effectively respected.</li> <li>- Incorporate into water management actions the principle that women play a central role in the supply, management and protection of water.</li> </ul>	<ul style="list-style-type: none"> <li>- Technical and political focal points</li> <li>- In charge of carrying out diplomatic relations</li> <li>- Promote</li> </ul>

Stakeholders	Interests	Role during the project development and execution
Ministry of Foreign Affairs (Itamaraty)	The Ministry advises the President of the Republic on foreign policy and the implementation of diplomatic relations, promoting Brazil's interests abroad, including matters related to sustainable development and the environment.	<p>and consolidate the international agreements and mechanisms derived from the project, to ensure its execution and implementation</p> <ul style="list-style-type: none"> <li>- Coordinate technical actions with the countries, the executing and implementing agencies</li> <li>- Approval of technical documents (e.g. SAP)</li> <li>- Coordinate project actions with state governments</li> <li>- Representation in conventions</li> <li>- Engage gender technicians and the Gender Equality Committee in specific actions in gender mainstreaming</li> </ul>

Stakeholders	Interests	Role during the project development and execution
National Water Resources Council	Implements the water resources management in Brazil through Resolutions, motions and general deliberations. Develops rules of mediation between the various users of water in Brazil.	<ul style="list-style-type: none"> <li>- To implement the Management of water resources in Brazil through Resolutions, motions and general deliberations.</li> <li>- Develops rules of mediation between the various users of water in Brazil.</li> </ul>
State Governments/Environmental and Water Resources Secretariats/ Basin Committees in Mato Grosso, Mato Grosso do Sul.	In charge of the planning, coordination, supervision and control of actions related to the environment and natural resources, aiming at making economic and social development compatible with the conservation and preservation of environmental quality and ecological balance.	<ul style="list-style-type: none"> <li>- Participate in the execution of the project activities through its units</li> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research actions</li> <li>- Promotion of local awareness</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<p><b>Academic and research institutions:</b> Federal University of Mato Grosso (UFMT), Federal University of Mato Grosso do Sul (UFMS), State University of Mato Grosso do Sul (UEMS), Centro de Projetos do Pantanal (CPP)</p>	<ul style="list-style-type: none"> <li>- Help develop TDA and advise in SAP formulation.</li> <li>- Coordinate synergies between project activities and research programs.</li> <li>- Develop engagement activities with students and academic institution.</li> </ul>
	<p><b>Social and non-governmental organizations:</b> National Forum of Civil Society in Hydrographic Basin Committees (FONASC), Institute Homem Pantaneiro, Socio-environmental Institute of the Upper Paraguay Basin (SOS Pantanal), World Wide Fund for Nature (WWF), Neotropical Foundation of Brazil</p>	<ul style="list-style-type: none"> <li>- Participate and communication outreach.</li> <li>- Help develop implementation strategies for the SAP.</li> <li>- Provide data and know-how for the TDA.</li> <li>- Financial, technical and operational support to implement project activities.</li> <li>- Validate results and provide feedback on activities.</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<b>Women's organizations:</b> Women in Action in the Pantanal (Mupan)	<ul style="list-style-type: none"> <li>- Help communicate project objectives to women in the Pantanal.</li> <li>- Promote participation of women.</li> </ul>
	<b>Private sector:</b> Sanitation Company of the State of Mato Grosso do Sul ? Sanesul, Cuiab? waters, Federation of Industries of the State of Mato Grosso, Federation of Industries of the State of Mato Grosso do Sul, Federation of Agriculture and Livestock of Mato Grosso, , Federation of Agriculture and Livestock of Mato Grosso do Sul, Federation of Agricultural Workers in the State of Mato Grosso do Sul, Federation of Agricultural Workers in the State of Mato Grosso, Associa??o de Atrativos tur?sticos de Bonito e Regi?o, Mato Grosso Fishermen and Aquaculture Cooperative, Federation of Professional Fishermen of Mato Grosso do Sul, Brazilian Association of Electric Power Generating Companies	<ul style="list-style-type: none"> <li>- Provide access to local stakeholders.</li> <li>- Provide data and local know how to develop TDA, SAP and pilots.</li> <li>- Help define potential pilots' sites.</li> <li>- Provide know-how on PPPs that can go into Sustainable Financial Strategy</li> </ul>
	<b>Indigenous communities:</b> Povos Ind?genas da BAP	<ul style="list-style-type: none"> <li>- Participate in different project activities</li> <li>- Coordination for pilot?s implementation</li> <li>- Coordination in research and local awareness actions</li> <li>- Assure that the indigenous community?s perspectives are incorporated in the project implementation</li> </ul>

Stakeholders	Interests	Role during the project development and execution
<b>PARAGUAY</b>		
Ministry of Environment and Sustainable Development (MADES)	In charge of national diplomacy, articulation and implementation of international treaties with executive branch agencies and government in general.	- Main benefactors, and articulator of project with other agencies, organizations and civil society.
Ministry of Foreign Affairs (MRE)	In charge of development and the promotion of environmental policies as well as safeguarding water resources, protected areas and the stewardship of the national flora and fauna.	<ul style="list-style-type: none"> <li>- Provide co-financing through investment mobilized and in-kind resources.</li> <li>- Validate project results</li> <li>- Coordinate international agreement for the sustainable development of the Pantanal-UPRB.</li> <li>- Liaison between government and international treaties for the use of international waters.</li> </ul>
Ministry of Women	Promote action plans to encourage equal opportunities and equity between women and men.	- Engage the Ministry of Women in planning and implementation of the project, and specific actions in gender mainstreaming

Stakeholders	Interests	Role during the project development and execution
National Secretariat of Environmental Sanitation (SENASA)	<ul style="list-style-type: none"> <li>- Capacity building</li> <li>- Institutional strengthening technical assistance to develop plans and financial instruments to promote water and sanitation infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- Knowledge sharing, provide access to data for the development of the TDA.</li> <li>- Help define pilot projects and activities.</li> <li>- Help identify potential location for pilots.</li> <li>- Provide co-financing through in-kind resources and mobilized investments.</li> </ul>
National Institute of Rural and Land Development (INDERT)	<ul style="list-style-type: none"> <li>- Land management strategy.</li> <li>- Promote appropriate land used management.</li> <li>- Promote the titling of peasant lands.</li> </ul>	<ul style="list-style-type: none"> <li>- Facilitate the implementation of pilots with a land management component (Output 4.1).</li> <li>- Provide knowledge and information for the development of the TDA and SAP.</li> <li>- Help define pilot locations.</li> </ul>

Stakeholders	Interests	Role during the project development and execution
National Institute of the Indigenous (INDI)	<ul style="list-style-type: none"> <li>- Capacity building,</li> <li>- Adaptation of the indigenous population to Climate Change</li> <li>- Building inclusive financial strategy and planning for indigenous population.</li> </ul>	<ul style="list-style-type: none"> <li>- Facilitator for the implementation of pilots.</li> <li>- Provide co-financing with in-kind resources.</li> <li>- Help implement communication plan with local communities.</li> </ul>
Boqueron Departamental Government/ Alta Paraguay Departamental Government/Municipalities (Bah?a Negra, Carmelo Peralta, Fuerte Olimpo and Puerto Casado)	In charge of coordinating initiatives with different municipalities that involve basic services, develop its territory with special attention to the environmental and educational needs. And develop land use policies.	<ul style="list-style-type: none"> <li>- Capacity building, and technical assistance.</li> <li>- Development of strategic action plans</li> <li>- Institutional strengthening.</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<p><b>Academic and research institutions:</b> National University of Asuncion (UNA), Catholic University of Asuncion (UCA)</p>	<ul style="list-style-type: none"> <li>- Information gathered during project, capacity building and access to potential research funds.</li> <li>- Invite to project coordination meetings.</li> <li>- Discuss yearly plan to find possible synergies.</li> <li>- Develop potential research projects that align with project objectives.</li> </ul>

Stakeholders	Interests	Role during the project development and execution
	<p><b>Social and non-governmental organizations:</b> Federation for the Self-Determination of Indigenous Peoples, Guyra Paraguay Organization, World Wide Fund (WWF), Directorate of Drinking Water and Sanitation (DAPSAN), National Forestry Institute (INFONA), Indigenous Women of Paraguay, Organization for Indigenous Communities</p>	<ul style="list-style-type: none"> <li>- Provide technical knowledge as well as co-financing through mobilized investment and in-kind resources.</li> <li>- Help define pilot locations</li> <li>- Liaison with indigenous communities and articulation of needs in priorities of communities.</li> <li>- Develop strategies to strengthen indigenous communities? role in decision making.</li> <li>- Capacity building.</li> <li>- Provide help in the communication plan in order to involve indigenous communities.</li> <li>- Help develop TDA and validate SAP.</li> </ul>

Stakeholders	Interests	Role during the project development and execution
<b>Private sector:</b> Paraguayan Foundation of Loggers, Rural Association of Paraguay (ARP)		<ul style="list-style-type: none"> <li>- Promote technical and knowledge sharing with its members regarding the most efficient and sustainable methods for resources development.</li> <li>- Lobby for policies that benefit its members.</li> </ul>
<b>MAIN REGIONAL STAKEHOLDERS</b>		
Intergovernmental Coordinating Committee of the Countries of the La Plata Basin (CIC Plata)	<ul style="list-style-type: none"> <li>- Promoting the application of the 2016 basin wide SAP.</li> <li>- Produce the political integration among the five countries for the management of the basin and its natural resources.</li> <li>- Develop into a deliberating body to resolve political and technical issues.</li> </ul>	<ul style="list-style-type: none"> <li>- Assist in the conformation of a tri-national coordination of the basin</li> <li>- Support the funds search for the SAP execution</li> <li>- Develop complementary actions to the project</li> </ul>
Intergovernmental Committee of the Paraguay-Parana Waterway (CIH)	<ul style="list-style-type: none"> <li>- Promoting the adequate use and passage of the waterways to sustain commercial and vital resources.</li> <li>- Develop technical understanding of the effect of climate change on the navigability of the hidrovía waterway.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop complementary actions to the project</li> </ul>

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

**Proposed strategy for consultation and engagement**

In all three countries there have been extensive consultations with key stakeholders. During the PPG stage, preparation of the different documents was done in close collaboration with national authorities (ministries of foreign affairs and environment, and ANA). At the same time, the three countries' focal points ensured that the project was relevant to local and regional stakeholders (regional and municipal authorities, and civil society). COVID-19 restrictions have limited on the ground meetings, further engagement and consultation with key stakeholders is planned to be undertaken at the start of the project and the details presented and approved by the PSC at the Inception Meeting.

The approach for stakeholder consultations includes the following strategies aimed at broadening stakeholder participation modalities. This approach also seeks to move things forward from information and consultation to participation in decision-making.

**Organization of thematic events and technical meetings, education and training activities.**

Thematic events and technical meeting will be organized for utilities, management authorities, water users, civil society, amongst others.

**Public consultations and validation of the Strategic Action Program process.** The public consultation process will be organized in public events, where basin stakeholders representing organizations and institutions will be invited.

**Dissemination of information and project results.** Documented IW:LEARN support including knowledge sharing, experience notes, twinning program and dialogues and, IW conferences participation. Project knowledge captured will be disseminated through internet-based platform and project website, sharing experiences through IW:LEARN, IWCs and COPs.

**Promotion of public-private and government-community dialogues and partnerships.** The pilots (component 4) will be carried out in a way to promote partnerships with private sector, civil society and national/local government organisations.

**Involvement of academia community.** Where appropriate the project will engage scientific and academia community to participate in the project's activities, including learning exchange opportunities.

The draft Stakeholder Engagement Plan provides preliminary information on the approaches per component, including:

- ? **Component 1:** The close co-operation and involvement of national water managers and policy makers in assessing the option for trilateral co-ordination.
- ? **Component 2:** Technical and social studies to develop a regional TDA involving stakeholders at all levels to ensure robust assessment of the basin's transboundary problems impacting the water and ecosystem resources and the services they deliver for socio-economic activities within the basin.
- ? **Component 3:** The formulation of the SAP will require wide stakeholder engagement to ensure the SAP meets the needs of all interested parties and will be acceptable to be signed at the ministerial level for future implementation.

? **Component 4:** Six pilot actions to reduce stress on the environment, and to identify and test options on innovative approaches to sewage permitting and the use of financial instruments will necessitate multiple stakeholder involvement and all levels within the three countries.

? **Component 5:** The focus of this component is on raising awareness for the activities undertaken by the project to enhance IWRM within a TDA/SAP framework with associated long-term sustainability plans and financing. These actions will require a sustained contact with stakeholders at all levels.

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

**Consulted only;**

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

**Co-financier; Yes**

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

**Executor or co-executor; Yes**

**Other (Please explain) Yes**

Stakeholders will also be actively involved in the pilot projects (component 4) in addition to involvement in the TDA and SAP formulation. Awareness and communication actions will be targeted at various stakeholder groups to be identified in the detailed engagement plan to be developed in Output 5.1.

### **3. Gender Equality and Women's Empowerment**

**Provide the gender analysis or equivalent socio-economic assesment.**

Gender mainstreaming is a key cross-cutting priority for this project and the Gender Action Plan (draft attached as UNEP Appendix 12 to the ProDoc) will guide the actions of the project at all levels to supporting the priority of gender mainstreaming. The Gender Action Plan will be closely aligned to the overall Stakeholder Engagement Plan. As anticipated in the original design, Output 5.3 will elaborate the draft strategy submitted with this document, with an expectation that this will be approved by the Project Inception Meeting.

The draft strategy will be supplemented by experiences and lessons from GEF IW:LEARN, the Harvard Analytical Framework and the WWAP 2019 Toolkit on Sex Disaggregated Water Data, IDB's and UNEP's Operational Policy on Gender Equity in Development and the GEF Gender Action Plan. The project will also take account of national organisations approaches to gender equality and mainstreaming.

Output 5.3 will also undertake a detailed analysis of women roles that play a fundamental role in monitoring the operation of water services. The gender assessment will examine thoroughly the opportunities to overcome barriers by promoting a leadership role of women keeping in mind that the success of gender mainstreaming in the project also depends on the participation of men in the process and the interests of both men and women must be carefully analysed to avoid that the actions undertaken in the action plan cause conflicts in the families. The Harvard Analytical Framework and the WWAP 2019 Toolkit on Sex Disaggregated Water Data will be used to further understand the gender division of labour, the degree of access, control and benefits that women have over natural resources.

To achieve the proposed objectives, the Gender Action Plan will focus on the following priority actions and respective activities:

**Integrate gender in the Transboundary Diagnostic Analysis (TDA) and Strategic Action Plan (SAP) development.**

- ? Assess the current gender roles and responsibilities through Output 5.3 in the three countries with respect to water and environment and integrate the conclusions and preliminary recommendations in the TDA;
- ? Account for differences between women and men in developing the strategic actions.
- ? Engage women in all stakeholder consultation groups.
- ? Include sex/gender-disaggregated data collection and/or gender-specific indicators for SAP targets.
- ? Incorporate national gender policies.
- ? Make use of women's and men's traditional knowledge and customary practice.

**Capacity building and training based on the principles of gender balance, participation, and empowerment of women.**

- ? Ensure gender balance in capacity-building, and offer capacity-building for women's groups, to enable effective participation.
- ? Strengthening women's involvement and roles within regional, national and local water management and governance.

**Knowledge management and tailoring communication efforts to ensure that messages reach women.**

- ? Develop and disseminate information regarding the project in ways which are accessible to both women and men

**Gender-responsive implementation of project-related activities.**

- ? Ensure gender balance in the project-related activities (specially outputs 3.4 and 3.5; and outcomes 4 and 5).
- ? Review and consider steps to address gender differences in relevant policies, including related to tenure and use rights, literacy, employment, local governance and decision-making, and access to financial resources.
- ? Make use of women's and men's traditional knowledge and customary practice.

**Build partnerships and networks to promote gender integration**

- ? Engage ministries of women's affairs ? or equivalent ? in planning and implementation.
- ? Engage women's groups and NGOs active in relevant sectors (e.g. agriculture, fisheries, tourism).
- ? Explore opportunities to consolidate partnerships at regional and/or thematic levels.

**Monitoring and reporting, including against gender-related indicators.**

- ? Monitor and report on the participation of men and women in workshops, meetings, etc.
- ? Report on benefits derived using sex-disaggregated data.
- ? Collect and disseminate case studies, specifically those highlighting women's knowledge.
- ? Ensure awareness of decision makers of national and international gender commitments.
- ? Gather and publish experiences, best practices, and lessons learned.

The project will support:

- ? Women in the basin will be strengthened and will have better knowledge of water management.
- ? The project will promote women participation in the decision-making spaces.
- ? Gender Equity will be promoted in Developing the regional TDA and the formulation of the SAP.
- ? The problems and needs of water and sanitation will be known and will be differentiated from a gender perspective.
- ? Information on the gender perspective importance in Integrated Water Resources Management will be developed/constructed with stakeholders

The Project Results Framework contains targets requiring disaggregated data for all workshops and meetings and the project's Gender Action Plan will enable the pilot activities to be responsive to the need to promote and support equality and mainstreaming.

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

Yes

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

**Improving women's participation and decision making Yes**

**Generating socio-economic benefits or services or women Yes**

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

Yes

**4. Private sector engagement**

**Elaborate on the private sector's engagement in the project, if any.**

In the Pantanal-UPRB there is a significant number of private sector stakeholders, including farmers, ranchers, fishermen, logging, tourism developers and industry.

In **Bolivia** the following private sectors have been identified (for more details see UNEP Appendix 13 of the ProDoc): Municipal water and sanitation companies (EPSA); Farming Chamber of the East (CAO); Association of Oilseed and Wheat Producers (ANAPO); Federation of Cattlemen of Santa Cruz (FEGASACRUZ)

In **Brazil** the following private sectors have been identified (for more details see UNEP Appendix 13 of the ProDoc): Sanitation Company of the State of Mato Grosso do Sul (Sanesul Cuiabá waters); Brazilian Association of Water Resources (ABRHidro); The Brazilian Association of Water, Sanitation and Environmental Engineering (ABES); Federation of Industries of the State of Mato Grosso; Federation of Industries of the State of Mato Grosso do Sul; Federation of Agriculture and Livestock of Mato Grosso (FAMATO); Federation of Agriculture and Livestock of Mato Grosso do Sul (FAMASUL); Federation of Agricultural Workers in the State of Mato Grosso do Sul (FETAGRI-MS); Federation of Agricultural Workers in the State of Mato Grosso (FETAGRI-MT); Brazilian Agricultural Research Corporation (Embrapa Pantanal); Associação de Atrativos turísticos de Bonito e Região (Atratur); Mato Grosso Tourism Guides Union (Singtur); Mato Grosso Fishermen and Aquaculture Cooperative (Coopemat); Federation of Professional Fishermen of Mato Grosso do Sul; Brazilian Association of Electric Power Generating Companies (Abragel)

In **Paraguay** the following private sectors have been identified (for more details see UNEP Appendix 13 of the ProDoc): Pro Indigenous Communities (PCI) Paraguayan Foundation of Loggers, Rural Association of Paraguay (ARP)

The draft Stakeholder Engagement Plan (UNEP Appendix 13 of the ProDoc) will guide the specific details of the project's engagement with the private sector. The private sector is expected to be involved in at least:

? **Component 1:** The private sector will be invited to participate and comment on proposed water management principles and targets (Output 4.2) to ensure that these do not have any unforeseen impacts on private sector and local communities' livelihoods.

? **Component 2:** The identification of the transboundary problems and their causes impacting water and the ecosystem. This will include the provision of data and information on activities and participating in meetings to identify appropriate means for reducing stress on the environment.

? **Component 3:** The formulation of the SAP will require the active involvement of the private sector to assist with identifying relevant Water Quality Objectives (WQOs) and related appropriate management actions to address the problems highlighted in the TDA. Their active involvement in the formulation (and subsequent implementation) of the SAP will be essential to secure a long-term sustainable financing plan (output 3.4).

? **Component 4:** The implementation of the pilots will engage with private sector farmers, agribusiness, water and wastewater companies that will enable upscaling plans to be developed for subsequent inclusion of the approaches in the SAP. The pilots will be carried out in a way to promote partnerships with private sector, civil society and national/local government organisations

? **Component 5:** Will focus on providing information and increasing awareness for the private sector. Specific targeted training programmes will be developed for key private sector operators in the

Pantanal ? Upper Paraguay River Basin to assist with the long-term sustainability of actions and to prevent future bad practices being utilised. These training programmes will be aimed at land-owners/farmers/livestock breeders, water and wastewater organisations, mining companies, etc.

During the Project Inception (and following the lifting of any COVID restrictions) a further analysis of the private sector will be undertaken and the demand that there would be for ecosystem services, highlighting what are the requirements / incentives of the market in the areas of influence of the project and the inclusion strategies that will be carried out with the different groups / companies / community sectors that could benefit from the project. This information will also support the TDA (Component 2) of the issues within the basin.

**5. Risks to Achieving Project Objectives**

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):**

Both Implementing Agencies have undertaken social and environment risk assessments. Please refer to the Safeguard Policy Filter Report and to the Safeguard Screening Form in Section 8 of IDB’s Technical Cooperation Document as well as in Appendix 10 of UNEP’s ProDoc - Safeguard Risk Identification Form (SRIF).

Risk is the likelihood of a threat happening that limits the outputs and outcomes of the project, and to prevent them from happening, mitigation measures are being designed.

For the evaluation of identified risks, two criteria were considered: probability and impact. For each criterion, five levels were identified from very low (1) to very high (5) with associated descriptions. The risk level was determined by the score obtained from the product of the probability and impact levels and its placement on the risk level matrix used in the UNEP ESES Implementation Guidelines.

Risk level / significance (probability x impact)			Probability				
			Very unlikely 1	Unlikely 2	About even 3	Likely 4	Very likely 5
Impact	Routine procedures sufficient to deal with consequences	1	1	2	3	4	5
	Could threaten results, and thus, may require monitoring	2	2	4	6	8	10
	May threaten results, and thus, may require monitoring	3	3	6	9	12	15
	Would threaten results, and thus may require review	4	4	8	12	16	20
	Would prevent achievement of results, and would require close management	5	5	10	15	20	25

**Table 3. Project risks and mitigation**

Threats	P	I	Risk level	Mitigation action
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	Threats	P	I	Risk level	Mitigation action
1	Development of the TDA and formulation of the SAP <b>does not</b> lead to active involvement of governments, private sector, civil society, and academia in the sustainable development of the Pantanal-UPRB.	1	5	5 L	<p>The project will involve a wide range of stakeholders from different interest groups to ensure the TDA and subsequent SAP meets regional, national and local needs.</p> <p>Throughout project execution Output 5.1 will focus on developing stakeholder engagement and communicating results to all stakeholders. Similarly, Outputs 5.2 and 5.4 will focus on training and knowledge-sharing to increase capacity within each country.</p> <p>The PSC will be made up of high-ranking representatives and major institutional stakeholders to ensure broad awareness of the benefits from the project's execution.</p>
2	Resources are <b>not</b> identified and available to fund SAP implementation.	1	4	4 L	<p>Outputs 3.4 and 4.6 will run throughout the project execution to ensure financial resources are available to implement the SAP. Both outputs focus on identifying novel ways of financing projects within the intervention area, allowing Private and Public sources to come online, jointly, or independently.</p>
3	<b>Lack of</b> Political willingness to implement and/or harmonize policies agreed.	2	5	10 M	<p>The alignment of project goals and outcomes with national priorities (see Section 3.6) ensures political needs are considered.</p> <p>Participation of national high-ranking members in the PSC and twice-yearly PSC meetings will help maintain interest and commitments from political actors. These representatives will also facilitate the approval of the TDA and SAP, and support the establishment of the trinational coordination mechanism by their respective Ministries/Minister.</p>
4	<b>Poor</b> inter- and intra-governmental and intersectoral coordination during project execution	2	4	8 M	<p>The Project Coordination Unit (PCU) will include national coordinators that will be in constant contact with local institutions and other stakeholders to address any issues and questions with respect to project execution. The national coordinators will also report back to a regional project manager to manage expectations from each country based on project objectives.</p> <p>The execution of Component 1 will focus solely on regional integration and the definition of potential mechanisms of transboundary coordination. This will entail a constant interaction with stakeholders and the exchange of knowledge and expectations. Project execution and intra-governmental coordination is not only an Output but part of the execution of the project.</p>

	Threats	P	I	Risk level	Mitigation action
5	Countries <b>do not</b> agree to establish a trilateral coordination mechanism	2	3	6 M	Agreement on the creation of a transboundary coordination mechanism will be finalized after project completion. The recommendation for the proposed coordination mechanism will be confirmed in the SAP if accepted by all countries, and financing will be identified to facilitate the initiation of trilateral coordination in the Pantanal-UPRB.
6	Upscaling of pilots will <b>not</b> be applicable to the wider Pantanal-UPRB	2	2	4 L	Throughout the implementation of the pilots, the transboundary benefits will be highlighted and these will be included in the SAP. The best practices of the pilots will be adapted to each country and part of the basin, to facilitate upscaling and replication.
7	<b>Climate change</b> extreme events impact pilots and overall project execution.	2	1	2 L	<p>Sites and project locations will be selected based on risk assessments of extreme events impacting the pilot area. Pilot locations will be selected and designed taking into account the potential threats of climate change impacts.</p> <p>Where appropriate pilot sites will be tested to evaluate the resilience of proposed good practices to changing climate conditions.</p> <p>Climate change issues are considered in the SRIF (UNEP-Appendix 10).</p>
8	Engagement of <b>stakeholders is limited.</b>	1	4	4 L	<p>All of the project activities involve national stakeholders. The project needs the approval of national stakeholders before actions can be executed. To reduce the chances of limiting the number of stakeholders to a few, the Communication Plan (Output 5.1), the capacity-building programme (Output 5.2) and knowledge-sharing support (Output 5.4) have defined project targets that include a broad range of institutions and stakeholders.</p> <p>Most components have focused stakeholders that do not overlap with other activities. For instance, Component 1 focuses on stakeholders concerned with international cooperation; Component 2 needs the participation of agencies in charge of environmental monitoring and those who use environmental modelling to make decisions; Component 3 focuses on specific environmental planning agencies like water and sanitation, land management, and the financial sector; Component 5 will mainstream communication and gender equity with the goal of getting women to be 50 per cent of all trained stakeholders, and with 50 per cent female participation in decision-making processes.</p>

	Threats	P	I	Risk level	Mitigation action
9	?Divergent? stakeholder views relating to activities in the project execution.	2	4	8 M	<p>The conflicting issues between stakeholders will be addressed by assigning, at project inception, focal points for each activity that will make the final decision, in each country, on activities and objectives.</p> <p>If the divergent views are between countries different avenues will be explored. For example, adjusting the activities to address evolving country-specific needs or redefining the activity as a whole without compromising project outputs.</p> <p>A conflict resolution process will be defined during project inception in a project operation manual and approved during the first PSC meeting.</p>

Monitoring and reporting the potential risks will be the responsibility of the Regional Project Coordinator. Assessment of the project's mitigation measures will be presented in the annual PIRs and independently by the Mid-Term and Terminal Evaluations.

**Table 4. Identification of COVID-19 project risk, associated scores and mitigation actions**

Internal/ External	Type of risk	Risk	Prob	Impact	Score Risk level	Mitigation action
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Internal/ External	Type of risk	Risk	Prob	Impact	Score Risk level	Mitigation action
External	Socio-economic	The level of COVID is still high in the region. Vaccination is in progress but the percentage of protected population is not high. Variants are a potential threat. However, there is still a risk of new variants of COVID emerging which could impact the project through higher infection rates and consequences of infection.	4	4	16 High	The project will be responsive to conditions in the region and will adapt the implementation approach (e.g. more remote meetings) if infection levels increase being guided by national authorities and WHO recommendations. Water security is essential to the stability of every aspect of life. The project's awareness raising activities can be used to promote the potential for Integrated Water Resource Management (IWRM) as part of the post-COVID-19 response to 'build back better', keeping water security and related environmental dimensions high on the region's list of development priorities.

Internal/ External	Type of risk	Risk	Prob	Impact	Score Risk level	Mitigation action
External	Socio-economic	COVID-19 will affect the level of citizen participation in the project's face-to-face activities due to the required social distancing practices.	3	3	9 Moderate	COVID-19 will likely impact the basin's most vulnerable populations which in this case are poor rural inhabitants, including indigenous people. While the project will promote citizen participation in planned meetings and activities, it will adhere to COVID protocols including social distancing and promote the use of masks to prevent the spread of COVID-19 in social gatherings. Furthermore, as much as possible, meetings will be held virtually.
Internal	Coordination	Lack of coordination among project officers and stakeholders due to the restriction of trips and face-to-face interaction modality.	2	3	6 Moderate	Currently, there are many virtual tools that can support the project coordination team with this new normal. The Project Coordination Unit will be trained in using these tools and they will be available to stakeholders who request them.

Internal/ External	Type of risk	Risk	Prob	Impact	Score Risk level	Mitigation action
External	Financing	Reduced involvement of project partners (providing co-financing) in activities due to COVID-19.	2	2	4 Low	Specific project activities have been designed to ensure full participation of key stakeholders.

**Table 5. COVID-19 Opportunity Analysis**

Opportunity Category	Project Activities
<b>Environmental</b>	<p>The COVID - 19 outbreak underlined the critical need to be in harmony with nature preserving the environment as a means to prevent the spread of viruses from wildlife to humans. This represents an important opportunity for promoting nature-based solutions. The Pantanal project through its TDA/SAP formulation and demonstration activities will facilitate increased awareness and understanding to make peace with nature and reestablish a positive relationship between people, the environment and development, ?build back better?, raise ambitions and catalyze further action towards a sustainable future for our planet.</p> <p>As already witnessed during the PPG, the COVID - 19 pandemic has brought more awareness about the respect for nature. As we move ahead with project execution, this will prove to be a great opportunity to promote more efforts in favor of conserving nature, securing water and building resilience (climate change). Component 5 Activities on the communication, awareness building and educational programs will be ensuring that this trend continues forward.</p>
<b>Social</b>	<p>Improvement of groundwater well management and wastewater management through the project activities will contribute to improved resilience and adaptive baseline for the communities by improving their health conditions to deal with this and similar pandemic crisis as the COVID-19 pandemic.</p>
<b>Economic</b>	<p>The economic impacts of the pandemic are a key driver for strengthening likelihood opportunities and their recognition by governments such as e.g. engagement of communities in water governance and local economic opportunities. This impetus will help develop a more realistic SAP formulation grounded in a bottom-up process and meeting local stakeholders needs.</p>

<b>Communication</b>	The normalization of online conferencing and communication platforms since early 2020 means that online interaction, online teaching, online capacity building, online meetings and online conferences have become much more commonplace and accepted by a broad range of global stakeholders. This has paved the way for this project to reach a much wider range and bigger number of participants through its capacity building and network building activities that might otherwise have been possible. The Upper Paraguay River Basin covers a very large area, and traveling from the three countries is expensive (both in terms of monetary and carbon costs), which would have put automatic constraints on face-to-face engagement and capacity building events. Planning most of the project's activities as online activities from the outset means reduced costs and greater accessibility for stakeholders across the region, and thanks to the pandemic, all prospective participants are in a much better and more experienced position to conduct successful online engagement than they would have been prior to the pandemic.
<b>Data sharing</b>	The pandemic affected everyone in the world in one way or another; this has forced millions of people to re-evaluate the way they operate. Without a doubt, this is an opportunity to innovate and grow digitally (new technology, information display, among others). The project can benefit from this especially in the Decision-Making Support System and the Knowledge Portal of Component 2.

## 6. Institutional Arrangement and Coordination

**Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

### Implementation Arrangements

To ensure that the Pantanal Project achieves its main objective as set out in the project document, along with delivery of the necessary outputs and outcomes, a project governance and communication structure has been agreed with the partners. This structure will ensure good communication flow between all partners directly involved in the project, including the Pantanal countries (Bolivia, Brazil and Paraguay), and UNEP and the IDB, as members of the Project Steering Committee, who will provide general project oversight.

The overall project governance and internal communication flows within the GEF Pantanal project are detailed in Figure 2. The general oversight of project activities will be undertaken by the Project Steering Committee (PSC) composed by country focal points representing the governments, the Project Coordination Unit (PCU), the Executing Agency (EA) (WWF) and the Implementing Agencies (IAs) (IDB and UNEP, with IDB acting as lead implementing agency).

The PCU, established by the EA, will undertake the day-to-day functions of the project, including maintaining communication between all parties in the project. The Project Coordinator/Manager will be responsible for ensuring that all M&E activities (including collating gender specific indicators with the support of gender experts) are undertaken according to the M&E plan. At the national level, project activities and interventions will be undertaken by National Project Coordination Units (NPCUs), established in each country that will be leading National Technical Working Groups responsible for the national inputs to the TDA and SAP.

An Interagency Coordination Group (IACG), composed of IDB, UNEP, EA, and the PCU, will be formed to best coordinate project activities and act as progress review mechanism. It will meet twice per year prior to the Project Steering Committee meetings or more frequently as appropriate. During the Project Inception Phase, the IACG will develop and approve a Terms of Reference to guide future actions and responsibility with respect to the co-ordination between the Implementing Agencies and Executing Agency.

National Governmental Advisory Bodies and Non-Governmental Advisory Bodies will be established to provide technical advice to the PSC and the PCU as required. External communication from the project is further supported by Component 5 including knowledge sharing, communication and awareness raising.

Gender mainstreaming will receive due attention as part of standard project supervision by the IDB.

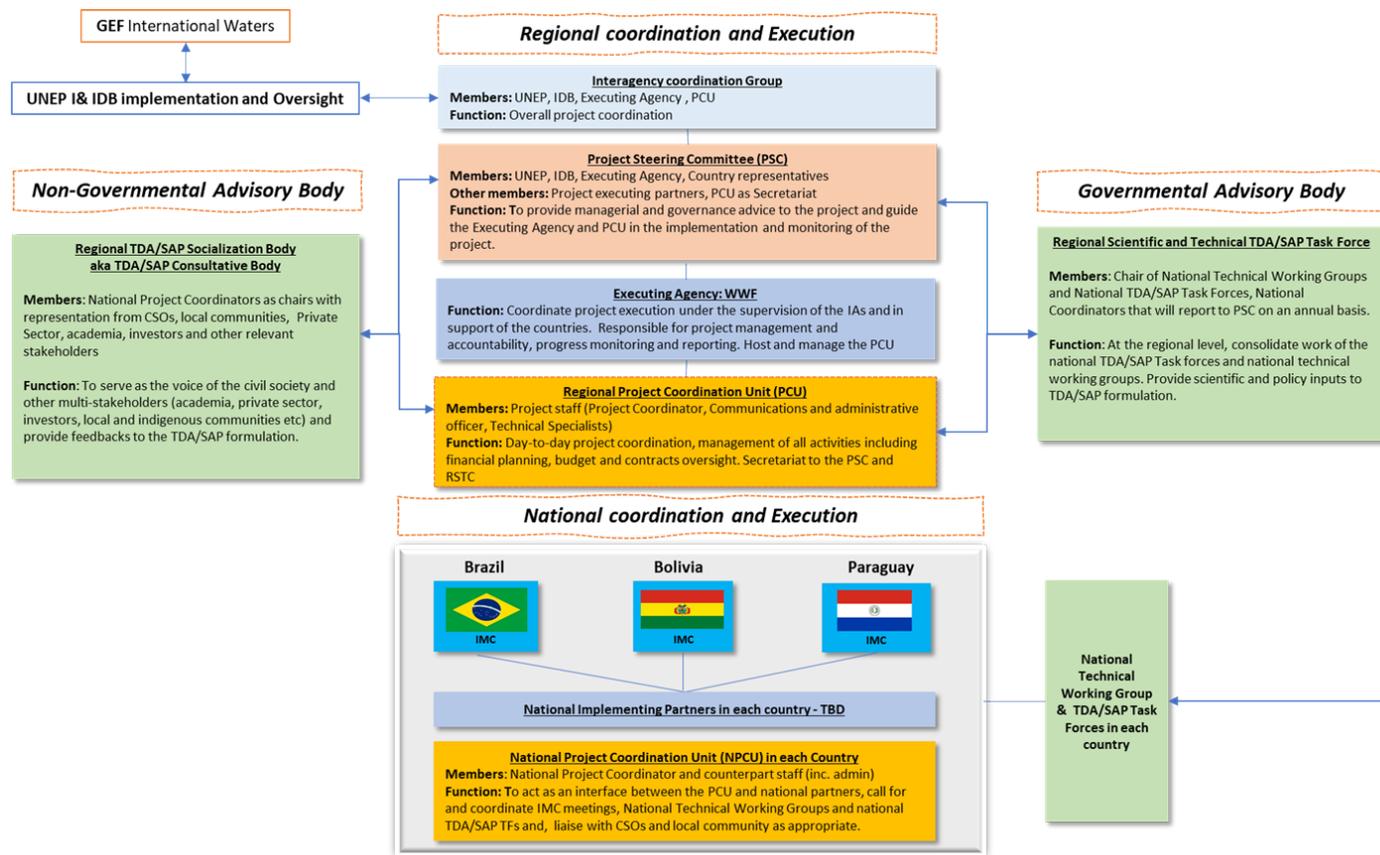


Figure 6. Project governance and communication flow organigram.

## Responsibilities within the Pantanal Project

### Implementing Agency (IDB and UNEP)

IDB will act as Lead Implementing Agency. Principles governing the relations between IDB and UNEP as the implementing agencies for the Project are as follows:

- ? IDB and UNEP will be responsible for implementing and monitoring their respective project activities;
- ? Each agency will be responsible for its own budget. The Agency Fees will be distributed between IDB and UNEP proportionally to the amounts of their respective components as presented in the CEO document.

IDB and UNEP as GEF implementing agencies, will be responsible for overall project supervision to ensure consistency with GEF, IDB and UNEP policies and procedures, and will provide guidance on linkages with other IDB, UNEP and GEF-funded projects and activities.

### **Executing Agency**

WWF will serve as Executing Agency (EA) for the project. WWF maintains offices in all three Pantanal countries. The EA will sign legal agreements with IDB and UNEP in accordance with each Implementing Agency's guidelines. The EA will coordinate the execution of the project providing overall technical management to project implementation and managing the funds provided to the project by IDB and UNEP on behalf of the GEF, in a consistent manner with their financial reporting requirements.

### **Project Steering Committee**

A **Project Steering Committee** (PSC) will meet twice a year (in person and via conference call) to monitor progress in project execution, to provide strategic and policy guidance, and to review and approve annual work plans and budgets. The PSC will be composed of participating countries' representatives and additional national experts as appropriate. The PSC will endorse annual operation plans and budgets, technical and financial reports, and will assist in providing project oversight. If required, the PSC may establish advisory groups for any identified need (e.g. specific technical advisory groups). The IDB and UNEP would co-chair the first meeting. Thereafter, the chair will be undertaken on a rotational basis among participating countries. The PCU will serve as the secretariat of the PSC.

The PSC will not be expected to deal with day-to-day administration of the project, which will be handled by the Regional Project Co-ordinator and PCU, under guidance from the EA.

### **Project Coordination Unit (PCU)**

A **Project Coordination Unit** (PCU) will be established by the EA for the execution of the project. It will be comprised of the Regional Project Coordinator/Manager, an Administrative/Financial Manager, thematic specialists as required (i.e. communications, hydrologists, governance, etc.). Terms of reference for these roles can be found in UNEP-Appendix 6. The Project Coordinator/Manager will be responsible for the day-to-day activities of the project, including providing direction to support staff, national counterparts, and consultants to the project. The Project Coordinator/Manager will be responsible for ensuring that all M&E activities (including collating gender specific indicators with the support of gender experts) are undertaken according to the M&E plan (UNEP-Appendix 5). The Project Coordinator/Manager specifically will supervise all technical activities undertaken at the national level by each of the National Project Coordinators, and will be in charge of ensuring the preparation of project reports and other outputs as indicated in the Terms of Reference for the project outputs, activities and interventions.

### **National Project Coordination**

The national activities will be coordinated by **National Project Coordination Units (NPCUs)** that will act as an interface between the PCU and national partners, National Technical Working Groups and national TDA/SAP Task Forces and liaise with CSOs and local communities as appropriate. The National Coordinator will facilitate inter-governmental coordination, transferring of project information to country counterparts and other interested stakeholders, and general oversight and support of national consultants executing project activities. The National Coordinators will identify and recommend qualified country- and local-level staff to undertake project activities, which will be contracted by the Project Coordination Unit under the EA for specific tasks, with the approval of UNEP and IDB. The national coordinators will also provide specific thematic inputs to the PCU as required (i.e. communications, hydrologists, governance, etc.) as determined by their experiences.

### **Interagency Coordination Group (IACG)**

An **interagency coordination group** will be formed to coordinate project activities. It will be composed of UNEP and IDB as the IAs, WWF as the EA, and the PCU. It will act as a progress review mechanism and interaction platform to ensure coordination of activities leading to the achievement of project objectives. It will meet twice per year prior to the Project Steering Committee meetings or more frequently as appropriate.

During the Project Inception Phase, the IACG will develop and approve a Terms of Reference to guide future actions and responsibility with respect to coordination between the Implementing Agencies and Executing Agency.

### **National and Regional Coordination Bodies**

**Governmental Advisory Body:** Will act as a Regional Scientific and Technical TDA/SAP Task Force that will provide scientific and policy inputs to TDA/SAP formulation. The Governmental Advisory Body will consolidate work of the national TDA/SAP Task forces and national technical working groups at the regional level. The Governmental Advisory Body will be composed of: Chair of National Technical Working Groups and National TDA/SAP Task Forces, National Coordinators and will report to PSC on an annual basis.

**Non-Government Advisory Body:** Will act as a Regional TDA/SAP Consultative Body to serve as the voice of civil society and other multi-stakeholders (academia, private sector, investors, local and indigenous communities, etc.) and provide feedback for TDA/SAP formulation. The Non-Governmental Advisory Body will be composed of National Project Coordinators (as chairs) with representation from CSOs, local communities, the private sector, academia, investors and other relevant stakeholders.

### **Coordination with other initiatives**

The PIF identified multiple GEF and other initiatives that are under implementation or planned of relevance to the Pantanal ? Upper Paraguay River Basin. During the PPG phase the national teams have identified a number of projects of specific interest and have had in-person and remote contact to discuss

mutually beneficial co-ordination. Of high importance will be interactions with the SAP implementation projects in the La Plata River Basin (GEF ID 10038) and the Amazon River Basin (GEF ID 9788) which will assist with lessons and experiences on undertaking a detailed TDA leading to SAP endorsement involving the countries of this region. Where appropriate, relevant projects will be asked to participate in inception phase activities to gather the relevant lessons to help formulate more detailed plans for the Pantanal ? Upper Paraguay River Basin implementation, and to participate in Project Steering Committee meetings when topics of mutual benefit arise.

#### **7. Consistency with National Priorities**

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The UNEP/GEF Pantanal-UPRB project is completely in line with the existing and emerging priorities of Bolivia, Brazil and Paraguay: they are all keen to see the promotion of a strategic plan of action to address the regional transboundary issues impacting the water/ecosystem, the identification of an appropriate trilateral mechanism for water management, and governance and a wide range of pilot actions for upscaling. These critical outputs will be supported by a \$500 million financing strategy to initiate SAP implementation, replication and upscaling across the basin, enabling the three countries to meet national priorities and international commitments.

Through the formulation of its TDA and basin-wide monitoring activities (Output 2.2 & 4.5), the proposed project will help countries to meet their SDG targets, especially, SDG 6. UNEP, as the custodian for SDG 6.3.2, 6.5.1, 6.6.1 and 2, has been providing countries with a new Earth Observation wetland mapping tool (SDG 6.6.1), and is actively gathering and uploading IWRM SDG 6.5.1 data on an online portal in order to support the second round of national monitoring and reporting, which includes transboundary elements in partnership with UNECE (SDG 6.5.2) and the Water Convention.

To support delivery of SDG 6.3.2, UNEP has been strengthening the UN-Wide Global Environment Monitoring System/Water where ANA has served as the Latin America node, and created the World Water Quality Alliance with over 50 members including experts, practitioners, public and private sector organizations, IFIs (e.g. World Bank), CSOs (e.g. World Economic Forum), philanthropies, bilateral donors, etc. With funding from Switzerland, the alliance is, among others, undertaking hotspot assessments to support remedial activities. The alliance supports the UN-Water report, its global water quality assessment and Snapshot of the World Water Quality which stresses the importance of the water quality, quantity, health, biodiversity and food nexus.

Environmental modelling with no or limited monitoring stations can be a challenge. UNEP has been developing a series of emerging modelling tools that handle the lack of data, including modelling tools for floods and droughts. It has also been the custodian of the Transboundary Waters Assessment Programme (TWAP)(<http://www.geftwap.org/>) with a specific transboundary river basin assessment methodology which has proved to be a useful tool to formulate science-based TDAs.

The above-mentioned tools will contribute to developing a robust basin-wide TDA and ensure consistency with global processes.

A significant part of the proposed project will focus on on-the-ground activities (Component 4) to address stress reduction. Several of these actions have been identified in the Brazilian PRH-Paraguay SAP and Basin Plan and will provide examples for replication throughout the basin. It also reflects on-the-ground activities that have been identified by Bolivia and Paraguay as being of importance.

At the national level the project goals are supported by:

### **Bolivia**

The National Watershed Plan (NWP) being implemented in alliance with partners such as Switzerland, Sweden and German Cooperation, the European Union, IDB, WB, AFD (Agence Française de Développement) seeks to develop Basin Plans at a watershed level (Output 4.1). The NWP is an inter-institutional alliance network being implemented to promote, facilitate and strengthen different IWRM interventions in Bolivian and transboundary basins. The NWP is implemented in a participatory way, taking into account the different water uses, organizations and stakeholders in a basin or sub-basin, with emphasis on agricultural use and drinking water and sanitation, while gradually addressing other water-use sectors (outcomes 3.5, 4.2 and 4.3). Regarding transboundary basins, the NWP seeks to develop cooperation between countries for IWRM with balanced benefits for border countries and populations. And on the other hand, it also seeks to promote binational or trilateral geopolitical economic and territorial integration (outcome 1).

NWP contributes to IWRM in transboundary basins, thereby promoting and facilitating inter-institutional coordination for the execution of studies (Output 2.2), characterizing and monitoring water bodies (Output 2.4), identifying vulnerability to climate change and the requirements of adaptation (Output 2.2), and collaborating with inter-institutional platforms for the management of transboundary basins, among others.

The Water and Sanitation Programme was developed to enhance and assist smaller populations (over 2,000) and intermediate cities to develop master plans and investments for sanitation (Output 3.5).

The Law of the Rights of Mother Earth (Law No. 300) is designed to establish the vision for, and foundations of, integral development in harmony and balance with Mother Earth for human well-being. It seeks to guarantee continuity of the capacity for regeneration of the components and systems of life of Mother Earth by recovering and strengthening local and ancestral knowledge within the framework of the complementarity of rights, obligations and duties (Output 1.3 and outcome 5).

The Patriotic Agenda for 2025 is based on 13 pillars to advance Bolivia's development. Pillar 9 is related to 'environmental sovereignty with integrated development, respecting the Rights of Mother Earth' under Law 300. It is a national development agenda and guides all ministries in relation to their activities and policy development. The Patriotic Agenda 2025 constitutes the General Plan for Economic and Social Development of Bolivia, which informs the Economic and Social Development Plan (ESDP) within the

framework of the Integral Development for Living Well 2016-2020. Within the framework of the Patriotic Agenda 2025, the ESPD establishes the general guidelines for the country's integral development, with actions for public, private and community actors. The ESPD has specific goals to achieve under environment (Pillar 9) including:

- ? enhancing protection (Output 3.1)
- ? developing sustainable productive areas (Component 4)
- ? Integrated management of water resources and prevention of climate change risks (Outputs 4.1 and 2.2). This includes integrated plans in at least 14 basins, with on-the-ground action in 225 micro-basins; 50 per cent of Ramsar sites are to have integrated management.

The Environmental Sector Plan for Integrated Development is the guiding planning document for the Ministry of Environment and Water, including all its vice-ministries and departments. In particular, the Vice-ministry of Drinking Water and Basic Sanitation has the role of planning for the provision of water and sanitation and implementing specific programmes such as the Water and Sanitation Programme (Output 3.5).

The Bolivian Pantanal was declared a Ramsar site in 2001 due to its enormous international value, its ecological role and because it harbours astonishing numbers of floral, fish, bird and large mammal species. Locally consolidated by the presence of the San Matías and Otuquis national protected areas, and the Tucavaca departmental and municipal area (Output 3.1 and Component 4).

The Territorial Plans for Integral Development are designed to guide the territorial planning process of integral development. Planning has a life systems management, risk management and climate change approach (Outputs 3.1 and 3.2).

The Vice Ministry of Equal Opportunities developed the "National Plan for Equal Opportunities: Women Building the New Bolivia, To Live Well" whose main objective is that women's contributions to the country development are fully recognized. This recognition must be expressed in the economic, productive and labor sphere, promoting the exercise of women's labor rights and access to decent work, access to production resources, natural resources and basic services, tangible heritage (land, housing, capital) and intangible assets (technology, training) [?] .

## **Brazil**

Brazil has several national plans, programs that align with the project activities and goals. To name a few:

- ? National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- ? National Action Program (NAP) under UNCCD
- ? ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- ? Minamata Initial Assessment (MIA) under Minamata Convention
- ? National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- ? Technology Needs Assessment (TNA) under UNFCCC
- ? National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD

- ? National Implementation Plan (NIP) under POPs
- ? Poverty Reduction Strategy Paper (PRSP)
- ? National Portfolio Formulation Exercise (NPFE) under GEFSEC
- ? Biennial Update Report (BUR) under UNFCCC.

Brazil's Water Law no. 9,433/1997, which established the Brazilian Water Resources Policy and created the Brazilian Water Resources Management System (SINGREH) dictates that Water Resources Basin Plans should be developed per water resources region, per state, and for the country.

Brazil's National Water Resources Plan was approved by the Brazil's National Water Resources Council through CRNH Resolution no. 58, of January 20, 2006. At that time, Brazil was the first country in the Americas to meet the international commitment to "develop plans for integrated water resources management and efficient water use by 2005," made with other member countries of the United Nations System during the Johannesburg Summit (Rio +10) in 2002.

Brazil's National Water Resources Plan is strategically looking at the improvement of water availability, both in quantity and quality; reduction of the water divides and water conservation for socio-environmental development. Such strategic objectives are in alignment with international discussions as embodied as well in the Brazilian and International Decade of Water (2005-2015), the establishment of the Millennium Goals and the Johannesburg World Summit on Sustainable Development (Rio +10). They also comply with the deliberations of the first and second National Environment Conference.

One of the objectives of Brazil's National Water Resources Plan is to provide guidance for the implementation of the Water Resources Policy in states and in water resources regions, in addition to strengthening the SINGREH and creating a favorable institutional environment, considering issues at national level.

The Upper Paraguay-Pantanal Basin Plan has therefore been developed following the national level guidelines provided by the National Plan downscaled to meet region specifics while aligning itself with the Sustainable Development Goal 6 targets, which seeks to ensure availability and sustainable management of water and sanitation for all to "protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes".

The project actions are also in line with the Watershed Revitalization National Program, which is under formulation in Brazil. The revitalization of river basins is understood as a process that supports the preservation, conservation, and recovery of rivers, through the implementation of a set of integrated environmental interventions to improve the availability of water in quantity and quality for multiple uses, having the basin as a planning and management unit. The concept of revitalization complies with the directives provided for in the Federal Law N° 9.433/1997, which established the Water Resource National Policy. The Revitalization National Program contributes to the implementation of the 2030 Agenda, especially the SDG 6, 13, 14 and 15.

The National Water and Basic Sanitation Agency (ANA) has played a leading role in implementing the gender perspective mainly in the National Water Resources Policy. In 2016, ANA created the ANA

Gender Equality Committee (CPEG), whose role is to incorporate into water management actions the principle that women play a central role in the supply, management and protection of water. The Committee has two main lines of action: one is related to gender equity actions in the Agency's environment and the other is focused on gender and water.

## **Paraguay**

The Water Law (Ley 3239/07 de Recursos Hídricos) promotes the sustainable and integrated use of water resources and considers the watershed as a management and planning unit (Ley 376/12) (Output 1.2). It also promotes the establishment of basin management units, and the inclusion of stakeholders and the private sector in advancing the objectives of water management (Component 5). Aligned to it is the law to re-establish forests that protect watercourses (Law no. 4.241/10) which acknowledges the role of forest cover in helping to attenuate floods, reduce sediment loading and dissipate non-point source pollution (Output 3.2 and 3.3).

Paraguay's 2030 National Development Plan (NDP) sets goals and objectives for the country to promote sustainable economic growth. The plan, enacted in 2014, is binding on all public institutions. The NDP set three strategic axes: (i) Poverty reduction and social development, (ii) inclusive economic growth, and (iii) insertion of Paraguay into the world. Within the strategic axis (i) the NDP aims to increase by 75 per cent the participation of women in the formal labour market (Output 5.3), increase access to public information through electronic formats, improve conditions of precarious settlements through a process of planning and adequate urban improvement, and make potable water and sanitation services universal (Output 3.5). Strategic axis (ii) seeks, among several objectives, to reduce to less than 3 per cent the potential lag in productivity per hectare of family farming (Output 4.3) compared to business farming; promote the creation of MSMEs in service and technology industries; and reduce fossil fuel consumption by 20 per cent. Strategic axis (iii) seeks to increase the export of cultural and technological products and services, increase tourism to a minimum of 2 million visits per year, increase the time available for using the waterways to 365 days a year, and increase national income from the sale of environmental services (Outputs 3.4 and 4.6).

Paraguay's 2016 National Climate Change Adaptation Plan states that the geographical region of the Pantanal / Upper Paraguay River Basin has a very low adaptive capacity to climate change due to: (i) its economic dependence on the primary production sector (agriculture and cattle-raising), (ii) the lack of infrastructure and commercial dependency on the Paraguay River. Some of the most relevant actions outlined in the National Adaptation Plan and are aligned with this project's objectives are: (i) Establish a public-private partnership to manage water resources relating to agricultural and cattle-raising practices (Outputs 3.4 and 4.6); (ii) Research and analyse the relationship between drought threats and forest wildfires (Output 2.2); (iii) Increase meteorological data and link them to climate and hydrologic models (Component 2); (iv) Develop vulnerability maps for aquifers in urban areas (Output 4.5); (v) Strengthen the capacity and knowledge of sector-specific public institutions (Output 5.2); and (vi) Strengthen international cooperation with the aim of securing financial resources and common goals (Component 1).

Paraguay's 2017 National Mitigation Plan for Climate Change has 10 strategic pillars and seven specific action plans, most of which focus on energy diversification and efficiency. However, strategic pillars 8 and

9 focus on forest plantation and land use management through the development of policies and good practices that promote the sustainable management of native forests and reduce land use change. Of the seven action plans developed, plans 4 and 5 focus on the sustainable use of the native forest of the Chaco region in the Pantanal. Specific activities planned involve stakeholder training, institutional capacity-building, knowledge dissemination of good practices, development of a financial structure to incentivize the conservation of native forests (e.g. the provision of environmental services), and strengthen monitoring of native forests. Project components are fully aligned with these strategic actions, specifically Component 2 which focuses on defining a monitoring scheme for the Pantanal ? Upper Paraguay River Basin; Components 3 and 4 develop a financial strategy, test land use practices and develop various pilots to identify good practices in land management; Component 5 focuses entirely on stakeholder engagement, capacity-building and gender equity.

Paraguay has also developed a National Gender Strategy for Climate Change. It has four strategies for achieving a reference framework to institutionalize gender issues in public policies: (i) strengthening institutional capacities by including gender issues in all plans as well as incorporating women in the decision-making process; (ii) applying innovative financing strategies to promote and empower women's participation; (iv) creation of an education and communication platform to disseminate knowledge and sensitize the population on gender issues and climate change; and (iv) developing research to enlighten decision-makers on the different effects of climate change on women and men, also by location. All these strategies are perfectly in line with project outputs but specifically with Output 5.3 which will mainstream gender issues throughout project activities.

The main objective of Paraguay's 2018 Water and Sanitation National Plan is to promote the universal coverage of potable water and sanitation services for the population. These objectives are defined through several sectoral strategies, some of which are: (i) Establish legal adjustments to the regulations of the sector; (ii) Establish a single sectoral information system at the national level; (iii) Establish a single sectoral information system at the national level; (iv) Establish a National Fund for Investments in Water and Sanitation (FONDIS) to make the financial resources available for its rational application; and (v) Encourage the participation of private sector investment in the construction and administration of potable water and sanitation systems. All these strategies align with SDG 6 and with all project components.

Paraguay completed its National Determined Contributions (NDCs) in July 2021, in line with the commitments it assumed by signing the 2015 Paris Agreement. Paraguay's NDCs state that it will aim to reduce, by 20 per cent, its baseline projected emissions from 2000 to 2030, with one of the major sectors being land use, land use change and forestry ? which make up 29 per cent of all greenhouse gas emissions. In its NDCs, Paraguay has put a lot of emphasis on agricultural practices which make up 50 per cent of all greenhouse gas emissions. Major actions tied to these commitments are (i) a reduction of deforestation, (ii) using novel and sustainable agricultural practices such as nutrient management, and (iii) effective payments for environmental conservation services. These actions are reflected in several project components, and the pilots in Components 3 and 4 will serve as a basis for several good practices that Paraguay can adopt to reach its 2030 goals.

Paraguay's NDCs also focus on climate change adaptation and set four objectives for water resources designed to improve management of, and access to, safe water (also in view of scarcity risks) and the

protection and restoration of wetlands and springs. Similarly, the NDCs set five objectives aimed at citizen participation and municipal management, resilient infrastructures, green cities, and the promotion of sustainable tourism and the natural and cultural heritage of Protected Wild Areas (ASP). Finally, the adaptation component of the NDCs set five objectives for the agricultural, forestry and food security production sector aimed at promoting adaptive capacity through good agroforestry practices, the introduction of technology in food production, improved crops, and access to markets by family farmers and the indigenous population, as well as access to agro-meteorological information for taking timely decisions. All these adaptation objectives are in line with project objectives and outcomes and feed into NDC goals.

Paraguay has signed UN Resolution 70/1 that defines the 2030 Agenda. Paraguay is currently mapping SDG indicators and tying its national budget to these indicators to understand the financial gaps and achieve the goals by 2030. This project focuses specifically on SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Change), SDG 15 (Life on Land), SDG 16 (Peace, Justice and Strong Institutions), and SDG 17 (Partnerships for the Goals) all of which were marked as significant challenges remain or major challenges remain by the 2019 Sustainable Development Report. The execution of project components will help reduce the challenges that remain.

## **8. Knowledge Management**

### **Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.**

A key element of all GEF IW projects is the capture and sharing of experience and knowledge identified by projects to benefit stakeholders in the basin and elsewhere who are undertaking similar activities. The Pantanal Upper Paraguay River Basin project is expected to undertake multiple activities that will provide information to assist regional stakeholders (for example in developing the TDA, ecosystem modelling, monitoring networks, pilot activities, etc.) and key to overall management of this information will be the development and establishment of a basin-wide information system (output 2.3).

Under component 5, the project will develop a GEF IW:LEARN website to facilitate dissemination of knowledge in the region and globally. The Website is a pivotal tool of the project's communication strategy (see section 3.10 and UNEP-Appendix 11). Awareness-raising and communication activities are integrated in all project outputs and the Communication Plan will provide a standard approach to ensure the identity of the project (and donors) are considered in all actions. Component 5 focuses mainly on increasing awareness through a range of activities at local, national and regional level to ensure a wide appreciation of the findings of the TDA and facilitate the future implementation of the SAP. At the global level, Component 5 will support activities linked with GEF IW:LEARN (including the website, experience notes, participation in global and regional twinning's, GEF IW Conference participation, etc.).

National focal points and coordinators will facilitate the gathering of information/knowledge in the countries (through national activities) for project databases and the website. National and local stakeholders will be informed of the availability of information from project activities (in particular, information collected through the TDA process) by national coordinators to ensure best use in education, research and policymaking.

The project presents multiple opportunities for encouraging the dissemination of experiences and knowledge, within the project and globally, to the IW community. The project will develop a strategy during the project inception phase to ensure each activity maximizes opportunities for knowledge-sharing across the project. Examples of the types of activity can be provided, component by component.

- ? For example, Component 2 has strong potential for knowledge compilation and sharing between countries through Output 2.3 that will facilitate the establishment of an information exchange system for sharing available data for better decisions. TDA information collection and analysis will be supported by a regional Technical Task Team (as recommended by the GEF Guidance on the TDA/SAP process) that will facilitate ongoing and future information-sharing supported by good academic links developed during the TDA process.
- ? Component 3: Similarly, during SAP preparation, working groups established to identify and prioritize solutions to transboundary problems will be an important vehicle for sharing knowledge.
- ? The TDA and SAP development will also necessitate engagement with civil society, academia, the private sector (including farmers) and government bodies who will promote information collected by the project. These approaches will be summarized in GEF IW:LEARN Experience Notes.
- ? Component 4: On-the-ground interventions promoting IWRM and sustainable finance. The draft stakeholder and communication strategies (to be finalized at the start of the project) will identify opportunities to bring stakeholders to the pilots to encourage upscaling and replication of the lessons from the pilots and the sharing of knowledge between practitioners across the basin.
- ? Component 5: The training activities will not only be top-down training but also knowledge- and experience-sharing activities between the three countries, at the level of policymakers, practitioners, local governments, communities and other actors.

The strategy will consider gender-balanced stakeholder engagement with key stakeholder groups (public sector, private and social organizations). Capacity trainings will keep track of sex disaggregated data for participants, and set targets regarding the desired gender balance among participants. When necessary, additional efforts will be identified to reach the gender balance targets of workshops and activities.

The Project Steering Committee will review data and information collection throughout the project and, where necessary, recommend adaptive management changes to be enacted by the PCU. The key knowledge products, publications and web releases will be summarized in annual reports (e.g. PIRs) and all knowledge products will reflect gender sensitivities.

### **Knowledge management timeline**

All the outputs and activities of the project are focused at increasing available information and knowledge. The following tables provides a summary of the knowledge management activities and products with indicative preliminary associated budgets. These covers: meetings (M), workshops (W), trainings (T), reports (R) and publications (P).

### **Component 1: Strengthening cooperation for integrated river basin management**

Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>Output 1.1</b> A proposal of alternatives for trinational coordination of the basin.																	
1.1.1	W	R	W	W/P													2,788
1.1.2						R/W		W/R									2,300
1.1.3							W/M	W				M/R	P				2,787
<b>Output 1.2:</b> Proposed water management principles and targets																	
1.2.1			W	M/R	P												2,700
1.2.2		M	W	W	R			W/P									3,375
1.2.3						M	W	W	M/P								3,375
<b>Output 1.3:</b> A proposed framework for improved management and protection of the aquatic ecosystem																	
1.3.1								M		W		W/R					2,700
1.3.2												W		R	W		2,025

**Component 2: Consolidating and sharing knowledge, and developing a common understanding of the Pantanal - UPRB**

Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>Output 2.1</b> A region wide Transboundary Diagnostic Analysis (TDA) complementing and building upon countries' experience and knowledge, further defining the La Plata basin diagnostic.																	
2.1.1	W	W	W			W/R											8,668
2.1.2		W		W		W/R											4,260
2.1.3		W		W		W/R											4,260
2.1.4		W		W		W/P											7,062
<b>Outputs 2.2</b> Basin wide ecosystem modelling including <i>inter alia</i> environmental flow modelling, water balance, climate change scenarios.																	
2.2.1		T	W/R														2,025
2.2.2				W		W	T	W/P									5,450
2.2.3				W		W	T	W/P									5,450
2.2.4				W		W	T	W/P									5,450
<b>Outputs 2.3</b> Basin wide information exchange protocol and an integrated hydro-climatic reporting system including inter-country capacity development																	

Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
2.3.1			W		T		T/R										5,625
2.3.2								W		T		T/R					5,625
<b>Output 2.4</b> A strategic plan for a basin wide water monitoring network (including hydrometeorology, water quality, sediment and groundwater) prioritizing at least 15 sites.																	
2.4.1	M		W		W/R												2,430
2.4.2						M		T		T/R							2,445
2.4.3						M		T		W		T/R					3,250
2.4.4										T		T/R					1,625

**Component 3: Towards trination planning for sustainable management of the basin**

Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>Output 3.1</b> A region wide Pantanal-Upper Paraguay Strategic Action Programme (SAP) that will be presented for country signature																	
3.1.1						M	W	W		W	W	W/R					2,750
3.1.2																	2,750
3.1.3						M	W	W		W	W	W/R					2,750
3.1.4						M	W	W		W	W	W/R					2,750
3.1.5												M			W/P		3,500
<b>Output 3.2:</b> A proposal for land management actions to reduce threats (non-point source pollution and sediment loads).																	
3.2.1						M		W	R								3,600
3.2.2										M		W		M/P			5,900
<b>Output 3.3:</b> A proposal for achieving environmental flow regimes in up to 2 critical sub-basins.																	
3.3.1		M	W/R		P												4,910
3.3.2						W						T	P				7,365
3.3.3												T	T	T	T/P		12,275
<b>Output 3.4:</b> A sustainable financing strategy to support implementation of the SAP and key priority activities.																	
3.4.1							M		W			W/P					6,875
3.4.2								M		W			W/R				4,380
3.4.3												W	W		T/P		7,745



Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
4.4.4							M		T		T			R			12,000
4.4.5													W		W/P		8,930
<b>Output 4.5:</b> Testing innovative approaches for water use permit for sewage discharge.																	
4.5.1	W	R															1,900
4.5.2			W		W/R												1,900
4.5.3					M				W			R					1,900
4.5.4													W		T/P		3,800
<b>Output 4.6:</b> Novel economic and financial instruments to support water and land management implemented in at least 1 site: such as payment for ecosystem services; efficient water use.																	
4.6.1	W		T		W/P												3,800
4.6.2				W		W	T	T	T			P					10,000
4.6.3							W		T		T		R				6,000
4.6.4													M		P		3,250

#### Component 5: Awareness building, stakeholder involvement

Activity	Year 1				Year 2				Year 3				Year 4				Budget (USD)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>Output 5.1</b> A stakeholder engagement and communication plan including awareness building products (such as audio-visuals, education package, etc.)																	
5.1.1	M																1,520
5.1.2	W																1,520
5.1.3																	30,000
5.1.4														M	M	R	4,560
<b>Outputs 5.2</b> A training program on sustainable water and land management for utilities, management authorities, water users, civil society, amongst others, tested in 3 locations.																	
5.2.1	M	W/R															3,040
5.2.2	M/R			M/R				M/R				M/R					6,080
<b>Outputs 5.3</b> Gender equity, women empowerment and mainstreaming Plan and implementation.																	
5.3.1	W			w													3,040
5.3.2	W	W	W	w													6,080
5.3.3				W				W				W				W	6,080
<b>Output 5.4</b> Documented IW:LEARN support including knowledge sharing, experience notes, twinning program and dialogues and, IW conferences participation.																	
5.4.1	M	W/R															3,040
5.4.2		P		P		P		P		P		P		P		P	6,890

#### 9. Monitoring and Evaluation

## **Describe the budgeted M and E plan**

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Annex A includes indicators for each expected output and outcome. These indicators will be the main tools for assessing project implementation progress and whether project results are being achieved. The indicative M&E budget, integrated in the overall project budget, is provided below in Table 2.

During the inception phase, the PCU will prepare a detailed M&E plan to be presented to the first meeting of the Project Steering Committee (PSC). The PSC will be responsible for proposing any necessary amendments to the M&E plan during project implementation. Indicators and their means of verification may also be fine-tuned by the PSC. Day-to-day project monitoring is the responsibility of the PCU but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform IDB, UNEP and the EA of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion. The PSC will receive periodic reports on progress and will make recommendations to the PCU, IDB, UNEP and the EA concerning the need to revise any aspects of the Results Framework or the M&E plan.

Project oversight, to ensure that the project meets UNEP, IDB and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF, IDB Task Manager and the EA. The UNEP Task Manager and IDB Task Manager (through the IACG meeting at least twice yearly) will also provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications. Baseline data gaps will be addressed during the first year of project implementation.

Project supervision will take an adaptive management approach. The Project Coordinator/Manager will develop a project supervision plan during the inception of the project that will be communicated to the project partners during the first meeting of the PSC. The Project Coordinator/Manager will also be responsible for initial screening of the financial and administrative reports from the core partners prior to their submission. Progress vis-à-vis the delivery of agreed project outputs will be assessed by the PSC at least annually. Project risks and assumptions will be regularly reviewed both by project partners and the PCU. Risk assessment and rating is an integral part of the annual Project Implementation Review (PIR), preparation of which will be the responsibility of the Project Coordinator/Manager under the direction of the EA, UNEP and IDB Tasks Managers (led by IDB). Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

In-line with the GEF Evaluation requirements, the project will be subject to an independent Terminal Evaluation (TE), led by IDB. Additionally, a performance assessment will be conducted at the project's mid-point.

The mid-point assessment will identify corrective measures and/or changes to the intended work plan of the project, focusing on the: (i) level of progress in attaining the project objectives stated in the Results

Framework; (ii) level of acceptance of procedures developed under the project and; (iii) degree of effectiveness of the internal monitoring and supervision system of IDB and UNEP.

The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among IDB and UNEP staff and implementing partners. The TE will be initiated within 6 months of the project's operational completion.

The draft TE report will be sent to project stakeholders for comment. The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process.

The project's target contributions to the GEF 7 Core indicators are highlighted in Annex F. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term review and terminal evaluation will verify the information of the target contributions.

**Table 2: Overview of the budget for the M&E plan**

<b>Monitoring and Evaluation</b>	<b>GEF Funding</b> US\$	<b>Co-financing</b> US\$	<b>Total M&amp;E cost</b> US\$
Mid-term Review	30,000	100,000	<b>130,000</b>
Independent terminal evaluation	30,000	100,000	<b>130,000</b>
Inception workshop (de facto 1st PSC) and preparation of detailed workplan; revised budget national actions and inception report	69,000	50,000	<b>119,000</b>
Three (in-person) Project Steering Committee (PSC) meetings.	207,000	150,000	<b>357,000</b>
Final Workshop	69,000	50,000	<b>119,000</b>
<b>M&amp;E total</b>	<b>405,000</b>	<b>450,000</b>	<b>855,000</b>

## 10. Benefits

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCE/SCCF)?**

### **Social-economic benefits**

The project will promote greater transboundary cooperation (Component 1) and information-sharing (Component 2 and 5) to ensure that the population and the ecosystem benefit from improved coordinated management of the shared resources of the Pantanal ? Upper Paraguay River Basin. Similarly, the project will identify and develop a sustainable financial strategy (Component 3) for all the Pantanal ? Upper Paraguay River Basin that will feed into the SAP and will have the aim of identifying a portfolio of projects worth at least \$500 million.

Through the development of the TDA (Activity 2.1) and SAP (Activity 3.1) the involved countries will have a better understanding of the basin as well as a strategy to develop innovative financial mechanisms. The financial strategy will be developed through activities 3.4 (Sustainable Financing Strategy) and strengthened through the implementation of the pilot described in activity 4.6. Activity 3.4 will develop at least five business and investment plans that prioritize wide strategic economic areas with capacity to generate sound revenues. Pilots developed under activity 4.6 will test interventions that will enhance the economic activities of food production, water infrastructure, extractive resources, forestry, tourism and fisheries, by testing financial means such as capital funds (debt and/or equity), fixed income products, thematic bonds, project preparation facilities, and over-the-counter debt for water infrastructure.

More general socioeconomic benefits will be addressed through activities 2.2, 3.2, 3.3, 4.1 and 4.2, which will focus on improving water resources availability for the basin. They will identify and promote the harmonization of legislation regarding environmental flows, develop a coordinated monitoring network that would feed into hydroclimatic models and the proposal for land and water management actions to reduce stresses, and have foresight of possible threats, and the evaluation of constructed wetlands to balance the water-energy-food nexus for local communities, thus promoting long-term sustainability.

The water resources availability activities will be complemented with water quality activities, specifically Activity 3.5 which will develop at least six integrated water and sanitation plans, Activity 4.4 which aims to reduce risks of contamination of groundwater resources used to supply potable water, and Activity 4.5 which will focus on developing innovative biomonitoring techniques to test water quality. The joint outcome of these activities is that the private and public sector all have the same information regarding the quality and quantity of water resources and can take actions based on this information.

Attention will be given to indigenous communities living in the Pantanal and are dependent on subsistence living from fisheries, hunting and gathering or small-scale agricultural practices. Through Components 2 (TDA development) and 5 (Awareness-building) knowledge management and stakeholder engagement plans will be developed and applied, focusing on vulnerable populations and gender equity. The transboundary coordination mechanism that will be developed in Component 1 will specifically aim to include vulnerable communities and gender issues.

For farmers and ranchers heavily dependent on the hydrological cycle and climatological conditions, the project will provide valuable hydro- climatological data including, but not limited to, the development of the TDA (Activity 2.1), the development of basin-wide environmental modelling considering the effects of climate change which will feed into an early warning system (Activity 2.2), and a basin-wide monitoring network (Activity 2.4). Similarly, the project will develop management practices for farmers and ranchers through pilots designed to (i) reduce threats of pollution and sediment load (Activity 3.2), (ii) boost efficient irrigation (Activity 4.3) and (iii) identify novel economic and financial instruments to leverage economic resources from external investors, as well from the government (Activity 4.6).

## **11. Environmental and Social Safeguard (ESS) Risks**

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

**Overall Project/Program Risk Classification \***

<b>PIF</b>	<b>CEO Endorsement/Approva I</b>	<b>MTR</b>	<b>TE</b>
<b>Low</b>			

**Measures to address identified risks and impacts**

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Risk level / significance (probability x impact)			Probability				
			Very unlikely	Unlikely	About even	Likely	Very likely
Low (1-5)	Moderate (6-15)	High (16-20)	1	2	3	4	5
<b>Impact</b>	Routine procedures sufficient to deal with consequences	1	1	2	3	4	5
	Could threaten results, and thus, may require monitoring	2	2	4	6	8	10
	May threaten results, and thus, may require monitoring	3	3	6	9	12	15
	Would threaten results, and thus may require review	4	4	8	12	16	20
	Would prevent achievement of results, and would require close management	5	5	10	15	20	25

**Project risks and mitigation**

**Identification of COVID-19 project risk, associated scores and mitigation actions**

Threats	P	I	Risk level	Mitigation action
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	Threats	P	I	Risk level	Mitigation action
1	Development of the TDA and formulation of the SAP <b>does not</b> lead to active involvement of governments, private sector, civil society, and academia in the sustainable development of the Pantanal-UPRB.	1	5	5 L	<p>The project will involve a wide range of stakeholders from different interest groups to ensure the TDA and subsequent SAP meets regional, national and local needs.</p> <p>Throughout project execution Output 5.1 will focus on developing stakeholder engagement and communicating results to all stakeholders. Similarly, Outputs 5.2 and 5.4 will focus on training and knowledge-sharing to increase capacity within each country.</p> <p>The PSC will be made up of high-ranking representatives and major institutional stakeholders to ensure broad awareness of the benefits from the project's execution.</p>
2	Resources are <b>not</b> identified and available to fund SAP implementation.	1	4	4 L	<p>Outputs 3.4 and 4.6 will run throughout the project execution to ensure financial resources are available to implement the SAP. Both outputs focus on identifying novel ways of financing projects within the intervention area, allowing Private and Public sources to come online, jointly, or independently.</p>
3	<b>Lack of</b> Political willingness to implement and/or harmonize policies agreed.	2	5	10 M	<p>The alignment of project goals and outcomes with national priorities (see Section 3.6) ensures political needs are considered.</p> <p>Participation of national high-ranking members in the PSC and twice-yearly PSC meetings will help maintain interest and commitments from political actors. These representatives will also facilitate the approval of the TDA and SAP, and support the establishment of the trinational coordination mechanism by their respective Ministries/Minister.</p>
4	<b>Poor</b> inter- and intra-governmental and intersectoral coordination during project execution	2	4	8 M	<p>The Project Coordination Unit (PCU) will include national coordinators that will be in constant contact with local institutions and other stakeholders to address any issues and questions with respect to project execution. The national coordinators will also report back to a regional project manager to manage expectations from each country based on project objectives.</p> <p>The execution of Component 1 will focus solely on regional integration and the definition of potential mechanisms of transboundary coordination. This will entail a constant interaction with stakeholders and the exchange of knowledge and expectations. Project execution and intra-governmental coordination is not only an Output but part of the execution of the project.</p>

	Threats	P	I	Risk level	Mitigation action
5	Countries <b>do not</b> agree to establish a trilateral coordination mechanism	2	3	6 M	Agreement on the creation of a transboundary coordination mechanism will be finalized after project completion. The recommendation for the proposed coordination mechanism will be confirmed in the SAP if accepted by all countries, and financing will be identified to facilitate the initiation of trilateral coordination in the Pantanal-UPRB.
6	Upscaling of pilots will <b>not</b> be applicable to the wider Pantanal-UPRB	2	2	4 L	Throughout the implementation of the pilots, the transboundary benefits will be highlighted and these will be included in the SAP. The best practices of the pilots will be adapted to each country and part of the basin, to facilitate upscaling and replication.
7	<b>Climate change</b> extreme events impact pilots and overall project execution.	2	1	2 L	<p>Sites and project locations will be selected based on risk assessments of extreme events impacting the pilot area. Pilot locations will be selected and designed taking into account the potential threats of climate change impacts.</p> <p>Where appropriate pilot sites will be tested to evaluate the resilience of proposed good practices to changing climate conditions.</p> <p>Climate change issues are considered in the SRIF (UNEP-Appendix 10).</p>
8	Engagement of <b>stakeholders is limited.</b>	1	4	4 L	<p>All of the project activities involve national stakeholders. The project needs the approval of national stakeholders before actions can be executed. To reduce the chances of limiting the number of stakeholders to a few, the Communication Plan (Output 5.1), the capacity-building programme (Output 5.2) and knowledge-sharing support (Output 5.4) have defined project targets that include a broad range of institutions and stakeholders.</p> <p>Most components have focused stakeholders that do not overlap with other activities. For instance, Component 1 focuses on stakeholders concerned with international cooperation; Component 2 needs the participation of agencies in charge of environmental monitoring and those who use environmental modelling to make decisions; Component 3 focuses on specific environmental planning agencies like water and sanitation, land management, and the financial sector; Component 5 will mainstream communication and gender equity with the goal of getting women to be 50 per cent of all trained stakeholders, and with 50 per cent female participation in decision-making processes.</p>

	Threats	P	I	Risk level	Mitigation action		
9	?Divergent? stakeholder views relating to activities in the project execution.	2	4	8 M	<p>The conflicting issues between stakeholders will be addressed by assigning, at project inception, focal points for each activity that will make the final decision, in each country, on activities and objectives.</p> <p>If the divergent views are between countries different avenues will be explored. For example, adjusting the activities to address evolving country-specific needs or redefining the activity as a whole without compromising project outputs.</p> <p>A conflict resolution process will be defined during project inception in a project operation manual and approved during the first PSC meeting.</p>		
Internal/ External	Type of risk	Risk		Prob	Impact	Score Risk level	Mitigation action
External	Socio-economic	The level of COVID is still high in the region. Vaccination is in progress but the percentage of protected population is not high. Variants are a potential threat. However, there is still a risk of new variants of COVID emerging which could impact the project through higher infection rates and consequences of infection.		4	4	16 High	<p>The project will be responsive to conditions in the region and will adapt the implementation approach (e.g. more remote meetings) if infection levels increase being guided by national authorities and WHO recommendations.</p> <p>Water security is essential to the stability of every aspect of life. The project's awareness raising activities can be used to promote the potential for Integrated Water Resource Management (IWRM) as part of the post-COVID-19 response to 'build back better', keeping water security and related environmental dimensions high on the region's list of development priorities.</p>

Internal/ External	Type of risk	Risk	Prob	Impact	Score Risk level	Mitigation action
External	Socio-economic	COVID-19 will affect the level of citizen participation in the project's face-to-face activities due to the required social distancing practices.	3	3	9 Moderate	COVID-19 will likely impact the basin's most vulnerable populations which in this case are poor rural inhabitants, including indigenous people. While the project will promote citizen participation in planned meetings and activities, it will adhere to COVID protocols including social distancing and promote the use of masks to prevent the spread of COVID-19 in social gatherings. Furthermore, as much as possible, meetings will be held virtually.
Internal	Coordination	Lack of coordination among project officers and stakeholders due to the restriction of trips and face-to-face interaction modality.	2	3	6 Moderate	Currently, there are many virtual tools that can support the project coordination team with this new normal. The Project Coordination Unit will be trained in using these tools and they will be available to stakeholders who request them.
External	Financing	Reduced involvement of project partners (providing co-financing) in activities due to COVID-19.	2	2	4 Low	Specific project activities have been designed to ensure full participation of key stakeholders.

### COVID-19 Opportunity Analysis

Opportunity Category	Project Activities

<b>Environmental</b>	<p>The COVID - 19 outbreak underlined the critical need to be in harmony with nature preserving the environment as a means to prevent the spread of viruses from wildlife to humans. This represents an important opportunity for promoting nature-based solutions. The Pantanal project through its TDA/SAP formulation and demonstration activities will facilitate increased awareness and understanding to make peace with nature and reestablish a positive relationship between people, the environment and development, 'build back better?', raise ambitions and catalyze further action towards a sustainable future for our planet.</p> <p>As already witnessed during the PPG, the COVID - 19 pandemic has brought more awareness about the respect for nature. As we move ahead with project execution, this will prove to be a great opportunity to promote more efforts in favor of conserving nature, securing water and building resilience (climate change). Component 5 Activities on the communication, awareness building and educational programs will be ensuring that this trend continues forward.</p>
<b>Social</b>	<p>Improvement of groundwater well management and wastewater management through the project activities will contribute to improved resilience and adaptive baseline for the communities by improving their health conditions to deal with this and similar pandemic crisis as the COVID-19 pandemic.</p>
<b>Economic</b>	<p>The economic impacts of the pandemic are a key driver for strengthening likelihood opportunities and their recognition by governments such as e.g. engagement of communities in water governance and local economic opportunities. This impetus will help develop a more realistic SAP formulation grounded in a bottom-up process and meeting local stakeholders needs.</p>
<b>Communication</b>	<p>The normalization of online conferencing and communication platforms since early 2020 means that online interaction, online teaching, online capacity building, online meetings and online conferences have become much more commonplace and accepted by a broad range of global stakeholders. This has paved the way for this project to reach a much wider range and bigger number of participants through its capacity building and network building activities that might otherwise have been possible. The Upper Paraguay River Basin covers a very large area, and traveling from the three countries is expensive (both in terms of monetary and carbon costs), which would have put automatic constraints on face-to-face engagement and capacity building events. Planning most of the project's activities as online activities from the outset means reduced costs and greater accessibility for stakeholders across the region, and thanks to the pandemic, all prospective participants are in a much better and more experienced position to conduct successful online engagement than they would have been prior to the pandemic.</p>
<b>Data sharing</b>	<p>The pandemic affected everyone in the world in one way or another; this has forced millions of people to re-evaluate the way they operate. Without a doubt, this is an opportunity to innovate and grow digitally (new technology, information display, among others). The project can benefit from this especially in the Decision-Making Support System and the Knowledge Portal of Component 2.</p>

**Supporting Documents**

Upload available ESS supporting documents.

Title	Module	Submitted
<p><b>UNEP - Appendix 10 ? SRIF - Rev</b></p>	<p><b>CEO Endorsement ESS</b></p>	

Title	Module	Submitted
<b>Appendix 10 ? Safeguard Risk Identification Form (SRIF)</b>	<b>CEO Endorsement ESS</b>	
<b>IDB Safeguard Screening Form - SSF</b>	<b>CEO Endorsement ESS</b>	
<b>IDB Safeguard Policy Filter Report - SPF</b>	<b>CEO Endorsement ESS</b>	

**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

<b>Outcome/Output</b>	<b>Indicators</b>	<b>Baseline</b>	<b>Key Project Targets</b>	<b>Sources of Verification</b>	<b>Risks and Assumption</b>
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Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p><b>Objective:</b></p> <p>To promote water security through strengthening transboundary water governance, sustainable development, balancing multiple use and promoting integrated management of the Pantanal - Upper Paraguay River Basin for the social and economic well-being of the population and for the conservation of the freshwater ecosystem, its services, its biodiversity, and connectivity.</p>	<p><b>1. GEF core indicator (4):</b> Area of landscapes under improved practices (excluding protected areas) (Hectares)</p> <p><b>2. GEF core indicator (11):</b> Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment</p> <p><b>3. GEF Core indicator (7):</b> Number of shared water ecosystems (fresh or marine) under new or improved cooperative management:</p> <p>? Regional TDA/SAP for the Pantanal - UPRB, as roadmap for ecosystem protection and socio-economic development, endorsed by ministers in all countries.</p> <p>? IW:LEARN engagement (1%) including delivery of key products</p> <p>4. Mechanism for regional</p>	<p>1. A La Plata Basin-wide SAP has been developed and endorsed by the countries, but this does not include specific plans for the protection and sustainable development of the Pantanal - UPRB.</p> <p>2. Although Brazil has had coordination mechanism amongst their two Pantanal - UPRB states (MT, MS) and in 2015 the 3 countries launched the Pantanal - UPRB Initiative, committing to advance a common agenda for the conservation and sustainable development of the Pantanal, the largest tropical wetland in the world with 20 million hectares. To-date, there isn't any trilateral coordination/cooperation mechanism to jointly manage the Pantanal - UPRB.</p> <p>3. The 2018 Declaration of the Conservation, Integrated and Sustainable Development of the Pantanal - UPRB, is a soft strategy which requires an operational plan (aka SAP) and investment strategy.</p> <p>4. Brazil has developed country-specific management plans, but neither country has an environmental management plan for the UPRB Pantanal basin.</p> <p>5. Land management is not under any sustainable production systems which is enforced by governments.</p>	<p><b>1. GEF Core indicator 4:</b> 650 ha of landscape management areas</p> <p><i>[See Outputs 4.1 &amp; 4.3]</i></p> <p><b>2. GEF Core indicator 11:</b> Total of 178,061 beneficiaries (88107 women and 89954 men)</p> <p><i>[See Outputs 1.3, 2.1, 2.2, 2.3, 3.1, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 5.2, 5.3 &amp; 5.4]</i></p> <p><b>3. GEF Core indicator 7:</b> 1 shared freshwater system</p> <p><i>Contributions to Core Indicators 7.1, 7.2, 7.3)</i></p> <p>TDA/SAP endorsed at ministerial level in three countries.</p> <p><i>[See outputs 1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.4]</i></p> <p><i>Contributions</i></p>	<p>1. Formal ministerial SAP endorsement by 3 countries (Endorsement letters, verbal notes, etc.)</p> <p>2. Coordination mechanism organigram, budget, and functional plan.</p> <p>3. Report outlining potential donors, investors, and projects.</p> <p>4. Project MTR and TE</p> <p>5. PSC minutes</p> <p>6. Annual PIRs</p> <p>7. Project website</p> <p>8. National Partner reports</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Regional political will maintained for transboundary IWRM implementation</li> <li>- Countries endorse the SAP content and formally commit to its implementation (see SAP endorsement)</li> <li>- Recommendations for a regional water governance mechanism adopted and countries are committed to creating the trilateral coordination mechanism</li> <li>- Results from Stress Reduction pilots accepted widely from local to government levels.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Climate Change impacts on water /ecosystem resources are larger than</li> </ul>

<b>Outcome/Output</b>	<b>Indicators</b>	<b>Baseline</b>	<b>Key Project Targets</b>	<b>Sources of Verification</b>	<b>Risks and Assumption</b>
Component 1: Strengthening cooperation for a shared integrated river basin management.					

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Outcome 1 ?</p> <p>Improved understanding of water security and regional cooperation for sustainable use and integrated management.</p>	<p>1. Recommendations for a design of a shared governance mechanism of the Pantanal - UPRB among the 3 countries to improve overall ecosystem health, water security and sustainable management of the area.</p> <p>2. Key transboundary water management and sustainable development principles and indicators identified and defined for the Pantanal - UPRB.</p> <p>3. Legal and administrative framework for the protection of the Pantanal - UPRB with stakeholders' responsibilities and functions defined.</p>	<p>1. The CIC Plata oversees the coordination of the whole basin but with no parametric or proactive approach to water security in specific areas. The exception is the trinational technical commission for the management of the Hidrovia Paraguay-Parana which focuses on securing navigability but from a commercial standpoint.</p> <p>2. A WWF regional cooperation project between Paraguay and Bolivia (2016 ? 2020) with the purpose of installing climate resiliency best practices in Pantanal - UPRB municipalities.</p> <p>3. Brazil has established a watershed basin management plan for the Pantanal - UPRB (ANA, 2018) but does not include the transboundary component.</p> <p>4. Water management policies and procedures (including standards for monitoring) are not harmonized across the Pantanal - UPRB.</p> <p>5. Countries have water and sanitation plans but there is no differentiation of the water needs for production and subsistence as means of identifying water security needs.</p>	<p>1. By the end of the project, a proposal of alternatives for tri-national coordination of the basin endorsed by the PSC and recommendations included in SAP.</p> <p>2. Trinational key transboundary water resources management principles and indicators proposed by midterm and approved by PSC by end of project.</p> <p>3. Political, ecological and administrative Cooperation structure defined with functions and responsibilities by year 3.</p>	<p>1. Project MTR and TE</p> <p>2. PSC minutes</p> <p>3. Annual PIRs</p> <p>4. Project website</p> <p>5. National Partner reports.</p> <p>6. Draft of Transboundary Coordination Mechanism Plan identifying stakeholders, responsibilities, and functions.</p> <p>7. Report outlining transboundary coordination issues and water security threats.</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Countries accept recommendations for regional principles, political, ecological and administrative water security issues.</li> <li>- Political willingness and dedicated capacity to develop the analysis needed for the reforms.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Impacts of COVID restrictions.</li> <li>- Lack of Political willingness to implement and/or agreement on harmonized policies.</li> <li>- Countries do not agree to establish a tri-lateral coordination mechanism</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 1.1 - A proposal of alternatives for trilateral coordination of the basin.</p>	<p>1a. Diagnostic analysis of existing policy frameworks, legislations, guidelines and standards in support of a Transboundary Coordination Mechanism.</p> <p>1b. Proposal for a trilateral coordination mechanism/structure including cooperation and management principles.</p> <p>2. Options for financing the trilateral coordination mechanism.</p> <p>3. A roadmap to implement proposed regional co-ordination mechanism.</p> <p>4. Consensus and approval of the trilateral coordination mechanism/structure.</p>	<p>1. Currently, there is no trilateral coordination mechanism for the Pantanal - UPRB besides the overarching La Plata Treaty. The closest thing to a technical coordination is the Intergovernmental Committee the Hidrovia Paraguay-Parana which focuses more on the navigability of river.</p> <p>2. Paraguay and Bolivia lack a government agency or department focused on the development of the Pantanal - UPRB, instead it falls under the jurisdiction of general agencies and ministerial bodies.</p>	<p>1a. An updated regional review of transboundary related governance and legislation by month 12.</p> <p>1b. An analysis of potential governance structures by month 24.</p> <p>2a. A draft proposal submitted to PSC by Month 30.</p> <p>2b. A final proposal endorsed/approved by PSC - Month 45.</p> <p>3. A proposed roadmap to implement trilateral coordination mechanism (Month 24).</p> <p>4. A final document sent for approval by the countries (Month 48)</p>	<p>- PSC minutes</p> <p>- Project reports and proposals</p> <p>- Website /social media posts</p>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>- Proposals and recommendations accepted/endorsed by countries.</li> <li>- There are experiences with binational treaties and agreements between all countries that can be used as basis for new agreements.</li> <li>- Consensus will of the countries.</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions.</li> <li>- Limitations on transboundary coordination imposed by political will.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
Output 1.2 - Proposed water management principles and targets (as input to the SAP)	<p>1. Outline specification of water management instruments and standards for the three countries, compatible with SDG 6.</p> <p>2. Options for IWRM compatible with best practices recommended to the 3 countries.</p>	<p>1. The 2018 Pantanal - UPRB Declaration provides a set of principles for joint management of the Pantanal - UPRB, however there is has not been scaled down to operational parameters (i.e. water quality standards, water usage, etc.)</p> <p>2. Countries have national standards and approaches at different levels of development and implementation.</p> <p>3. The Global Water Portal (GWP) has developed an analysis SDG 6.5.1 for more than 181 countries for 2020. Results shows Brazil and Bolivia have medium level implementation of IWRM mainstreaming, while Paraguay has a low implementation mainstreaming in IWRM policies.</p>	<p>1a. A report with IWRM principles accepted by PSC (Month 15).</p> <p>1b. A harmonized set of transboundary parameters, indicators, protocols submitted for approval to countries (Month 27).</p> <p>2. IWRM options approved by PSC (Month 24).</p>	<p>- PSC minutes</p> <p>- Project reports and proposals</p> <p>- Website /social media posts</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Proposals and recommendations accepted by countries.</li> <li>- Full participation of national experts and contracting parties.</li> <li>- Agreement between countries on common data management and reporting processes.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions.</li> <li>- Engagement of local governments and communities is limited.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
Output 1.3 - A proposed framework for improved management and protection of the aquatic ecosystem	<p>1. Proposal for framework including structure, operation and staffing (technical and administrative) for regional co-ordination mechanism.</p> <p>2. Organizational chart identifying stakeholders, budgets and procedures.</p> <p>Public participation /awareness raising.</p> <p>3. Number of internal country specific stakeholder groups identified and committed to the functioning of the transboundary coordination.</p>	<p>1. Currently there is no operational framework promoting joint management of the Pantanal - UPRB. Each country acts under its own jurisdiction.</p> <p>2. The CIC Plata, the overarching organization of La Plata Basin, only has a permanent body of 3 members that are mainly funded through projects and are no able to lead activities.</p> <p>3. Countries have a number of stakeholders that work at the national level but they lack an operational structure to develop the Pantanal - UPRB.</p>	<p>1a. A draft framework submitted to PSC (Month 36).</p> <p>1b. A final agreed and approved framework for water management approved by PSC (Month 36).</p> <p>2. A co-ordination mechanism and operational procedures approved by PSC (Month 42).</p> <p>3. 10 stakeholders (5 F and 5 M) for each country identified and committed to support the Pantanal - UPRB framework.</p>	<p>- PSC minutes</p> <p>- Project reports and proposals</p> <p>- Website /social media posts by PSC</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Proposals and recommendations accepted by countries</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions.</li> <li>- Stakeholders commit to different organizational framework.</li> </ul>
Component 2: Consolidating and sharing knowledge, and developing a common understanding of the Pantanal - UPRB-Upper Paraguay Basin.					

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Outcome 2 - Improved understanding and consensus between the three countries regarding the key transboundary issues and the drivers of change in the region including enhanced capacity for joint monitoring and information exchange.</p>	<p>1. TDA approved by countries and informing management decisions at national and regional levels.</p> <p>2. Agreed strategies for monitoring, modelling and information sharing.</p> <p>3. Number of improved and new hydromet, (surface, and groundwater) monitoring stations.</p> <p>4. A comprehensive description of water utilization, flood management, erosion and sedimentation, and water quantity (water security) in the basin; and identification of actual and potential hazards.</p>	<p>1. There is no Pantanal - UPRB specific TDA that analyses the ecoregion including the three countries.</p> <p>2a. Bolivia has 2 meteorological stations, 2 hydrological stations, and 6 hydrometric stations.</p> <p>2b. Brazil has 52 hydromet stations in the intervention area and 87 rainfall gauges, and through its natural water agency has made all hydromet data available to the public.</p> <p>2c. Paraguay has 3 river stage stations, and 4 hydromet stations in the interventions area. However, historical data is not publicly available.</p> <p>2d. None of the information from the different countries area systematized and shared with other countries.</p> <p>3. There are currently no protocols for harmonized information sharing between countries.</p>	<p>1. TDA report validated by key stakeholders and each country (Month 24).</p> <p>2. Strategies agreed by PSC (Month 24).</p> <p>3a. 15 new hydromet stations installed in the Pantanal - UPRB (Month 36).</p> <p>3b. 6 groundwater pilot-monitoring sites. (Month 36).</p> <p>3c. Integrated monitoring system installed with the three countries? collecting data (Month 40).</p> <p>4. The three most important actual and potential hazards in the basin have been identified and agreed by countries, by mid-term of the project.</p>	<p>- Creation of a knowledge exchange protocol and hub among countries (website).</p> <p>- Report outlining the effects and implications of climate change on the Pantanal - UPRB.</p> <p>- Reports approved by PSC</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- TDA conclusions and recommendations accepted by countries.</li> <li>- Stakeholders actively participate in TDA development.</li> <li>- Strategies for monitoring and information sharing accepted.</li> <li>- Countries agree to sustain new monitoring stations.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Impacts of COVID restrictions.</li> <li>- Sufficient capacity available at national levels.</li> <li>- Impact of climate change on the analysis.</li> <li>- Development of the TDA</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 2.1 - A region wide Transboundary Diagnostic Analysis (TDA) complementing and building upon countries' experience and knowledge, further defining the La Plata Basin TDA.</p>	<p>1. Number of water security threats and needs identified within the Pantanal - UPRB.</p> <p>2. Number of thematic reports published within the TDA framework.</p> <p>3. Number of stakeholder workshops in the development and validation of TDA and total number of participants (F/M).</p>	<p>1. There is La Plata basin TDA from 2015 briefly mentions the Pantanal - UPRB and its issues but does not go into details.</p> <p>2. In Paraguay thematic reports exist from civil society groups but these have not been endorsed by the government.</p> <p>3. Brazil (through its National Water Agency (has developed diagnostic analysis of the water/ecosystem in Pantanal - UPRB region of Brazil in 2018.</p>	<p>1a. Baseline setting finalised by month 12.</p> <p>1b. Future threats and needs identified by month 18.</p> <p>1c. A TDA approved by PSC and accepted by ministerial level agencies (Month 24).</p> <p>2a. A draft of a socio-economic profile of Pantanal - UPRB (Month 18).</p> <p>2b. A draft of legal and institutional framework profile of Pantanal - UPRB (Month 18).</p> <p>2c. A draft of environmental profile of Pantanal - UPRB (Month 18).</p> <p>3a. Three workshops per country during the first 18 months of the project.</p>	<p>- PSC minutes</p> <p>- Project reports</p> <p>- PIRs</p> <p>- National reports indicating acceptance of TDA</p>	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>- Countries accept TDA conclusions and recommendations.</li> <li>- Stakeholders actively participate in TDA development.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> <li>- Key national partners delay in providing valuable information for the TDA.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 2.2 - Basin wide ecosystem modelling including <i>inter alia</i> environmental flow modeling, water balance, climate change scenarios.</p>	<p>1. Number of ecosystem models developed.</p> <p>2. Number of stakeholders trained.</p> <p>3 Number of scenarios modelled and reports prepared to guide SAP and national management actions</p>	<p>1. Long term climate model results have been done before under the CIC Plata project for the whole basin and are available online[7].</p> <p>2. As of 2021 IADB is developing, a water balance model for the Pantanal - UPRB ecoregion which will serve as the basis of one of the models to be developed for the Pantanal - UPRB.[8]</p>	<p>1. At least 3 models developed for the Pantanal - UPRB (Month 24).</p> <p>2. At least 60 experts trained (30 F and 30 M) in the use of the identified models (by end of project)</p> <p>3 At least 1 reported scenario per country by month 36</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Project reports on models</p> <p>- Training session attendance reports</p>	<p><b>Assumptions :</b></p> <p>- Countries agree on models to be used.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p> <p>- Key national partners delay in providing valuable information for the TDA.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 2.3 Basin wide information exchange protocol and an integrated hydro-climatic reporting system including inter-country capacity development.</p>	<p>1. Hydroclimatic data and sharing protocols defined and feeding into a functional reporting system available on the project website.</p> <p>2. Number of experts trained (F/M).</p>	<p>1. Bolivia has developed a platform to upload, share and view water quality data (SINCA).</p> <p>2. SENAMHI in Bolivia shares hydrological and meteorological information[9].</p> <p>3. SIASBO displays information on groundwater in Bolivia. Neither has information on the Pantanal - UPRB area[10].</p> <p>4. Paraguay has no webpage dedicated to water quality or quantity.</p> <p>5. There is no shared webpage with hydrological/meteorological/climate data from the 3 countries, nor standardization of data collection and processing protocols.</p> <p>6. ANA has made all hydromet data available to the public[11].</p> <p>7. During several meetings among the 3 countries, they agreed that Brazil would train and provide capacity to level information for Paraguay and Bolivia.</p>	<p>1a. Data collection and information exchange protocols agreed by month 24.</p> <p>1b. A Data system developed and operational by month 36.</p> <p>2. Training completed involving 60 participants of key government agencies and civil society organizations (including at least 30 women) (By end of project).</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- National reports on information sharing</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Countries agree information on exchange protocols.</li> <li>- One or several of the countries agree to host the information.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 2.4 ? A strategic plan for a basin wide water monitoring network (including hydrometeorology, water quality, sediment and groundwater) prioritizing at least 15 sites.</p>	<p>1. Monitoring plan agreed and approved.</p> <p>2. Basin-wide monitoring network designed tying with available remote sensing data.</p> <p>3. Number of hydromet monitoring sites implemented; number of groundwater pilot monitoring implemented.</p> <p>4. Information on the monitoring network is available online.</p> <p>5. A plan to complete the hydrometric network (monitoring stations) for the basin.</p>	<p>1. Bolivia has a national water quality monitoring network design, and since 2014 has been conducting systematic monitoring in 30 water bodies, but none in the Pantanal - UPRB area. Bolivia has 6 hydrometric stations in the area, but data is not publicly available.</p> <p>2. Brazil has 52 hydromet stations within the intervention area and 87 rain gauges.</p> <p>3. Paraguay has 3 river stage monitoring sensors along the Paraguay river in the Pantanal - UPRB ecoregion (Bahia Negra, Fuerte Olimpo, and Carmelo Peralta). These stations are not remotely connected and don't measure river flow, only water level.</p> <p>4. Paraguay also has 4 hydromet stations in the interventions area[12]. However, data is not publicly available.</p>	<p>1. Monitoring plans accepted by month 24.</p> <p>2. A region-wide monitoring network agreed by PSC by month 24.</p> <p>3. Installation of 15 hydrometeorology stations and 6 groundwater monitoring wells by month 36.</p> <p>4. A Webpage is updated with monitoring data every month after commissioning by month 36.</p> <p>5. An atlas of hydromet stations considered, functionality and integration to an online platform by month 36.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Project reports from monitoring stations</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Approval of monitoring plans and network by countries.</li> <li>- Coordination to include all existing hydromet stations into integrated system.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection.</li> </ul>
<p>Component 3: Towards trilateral planning for sustainable management of the basin</p>					

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Outcome 3 - Enhanced countries commitment to sustain joint, equitable cooperation actions and to support priority reforms and investments.</p>	<p>1. Endorsement and signing of Strategic Action Programme.</p> <p>2. Three National Action Plans (one per country). drafted and validated with key stakeholders.</p> <p>3. Agreed financing plan for implementation.</p>	<p>1. The La Plata basin wide SAP was endorsed in 2015. The SAP outlined the activities being proposed in this project.</p> <p>2. The 2016 La Plata Basin SAP did not consider, explicitly, the development of a financial mechanism to fund the SAP but this project includes activities that focus on developing a way of financing the SAP.</p> <p>3. The 2010 GEF-funded project for the La Plata Basin had 5 different demonstrative pilot projects but none were developed within the Pantanal - UPRB.</p>	<p>1. SAP endorsed and signed at ministerial level by three countries.</p> <p>2. Three NAPs developed and approved by PSC by end of the project.</p> <p>3. SAP financing strategy approved by PSC (500 million USD) by the end of the project.</p>	<p>- PSC minutes</p> <p>- MTE and TE</p> <p>- PIRs</p> <p>- National reports</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Sufficient broad stakeholder involvement to validate SAP.</li> <li>- Countries endorse SAP.</li> <li>- SAP aligns with 2016 basin-wide findings and suggestions.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> <li>- Impacts of climate change on the SAP strategies and management actions.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 3.1 - A region wide Strategic Action Programme (SAP) signed by relevant Ministries.</p>	<p>1. Number of thematic reports on strategic actions.</p> <p>2. Pantanal - UPRB SAP developed with the involvement of all three countries.</p> <p>3. Active participation by F/M stakeholders in the SAP formulation.</p>	<p>1. The 2016 La Plata basin-wide SAP had 5 different demonstrative pilot projects but none were developed within the Pantanal - UPRB</p> <p>2. There is a specific Upper Paraguay River Basin SAP developed by ANA for the Brazilian area.</p> <p>3. There are no action plans for the Pantanal - UPRB from Paraguay or Bolivia.</p>	<p>1. Thematic reports on hydro-climatology, water balance, water quality, groundwater development, pollution control, land management and ecosystems by month 30.</p> <p>2a. A SAP validated and ratified by PSC by month 42.</p> <p>2b. A SAP signed by ministers or same level government authorities including water agencies by month 45.</p> <p>3a. At least two meetings per country held by key stakeholders.</p> <p>3b. 100 women and 100 men from public/private institutions involved in the SAP development, validation and approval.</p>	<p>- PSC minutes</p> <p>- Reports from SAP development</p> <p>- Reports from stakeholder validation meetings</p> <p>- PIRs</p>	<p><b>Assumption:</b></p> <ul style="list-style-type: none"> <li>- Stakeholders engage in validation meetings.</li> <li>- Countries all endorse SAP at ministerial level</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> <li>- Transition of political powers interfere with validation process of SAP.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 3.2 - A proposal for land management actions to reduce threats (non-point source pollution and sediment loads).</p>	<p>1. Number of proposals developed and presented that would result in reduced stress on water courses from land-based activities (to guide output 4.1)</p>	<p>1. While some national level initiatives exist, such as <i>Programa Productor de Agua</i>, a coherent approach across the countries is needed. This output would prioritize agreed actions for land management practices across the basin (La Plata SAP action III 2.1).</p> <p>2. Paraguay is developing two Urban Land Use Plans for Bahia Negra and Carmelo Peralta.</p> <p>3. IADB has developed urban growth scenarios and flood risk assessment for Carmelo Peralta (Paraguay) through a technical cooperation.</p> <p>4. Santa Cruz department has a Territorial Organization Plan.</p>	<p>1. 3 national plans developed and discussed with national stakeholders and approved by PSC by month 36.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Technical outputs on pollution reduction and risk maps</p>	<p><b>Assumptions</b> :</p> <p>- Local stakeholders engage to develop plans (including private sector, farmers, civil society and local authorities).</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 3.3 ? A proposal for achieving environmental flow regimes in up to 2 critical sub-basins.</p>	<p>1. Number of studies carried out, to determine environmental/ecological flows.</p> <p>2. Proposal for the harmonization of environmental flow methodologies between the three countries.</p>	<p>1. There are different laws for different stretches of river that apply different methodologies to define environmental flows.</p> <p>2. Component VI.2 of the 2016 La Plata Basin SAP calls for the harmonization of legal transboundary frameworks in order to define adoption of common emergency security and operation protocols, river transport and fishing in shared waters.</p>	<p>1. Two studies completed by Month 24 on e-flow in at least 2 critical sub-basins.</p> <p>2. A proposal for methodologies harmonization is accepted by PSC by month 36.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Report on technical analysis of e-flows definition.</p>	<p><b>Assumptions :</b></p> <p>- Proposals accepted by local communities and other stakeholders.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 3.4 - A sustainable financing strategy to support implementation of the SAP and key priority activities.</p>	<p>1. Number of financing mechanisms identified to implement the SAP.</p> <p>2. Number of financial portfolio and a strategic finance plan are set up, based on priorities outlined in the SAP.</p> <p>3. Number of public-private partnerships to support ecotourism, sustainable fisheries, among others.</p>	<p>1. Despite the high ecologic value of the Pantanal - UPRB, estimated up to a potential amount of US\$1.7 billion per year, there is a lack of experience in investment planning and mobilization of resources.</p> <p>2. La Plata Basin-wide SAP does not have a strategic investment plan to prioritize those sector interventions that could lead Pantanal - UPRB's sustainable development. Therefore, there are no financial mechanisms to fund prioritized economic areas.</p> <p>3. Aside from regulation, there is no financial mechanism so that private developments account for environmental and social externalities</p>	<p>The following to be delivered to the PSC by month 30:</p> <p>1. Five business and investment plans that prioritize the wide strategic economic areas with capacity to generate sound revenues for a sustainable development of the Pantanal - UPRB.</p> <p>2a. Five financial analysis disclosing the need for concessional finance.</p> <p>2b. A strategic finance plan developed and approved by the PSC.</p> <p>3a. Diagnosis of alternatives to make public-private alliances viable where necessary.</p> <p>3b. One Public Partnership framework to develop water infrastructure</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Published financing plan(s)</p>	<p><b>Assumptions :</b></p> <ul style="list-style-type: none"> <li>- Stakeholders actively engage in plan development</li> <li>- Donors express interest in financial strategy.</li> <li>- Acceptance of plans by national/local authorities</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> <li>- Difficulty to identify and to integrate local entrepreneurs into wide strategic investment plans.</li> <li>- Limited availability of bankable projects to define specific investment plans per economic area.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
Output 3.5 - A series of integrated municipal water and sanitation plans.	<p>1. Number of integrated municipal water and sanitation plans elaborated.</p> <p>2. Number of exchange of experiences events for technology and knowledge interchange</p>	<p>1. Coverage of the Services in the Pantanal - UPRB Region [%]: Potable water: Bolivia: 84.7; Brazil: 94.0; Paraguay: 49.7 Sewerage: Bolivia: 57.1; Brazil: 25.0; Paraguay: 3.5 Wastewater treatment: Bolivia: 0; Brazil: 23.0; Paraguay: 0</p> <p>2. The 2016 La Plata Basin TDA identified poor water health and deteriorating environmental health around urban areas, as one of the critical transboundary issues.</p>	<p>1. Six water/sanitation plans validated with local authorities by month 36.</p> <p>2a. At least 3 events to exchange experiences are held.</p> <p>2b. 30 women and 30 men from public/private institutions involved in municipal water and sanitation participate in the exchange of experiences.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports outlining the Plans and their development.</p>	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>- Municipalities engage in development of plans.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> </ul>
Component 4: On-the-ground interventions promoting integrated water resources management and sustainable finance					

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Outcome 4 - Demonstrated on the ground benefits of and stress reduction from environmental ly sound and, cost effective approaches and technologies for replication in the SAP.</p>	<p>1. Quantified stress reduction from upscaling pilot actions across basin with financing needs identified.</p> <p>2. Number of pilot activities deployed and tested.</p> <p>3. Better understanding of financing mechanisms and water management practices for the sustainable development of the Pantanal - UPRB</p>	<p>1. 2016 La Plata Basin SAP under Strategic Area III outlined the critical issues and needs as land use management and conservation, reduce pollution sources within transboundary water bodies, urban sanitation and health, and erosion control.</p> <p>2. Brazil and Bolivia have watershed frameworks to promote Integrated Water Resources Management.</p> <p>3. Application of the WEF Nexus to sustainability of the Pantanal is sorely lacking.</p> <p>4. There is no water balance on the regional scale that determines the recharge needs and capacity of the aquifers.</p> <p>5. Bolivia, Brazil and Paraguay have legislation that establishes water quality limits for sewage discharge, a common approach is still missing.</p> <p>6. The region does not have yet any financial mechanism to conserve the environment and to promote sustainable development.</p>	<p>1. Development of a road map to scale-up pilots. Specific stress reduction to be confirmed during inception phase.</p> <p>2a. 650 ha. of landscapes planned for sustainable land management in production systems.</p> <p>2b. Pilot on green infrastructure to support the water/food/energy nexus designed and implemented in at least 1 site.</p> <p>2c. Aquifer recharge management pilot in one location.</p> <p>2d. Three innovative permits for sewage discharges.</p> <p>3. Novel economic instruments for water/land management in 1 location.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Pilot reports</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Local stakeholders accept approaches presented.</li> <li>- Pilots are promoted and backed with national co-financing.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> <li>- Upscaling of pilots will not be applicable to the wider Pantanal ? Upper Paraguay River Basin</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.1 - Sustainable land use and water management practices implemented in critical sites to reduce stresses, including sediment and pollution loads, amongst others in at least 600 Ha.</p>	<p>1. Number of threats identified/reduced from unsustainable land use management practices through regulations.</p> <p>2. Hectares (Ha) under sustainable land and water management practices, implemented in three sub-basins.</p> <p>3. Number of men and women benefited directly from the pilot.</p> <p>4. Number of lessons learned, and recommendations disseminated and integrated in the SAP.</p>	<p>1. The 2016 La Plata Basin SAP identified as critical transboundary threats as climate change (Strategic Action III.1.2), point source pollution, land use change and management of riparian and wetland ecosystems (Strategic Action III.1.1).</p> <p>2. Brazil has developed the Programa Produtor de ?gua focuses on reducing erosion, improving water quality and increasing river flows, using mechanical and vegetative practices for soil and water conservation.</p> <p>3. In Bolivia, the National Watershed Plan promotes Integrated Water Resources Management as the main mechanism to promote the introduction of sustainable water management practices, natural channels, soil and vegetation cover at the micro-basin level.</p>	<p>1. Three activities identified and managed within the Pantanal - UPRB.</p> <p>2. At least 600 Ha under sustainable land/water management in the basins by month 18.</p> <p>3. 61,698 people (30,262 women and 31,437 men) directly benefiting from pilots.</p> <p>4. At least 5 lessons and 15 recommendations for inclusion in SAP.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Sub-basins for pilot implementation is identified and agreed upon at start of the project</li> <li>- Local stakeholders accept the implementation of the pilot.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.2 - Water/food/energy nexus interventions for enhanced water and land security considering competing water uses in at least 1 location.</p>	<p>1. Pilot on green infrastructure to support the water/food/energy nexus designed and implemented in at least 1 site.</p> <p>2. kWh of energy saved by the use of wetlands for wastewater treatment and/or drinking water pre-treatment</p> <p>3. Water use reduced by X m<sup>3</sup> by using treated wastewater</p> <p>4. Number of lessons learned and disseminated to aid better understanding of the competition and management of water use within the basin.</p> <p>5. Number of men and women benefited directly from the pilot.</p>	<p>1. Brazil has experience with implementing nexus projects for natural/water resource management and agricultural sectors[13].</p> <p>2. In Bolivia, the experience with the nexus approach was more towards the definition of policies and coordination mechanisms[14].</p> <p>3. Application of the WEF Nexus to sustainability of the Pantanal is sorely lacking.</p>	<p>1. A wetland for wastewater treatment and/or drinking water pre-treatment completed in at least 1 site by month 18.</p> <p>2. At least 45,000 kWh saved per day.</p> <p>3. 20 m<sup>3</sup> per day of treated wastewater are used to irrigate fields.</p> <p>4. At least 3 lessons and 5 recommendations are integrated in the SAP.</p> <p>5. 1,000 people (500 women and 500 men) directly benefiting from pilot.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions</b> :</p> <p>- Local stakeholders accept the implementation of the pilot.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.3 - Best practices for efficient irrigation tested in 50 Ha with optimization of water demand targets towards an efficient water use allocation system.</p>	<p>1. Hectares (Ha) under efficient irrigation.</p> <p>2. Number of lessons learned and recommendations disseminated and integrated in the SAP.</p> <p>3. Number of farmers benefited directly from the pilot.</p> <p>4. Dissemination of a consensual mechanism about the optimal water allocation per type of crop and growing stage.</p>	<p>1. About 75,000 hectares are irrigated in UPRB, of which 6,500 hectares are irrigated by central pivots (ANA, 2014).</p> <p>2. Currently Brazil (through ANA) is the only country that addresses issues of water allocation for irrigation purposes. Actual water gaps by farmer/crop by week during cropping season (irrigation needs of plots -precipitation - actual water application) are not known.</p> <p>3. Even though projects developed in Bolivia for the Mi Riego program must analyze water availability in the micro-basin where they are located, there is not a national hydrological model to assess demands/supply and water balances.</p>	<p>1a. In at least 50 ha water gaps are reduced at the irrigation system level</p> <p>1b. Water consumption reduces in 30%</p> <p>2. At least 3 lessons learned, and 5 recommendations are integrated in the SAP.</p> <p>3. At least 100 farmers directly benefiting from pilot.</p> <p>4. 150 stakeholders (farmers and decision makers) (50 F and 100 M) are informed.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Regional and municipal governments agree on intervention area at start of project.</li> <li>- Private sector provides inputs and access to land, if necessary.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Field measurements of average water application by crop/week during cropping season, precipitation information from weather station, and crop water demand from crop growth models.</li> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.4 - Aquifer recharge protection measures tested in at least 1 critical area relying on groundwater resources including mapping of resource use restriction zones.</p>	<p>1. Reduction in the risks of contamination of groundwater resources used to supply potable water in at least 1 critical area.</p> <p>2. Development of groundwater vulnerability maps and potential pollution maps in a critical area.</p> <p>3. Number of men and women benefited directly from the pilot.</p> <p>4. Number of lessons learned, and recommendations disseminated and integrated in the SAP.</p> <p>5. Number of proposed regulations to reduce pollution risks to groundwater resources.</p> <p>6. Training of local managers and main users.</p>	<p>1. Currently there is no water balance on the regional scale that determines the recharge needs and capacity of the aquifers.</p> <p>2. Actual conditions are not known but will be defined during the pilot project.</p>	<p>1. At least 1 municipality reduces the risk of groundwater contamination at a level similar to ?reduced? or ?moderate? in the POSH[15] methodology.</p> <p>2. At least 2 groundwater vulnerability maps are developed for Transboundary aquifers.</p> <p>3. 113,818 inhabitants (F: 56,649, M: 57,169) benefited directly from the pilot.</p> <p>4. At least 3 lessons learned and 5 recommendations are integrated in the SAP.</p> <p>5. 1 regulation proposed by midterm, and 3 by end of the project.</p> <p>6. 50 people (25 women and 25 men) are trained and qualified.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Area of pilot implementation is identified and agreed upon at start of the project.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Political difficulties at the local level to adopt the land use measures proposed in the studies.</li> <li>- COVID restrictions limit data and information collection and stakeholder participation.</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.5 - Testing innovative approaches for water use permit for sewage discharge.</p>	<p>1. Number of municipalities that incorporate programs for monitoring sewage discharges.</p> <p>2. Number of innovative mechanisms tested for sewage discharge monitoring.</p> <p>3. Lessons learned, and recommendations disseminated and integrated in the SAP.</p> <p>4. Number of stakeholders informed on novel permitting approaches</p>	<p>1. ANA has regulations which assign permits within national borders.</p> <p>2. The La Plata Basin Treaty establishes that water quality should be safeguarded.</p> <p>3. Bolivia, Brazil and Paraguay have legislation that establishes water quality limits for sewage discharge.</p> <p>4. The control of the water quality of the released effluents requires measurements, sampling, laboratory analysis, etc., which represents a cost that is sometimes difficult for the control agencies to bear.</p>	<p>1. Six municipalities with water discharge protocols defining concentration, monitoring schemes, and water sewage discharge restrictions.</p> <p>2. Two different mechanisms of water monitoring tested.</p> <p>3. At least 5 lessons learned, and recommendations are integrated in the SAP to be upscaled in the Upper Paraguay Basin.</p> <p>4. At least 50 (25 F and 25 M) per country are informed by end of project.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions :</b></p> <p>- Local stakeholders accept the implementation of the pilot.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 4.6 - Novel economic and financial instruments to support water and land management implemented in at least 1 site: such as payment for ecosystem services; efficient water use.</p>	<p>1. Number and results of novel financing approaches implemented in at least in 1 site.</p> <p>2. Report reviewing estimates of ecosystem services delivered by Pantanal - UPRB, PES opportunities and recommendations for a Sustainable Financing Model for the Pantanal - UPRB.</p> <p>3. Lessons learned and recommendations disseminated and integrated in the SAP</p> <p>4 Number of stakeholders informed on novel economic instruments</p>	<p>1. Current economic flows refer to those cash flows generated from the primary economy and incipient services from tourism. There are no other relevant economic payments to subsidize cross-sectors or to mitigate social and environmental externalities.</p> <p>2. Public budget investments and local banking lending-over-the counter is the only mechanism to finance Pantanal - UPRB's economy. The region does not benefit from any mechanism to channel equity investments from third party investors nor any debt investments from capital markets.</p> <p>3. The region does not have any financial mechanism to conserve the environment and to promote sustainable development.</p>	<p>1. Three innovative approaches to economic and financial instruments to be tested and rational for their use, finished by month 40.</p> <p>2. Report accepted by PSC with 3 financing models proposed by end of project.</p> <p>3. At least 3 lessons and 5 recommendations for inclusion in SAP.</p> <p>4. At least 50 (25 F and 25 M) per country are informed by end of project</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on pilot activities</p>	<p><b>Assumptions</b> :</p> <ul style="list-style-type: none"> <li>- Economic valuation of ecosystem services align with countries priorities and regulations.</li> <li>- Access to private sector support is secured at start of the project.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- Lack of interinstitutional agreement between parties to raise and distribute debt or equity.</li> <li>- Poor pipeline on potential investments that hinder the proper definition of the financial instrument.</li> </ul>
<p>Component 5: Awareness building, stakeholder involvement</p>					

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Outcome 5. Improved visibility of the Pantanal as a system of global significance, increased awareness and participation among stakeholders for integrated management and, strengthened gender equality and women empowerment to facilitate adoption of the SAP agenda.</p>	<p>1. Number of government publications including up to date information, and assessing change of knowledge attitude and practice (KAP).</p> <p>2. Number of government stakeholders trained, disaggregated by gender.</p> <p>3. Number of experiences shared with IW:LEARN.</p>	<p>1. In the case of Bolivia and Paraguay publication on the Pantanal - UPRB are periodic but depend on civil society organizations, or outside funding.</p> <p>2. 2016 La Plata Basin SAP Strategic Action IV focuses on education, communication and public participation outlining the need to develop educational environmental program and an outreach program.</p>	<p>1a. At least 4 transboundary publications on the state of the Pantanal - UPRB project, and documenting changes in KAP (1 per project year).</p> <p>1b. Development of a project specific repository in line with output 2.4.</p> <p>2. At least 255 stakeholders trained (F/M) per country, of which at least 102 will be female and 153 will be male.</p> <p>3. At least 3 IW:LEARN Experience Notes</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- IW:LEARN reports on joint activities</p> <p>- IW Conference reports</p>	<p><b>Assumptions :</b></p> <p>- Interest from regional and global stakeholders in findings of project</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p> <p>- ?Divergent? stakeholder views relating to activities in the project execution.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 5.1 - A stakeholder engagement and communication plan including awareness building products (such as audiovisuals, education package, etc.)</p>	<p>1. Establishment of IWL compliant website and social media.</p> <p>2. Number of people covered by the engagement and communication activities.</p> <p>3. Number of awareness building products produced.</p> <p>4. Number of knowledge management articles/reports etc. uploaded on the project web-site.</p>	<p>1. Today there is a fragmented approach to handling stakeholder management, based mainly on projects in the area.</p> <p>NGOs and the Santa Cruz Government implemented the 'Sustainable Schools Project' to promote sustainable development in the Chaco and Pantanal - UPRB. Guidelines, materials, methodologies and criteria for evaluating the experience have been produced.</p>	<p>1a. A project website and social media pages established by month 6.</p> <p>1b. The project website is updated at least monthly.</p> <p>2a. At least 1,000 people access to the website and social media pages every month (by month 24).</p> <p>2b. Conduct at least 2 regional stakeholder meetings to share project results and share knowledge by end of project.</p> <p>3. At least 1 audiovisual and an education package are produced.</p> <p>4. 12 press releases/social media posts per year.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Project website</p> <p>- Press releases</p> <p>- Social media posts</p>	<p><b>Assumptions</b> :</p> <p>- Stakeholders use project website.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 5.2 ? A training/capacity building program on sustainable water and land management for utilities, management authorities, water users, civil society, amongst others.</p>	<p>1. Number of stakeholders trained in sustainable water and land management (F/M).</p> <p>2. Number and type of events (workshops, meetings, etc.) organized.</p>	<p>1. Capacity building is done agency by agency and there is a substantial asymmetry by countries.</p>	<p>1a. Training for 10 national stakeholders? groups for each country on issues relating to strategic basin management.</p> <p>1b. 20 men and 20 women, per country, actively participating in training activities.</p> <p>2. 6 events organized, (two in each country).</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports on capacity development activities</p>	<p><b>Assumptions</b> :</p> <p>Stakeholders engage in training programmes.</p> <p><b>Risks:</b></p> <p>COVID restrictions limit data and information collection and stakeholder participation.</p>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
<p>Output 5.3 - Gender equity, women empowerment and mainstreaming Plan and implementation.</p>	<p>1. Adoption of gender strategy and methodology.</p> <p>2. Number of training workshops to strengthen gender-equitable access to ecosystem services, safe and adequate water, sanitation, food security and other benefits, in line with the GEF Policy on Gender Equality.</p> <p>3. Number of technical and financial planning workshops on empowering women in vulnerable communities.</p> <p>4. Evidence of gender strategy being adopted by partner organizations.</p>	<p>1. Brazil has a specific gender policy based on water rights and security (Ordinance No. 326/2016).</p> <p>2. Paraguay focuses gender issues and water security in its National Climate Change Adaptation Plan.</p> <p>3. In Bolivia the water and sanitation sector has not defined its gender policy. However, there is a Guide for the Implementation of the Gender Equity Approach in the Projects of the Basic Sanitation Sector.</p>	<p>1a. A gender strategy adopted at inception meeting.</p> <p>1b. Implementation of the UNESCO Water and Gender methodology looking at mainstreaming gender in wastewater management and IWRM.</p> <p>2. At least 3 training workshops with at least 200 participants (100 women and 100 men).</p> <p>3. At least 3 technical and financial planning workshops with at least 200 participants (100 women and 100 men).</p> <p>4. At least 3 partner organizations adopt existing gender strategies.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- Reports from national partner organizations</p> <p>- Training material, tools and best practices publications.</p>	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>- PSC adopt gender strategy.</li> <li>- Willingness of partner organisations to consider recommendations in project gender strategy.</li> <li>- Cultural barriers are addressed through gender equity plan.</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>- COVID restrictions limit data and information collection and stakeholder participation</li> </ul>

Outcome/Output	Indicators	Baseline	Key Project Targets	Sources of Verification	Risks and Assumption
Output 5.4 - Documented IW:LEARN support including knowledge sharing, experience notes, twinning program and dialogues and, IW conferences participation.	<p>1. Strengthened participation and presence of the Pantanal - UPRB in the IW: LEARN hub.</p> <p>2. Number of experience notes prepared and shared.</p>	<p>1. One Experience note related with Pantanal was published in 2015[16].</p> <p>2. One Results Note was published in 2016[17].</p>	<p>1a. Active engagement with GEF IW: LEARN (1% of GEF grant).</p> <p>1b. 15 stakeholders (7 F and 8 M) from region participate in IW conferences or IW:LEARN regional /twinning activities.</p> <p>2a. One evidence-based document/report describing the novel financing proposed developed.</p> <p>2b. One Experience Note prepared by MTR and total of 3 by end-of-project.</p>	<p>- PSC minutes</p> <p>- PIRs</p> <p>- IW:LEARN reports</p> <p>- IW Conference reports</p>	<p><b>Assumptions :</b></p> <p>- Willingness of national representatives to participate in IW:LEARN activities and IW Conferences.</p> <p><b>Risks:</b></p> <p>- COVID restrictions limit data and information collection and stakeholder participation</p>

[1] <https://sdg6data.org/indicator/6.5.1>

[2] <http://www.igmbolivia.gob.bo/>

[3] <http://www.hidronav.org/>

- [4] <http://www.snirh.gov.br/hidroweb/apresentacao>
- [5] <https://www.meteorologia.gov.py/emas/>
- [6] <https://cicplata.org/es/documentos-tematicos-adt/>
- [7] <https://projeta.cptec.inpe.br/>
- [8] <https://www.iadb.org/en/project/RG-T3489>
- [9] <http://senamhi.gob.bo/index.php/inicio>
- [10] <https://datos.siarh.gob.bo/siasbo>
- [11] <http://www.snirh.gov.br/hidroweb/apresentacao>
- [12] <https://www.meteorologia.gov.py/emas/>
- [13] <https://www.cabdirect.org/globalhealth/abstract/20193193558>  
<https://www.mdpi.com/2073-4441/12/7/1977>  
<https://www.sciencedirect.com/science/article/abs/pii/S0959652618325435>  
<https://www.sciencedirect.com/science/article/abs/pii/S0961953418301065>  
<https://www.sciencedirect.com/science/article/abs/pii/S0264837721003082>
- [14] <https://www.bivica.org/files/nexo-giz.pdf>
- [15] Pollutant Origin Surcharge Hydraulically Foster, S.; Hirata, R.; Gomes, D.; D'Elia, M.; Paris, M. Groundwater Quality Protection; World Bank: Washington, DC, USA, 2002
- [16] <https://iwlearn.net/documents/3857>"<https://iwlearn.net/documents/3857>
- [17] <https://iwlearn.net/documents/3857>

**ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).**

**Annex B: Responses to Project Reviews (comments received at PIF Stage)**

**GEF Secretariat Comment**

	GEF Sec comment	Response
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1	<p>23rd of April 2020 (cseverin): Please note that Strategic Action Programme signatures needs to be obtained at Ministerial level. If also signed by entities such as ANA or other relevant government entities in the countries that is excellent, but Ministerial signature is required. Therefore, during ppg and for the time of endorsement, please ensure that output 3.1 will deliver: "A region wide Strategic Action Programme (SAP) signed at ministerial level. "</p>	<p>This has been addressed in the approved version of the PIF and we confirm that the wording of output 3.1 is as requested by GEF Secretariat.</p>
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### GEF STAP comments

STAP comment	Response
<p>Overall: The logic is clear but would benefit from deeper treatment of how barriers to change will be addressed. Benefits are plausible, provided appropriate attention is given to political / institutional barriers to change. The scaling approach remains vague at this stage; it would benefit from additional specification of key barriers that will be addressed, demonstrating recognition of likely institutional and political constraints beyond financing.</p> <p>Reference to ?divergent stakeholder interests? is rated low risk. There seems to be unstated assumptions about the ease of achieving ?consensual decision-making.? This needs to be probed more deeply to identify relevant barriers and strategies to address these.</p>	<p>Refer to the overall context of the project in Part II 1a. Project Justification - Root Causes and Main Barriers of the CEO Endorsement. Also section 2 of the Project document provides more detail on the threats to the ecosystem of the Pantanal and barriers to change that the project will be aiming to reduce.</p> <p>This is addressed in an enhanced risk table presented in the Project Document and the CEO document. See risk #9 (?Divergent? stakeholder views relating to activities in the project execution? in Table 3 (?Project risks and mitigation? of the CEO document. The risk level has been increased to Medium.</p>

STAP comment	Response
<p>3 ToC  Logic is clear but would benefit from deeper treatment of how barriers to change will be addressed. These, along with assumptions, are absent from the theory of change diagram. Much of this content is implicit in the description of project components</p> <p>Underlying assumptions are not explicit.</p>	<p>The Project Problem analysis and Theory of Change have been significantly reassessed and revised versions are found in the CEO document and the Project Document Appendices</p> <p>The ToC contains details of the main assumptions, and these are further expanded in section 3.4 (logic and assumptions) of the Project Document.</p>
<p>6  Requires further specification of measurable indicators, beyond the general IW indicators provided.</p>	<p>The Project Results Framework annexed to the CEO and Project documents have been elaborated using SMART targets. In Annex A, said measurable indicators are specified, indicating the current baseline, key project targets and proposed sources of verification.</p>

STAP comment	Response
<p data-bbox="272 233 412 260">7 Innovation</p> <p data-bbox="272 262 1057 415">Reference is made to financial and governance innovations, as well as adoption of improved technologies and management practices, but these are difficult to assess in the general terms described. There is reference to ?fiscal incentives for sustainable projects? and ?green-resilience bonds,? and relevant capacity in innovative finance from IDB.</p> <p data-bbox="272 598 1045 716">The scaling approach remains vague at this stage; it would benefit from additional specification of key barriers that will be addressed, demonstrating recognition of likely institutional and political constraints beyond financing.</p>	<p data-bbox="1084 262 1382 594">The Innovation section of the Project Document -in item g ?Innovativeness, sustainability and potential for scaling up? provides additional detail on the aspects that the proponents consider innovative. These are further detailed in appendices presenting the pilot projects.</p> <p data-bbox="1084 596 1390 1020">Specifically, output 3.4 provides the guidelines to design technical financial studies to be implemented during the project. The strategy will support the implementation of the basin wide SAP through a project preparation facility, public-private partnerships, an alliance of investors, blended financing option, among other financial options.</p> <p data-bbox="1084 1022 1398 1539">In output 4.6, interventions that will enhance the economic activities of (i) food production, (ii) water infrastructure, (iii) extractive resources -forestry, (iv) tourism and fisheries will be tested, by new financial means that are not fully developed at the Pantanal such as (i) capital funds (debt and/or equity), (ii) fixed income products - thematic bonds, (iii) project preparation facilities - over the counter debt for water infrastructure.</p> <p data-bbox="1084 1570 1398 1873">Key barriers are addressed in the CEO Endorsement Document Part II. Project Justification, Project Components, Output 4.6 And the main institutional and political constraints are identified in the project risks table (Table 3, threats # 2,3,6)</p>

STAP comment	Response
<p>2 Stakeholders: By CEO endorsement stage, there should be a more specific indication of anticipated roles and how these relate to barriers to scaling.</p>	<p>Throughout the PPG phase, the national co-ordinators recruited to elaborate the Project Documents have been in contact with the national stakeholders. Clearly under COVID restrictions these have been more limited than anticipated. A draft stakeholder engagement plan is outline in the Project Document (Section 5 and Appendix 13A and 13B). The draft engagement plan that explains likely roles will be further developed through output 5.1 (Stakeholder engagement plan) for approval by the PSC.</p>
<p>3 Gender: Barriers to gender equality should be clearly identified in relation to achievement of project objectives.</p>	<p>A draft gender plan has been prepared and this will be further developed during project inception (together with the stakeholder engagement plan) in output 5.3 (?Gender equity, women empowerment and mainstreaming Plan and implementation?).</p> <p>The project results framework (Annex A) provides indicators and key project targets to monitor the participation of women and men and record the uptake by partner organisations of the proposed gender strategies developed by the project.</p>

STAP comment	Response
<p>5 Risks: Reference to 'divergent stakeholder interests' is rated low risk, with mitigating actions focused on partner identification and implementation arrangements. While these are no doubt important, there seems to be unstated assumptions about the ease of achieving 'consensual decision-making.' This needs to be probed more deeply to identify relevant barriers and strategies to address these.</p> <p>Climate risk is noted very cursorily. This needs to be assessed in relation to credible future scenarios.</p>	<p>A risk analysis has been undertaken (See <b>Safeguard Risk Identification Form</b> 'SRIF- Appendix 10 of ProDoc') and specific project risks are identified in the CEO and Project documents, together with identified mitigation measures.</p> <p>Regarding 'divergent stakeholder interests', this is addressed in an enhanced risk table presented in the Project Document and the CEO document. See risk #9 ('Divergent' stakeholder views relating to activities in the project execution' in Table 3 ('Project risks and mitigation' of the CEO document. The risk level has been increased to Medium.</p> <p>Regarding 'Climate change extreme events' risks are also further developed in the risk table (Table 3. 'Project risks and mitigation', threat #7) and this will be revised as the project progresses with assessing climate change scenarios as part of the planned TDA development.</p>
<p>8 KM Links to several partners in the region and globally are noted for KM purposes. KM is embedded within several identified components, and linked appropriately to capacity building. KM indicators and metrics need to be specified.</p>	<p>The project has a major emphasis on generation and sharing of knowledge and the process of KM is summarised in section 3.9 of the Project document supported by activities on KM and awareness raising in Component 5 <b>Awareness building, stakeholder involvement</b>, as well as Part II ('Project Justification') section 8 ('Knowledge Management') of the CEO document.</p>

## Council Comments

### UK and Germany

UK Comments	Response
<p><b>Bolivia</b> - The Pantanal has been classified as a Ramsar Wetland of International Importance, a convention that Bolivia is a part of, which makes the wetland highly important to the government regardless of any future political changes that might occur. The Pantanal is also a very important region for the maintenance of the Chiquitano forest, which is one of the focal points for environmental action this year in Bolivia due to the large-scale wildfires that occurred in both areas last year. Given the Pantanal's vast biodiversity of flora and fauna species, and its role in converging large ecosystems from both the Chiquitano forest and Chaco, a proper integrated management system would be beneficial for Bolivia.</p> <p>Country wise, it will also be important for the project to focus on mitigating pressures from approximately 350,000 inhabitants existing in this area, while maintaining the freshwater ecosystem services and supporting the management of protected areas that generate governance and guarantee compliance and connection with local social actors. In addition, the watershed management is a concept already internalised within government and part of national public policies. Opportunities to collaborate with the protection of the Ramsar Convention and to strengthen the country's compliance with the UN framework are also desirable. Finally, there are several national and social actors developing work in the area. One of these is WWF, with whom the project would also receive support or establish a future alliance.</p>	<p>We agree with these comments. Although the importance is placed in the Pantanal, the proposal comprises the entire Upper Paraguay River Basin which includes <b>the Cerrado</b>, the Chiquitano Forests and part of the Chaco that also expands throughout Paraguay. Therefore, creating or strengthening a mechanism for international waters governance, as component 1 proposes, is key for the entire region.</p> <p>This project proposal is mainly based on the initial agreement by the 3 governments signed at the Ramsar Convention in 2015 in Uruguay and also the Pantanal Declaration signed at the World Water Forum in 2018.</p> <p>WWF is instrumental for the execution of the project in the Pantanal, where it is currently implementing projects for almost \$18 million. WWF is considered a strong ally for this initiative</p>

Germany Comments	Response
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Germany Comments	Response
<p>Germany recommends carrying out a Human Health and Environmental Risk Assessment in order to understand the environmental risks arising from contamination of the Pantanal through organic contaminants (pesticides, methylmercury), inorganic contaminants and sewage. In doing so, the final project proposal would benefit from including risk mitigation through policies for source control and remediation measures.</p>	<p>This comment/suggestion was integrated in the proposal. The project will address pollution through an intervention that will involve the identification and analysis of the feasibility to use innovative approaches for water use permits to sewage/wastewater discharge (i.e. the use of bio-indicators as a cost-effective way to monitor pollution discharge levels and set permit levels).</p> <p>We will also use the studies for each country around methylmercury pollution that were conducted at different times for areas that include parts of the Upper Paraguay River Basin and the Pantanal<sup>[1]</sup> Although we consider very important to conduct a comprehensive study on human health and environmental risk assessment, the high cost to undertake such study within the resources available are minimal; nevertheless, this will be taken into consideration to the extent feasible. Also note that when developing the regional TDA and SAP such matters will also be taken into account.</p>
<p>Germany is firmly convinced that a thorough reassessment of the intervention area would be useful, as 650 ha seems to be very small compared to the total area 1,500,000 km<sup>2</sup> of the Pantanal mentioned, especially considering the level of investment, as this would mean a per ha investment of GEF funds-Funds of 12,615 USD.</p>	<p>The approved PIF identified pilot activities which are generally testing at a small scale costs and feasibility of some remedial measures for upscaling into the SAP. The pilots are meant to research stress reduction actions on 650 ha (600ha in output 4.1 and 50 ha in output 4.3). Also note that some of the pilot exact location will be defined during inception hence contributing to an increase area supported by the project. The conclusions of these actions will be included as recommendations in the SAP for subsequent upscaling across the whole Pantanal ? Upper Paraguay River Basin region. The project will also be identifying a sustainable financing plan, estimated at approximately 500M USD to facilitate the implementation of the SAP.</p>

Germany Comments	Response
<p>Germany is pleased with the transboundary approach of this project. At the same time, Germany would appreciate a more detailed explanation of the added value of a tri-national (instead of a bi-national) multilevel governance approach, as well as the careful consideration of country ownership, the financing of this organizational structure, and the post-project prospects of the monitoring system.</p>	<p>The Upper Paraguay River Basin, where this project is intended to take place, encompasses the three countries Bolivia, Brazil and Paraguay. This is the reason why this initiative started by representatives of the 3 countries in 2015 at the Ramsar COP in Uruguay and continued with the signing of the Pantanal declaration in 2018, at the 8th World Water Forum in Brasilia. This project helps to operationalize the Declaration to focus on enhancing cooperative management of the Pantanal and associated upland areas in the Upper Pantanal Basin. The project is further designed to advance regional mechanisms.</p> <p>In addition, in terms of country ownership and financing, it is worth mentioning that countries are committing USD 130,142,879 as co-financing by different public agencies at ministerial level and private entities.</p> <p>Similarly, under the Project (particularly Component 3), a sustainable financing strategy will be designed including a portfolio of potential blended financing options and prioritised bankable multisector investments.</p> <p>In relation with post-project monitoring, it can be highlighted that under Component 1, it is foreseen that regional cooperation would be improved by promoting a common framework for management and coordination of the basin. Even more, from the technical point of view, efforts to improve coordination for the System Management have already started with grant resources provided by the IDB to improve technical capacity for transboundary decision making for water management (i.e, improved access to hydro-climate information and the design of the first trinational water balance for the Pantanal),</p>

Germany Comments	Response
<p>Germany would prefer if the theory of change could be strengthened, i.e. that main problems, main causes, the main project objective and the identified solution clearly relate to one another, and that a capacity needs assessment is included.</p>	<p>The ToC has been reassessed and the revised problem tree and ToC are presented in an appendix of the Project Document</p>
<p>While Germany welcomes the ambition of the project to address climate change, biodiversity, IWRM, SDG6, water security, and transboundary water governance, the project would benefit from being more focused on the objective to achieve transboundary water governance and evaluate which methodological approach fits the problem.</p>	<p>Transboundary governance is one of the main components addressed in the project. We understand it is also the primary objective of this project which is a typical TDA/SAP foundational project focussing its work on transboundary governance, equipping countries with the needed assessment and planning tools to promote trinational water resources management.</p>

Germany Comments	Response
<p>Germany would like to see a strategy on how to engage with the private sector (e.g. water stewardship) against the backdrop of current policies in the three countries incentivizing private sector actors to expand the agricultural frontier.</p>	<p>The private sector's inputs and benefits from the project are included in the Project Document. Please specifically look at the CEO document Part II (?Project Justification?) section 4 (?Private sector engagement?) and Appendix 13A and (Section 1.7) and 13B to the UNEP Prodoc.</p> <p>In terms of a strategy, the Stakeholder Engagement Plan will guide the specific details of the project's engagement with the private sector. Preliminary actors were already identified. At this stage, it is foreseen that private sector would be engaged across all components of the project, including, for example: their participation in the TDA and SAP, as well as the implementation of pilot projects that will promote partnerships with different actors of the private sectors (such as farmers, agribusiness and water and wastewater companies).</p> <p>In addition, during the project preparation several alternatives for innovative financial mechanisms to promote public-private participation and investments have been explored along with the counterparts as they will be studied in detail and proposed as part of the SAP during the project execution. Such instruments (i.e. water funds, resilience bonds, performance-based mechanisms.) are expected to enable the institutional and financial conditions to attract private capital and investments by promoting access to concessional fund, bringing innovation and lowering the risk of investments.</p> <p>The IDB Invest (private IDB branch) will be engaged during the project execution to support in the private sector engagement and in the design of such mechanisms.</p>

Germany Comments	Response
Germany recommends integrating the project's contributions to international agendas such as CBD and NDCs in light of the project objectives towards climate change and biodiversity.	The project will adopt the approach recommended by Germany for the annual reporting of project activities and impacts (PIRs). This will ensure that that contributions from project related actions to (for example) CBD and NDCs are recorded.

[1] <https://www.scielo.br/j/rbzool/a/qLHsy9kjtzbPb4djQVwXmt/?lang=pt;>  
[https://wwf.panda.org/wwf\\_news/?286090/BOLIVIA%5FSOBRE%5FMERCURIO#:~:text=El%20estudio%20revela%20que%20el,cerca%20del%2070%25%20de%20la;](https://wwf.panda.org/wwf_news/?286090/BOLIVIA%5FSOBRE%5FMERCURIO#:~:text=El%20estudio%20revela%20que%20el,cerca%20del%2070%25%20de%20la;) <https://www.ultimahora.com/el-rio-paraguay-se-halla-contaminado-mercurio-n120515.html#:~:text=Cantidades%20significativas%20de%20mercurio%20que,muestras%20de%20l%C3%ADquido%20y%20peces.>

**ANNEX C: Status of Utilization of Project Preparation Grant (PPG).  
(Provide detailed funding amount of the PPG activities financing status  
in the table below:**

<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To Date</i>	<i>Amount Committed</i>
<b>IDB PPG Grant</b>			
National Coordinator I	10,663.50	10,663.50	0.0
National Coordinator II	17,375.20	17,375.20	0.0
National Coordinator III	12,737.17	12,737.17	0.0
Aquifer Protection and Efficient Irrigation consultant	13,992.00	13,992.00	0.0
Water and Sanitation consultant	11,570.00	11,570.00	0.0
Ecosystems, Environmental Flow and Nexus Approach consultant	15,000.00	15,000.00	0.0
Sustainable Financing, Environmental Services & Green Economy consultant	11,890.00	11,890.00	0.0
Support to the Preparation of the CEO Endorsement Document consultant	6,386.46	6,386.46	0.0
Workshop National consultation Bolivia	140.00	140.00	0.0
Workshop National consultation Paraguay	232.00	232.00	0.0
Other workshops	2,013.67	0.00	2,013.67
<b>IDB Sub Total</b>	<b>102,000</b>	<b>99,986.33</b>	<b>2,013.67</b>
<b>UNEP PPG Grant</b>			

GEF Specialist Consultant to support formulation of CEO document & Annexes and, UNEP Prodoc & Appendices and ensure quality control.	42,000	42,000	0.0
Consultant to lead the drafting of UNEP Prodoc, logframe, ToC & UNEP budget	40,000	40,000	0.0
Support consultant to draft gender plan, stakeholder analysis, communication plan, and help assemble the documentation.	13,000	13,000	0.0
Editor	3,000	3,000	0.0
<b>UNEP subtotal</b>	<b>98,000</b>	<b>98,000.00</b>	<b>0.0</b>
<b>Total</b>	<b>200,000</b>	<b>197,986</b>	<b>2,013.67</b>

### ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

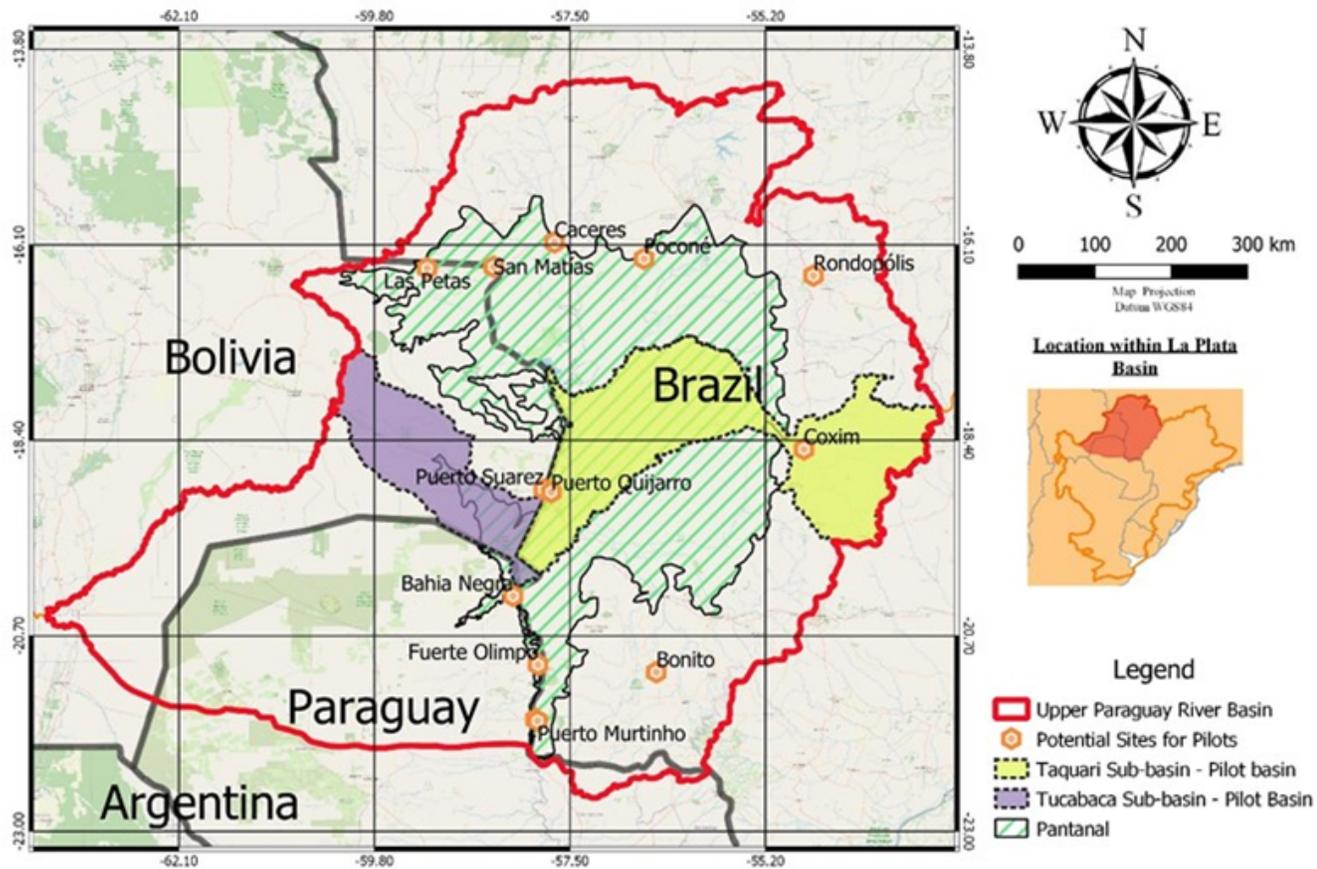


Figure 2: Upper Paraguay River Basin - Pantanal



