



Lake Kivu and Rusizi River Basin Water Quality Management Project

Part I: Project Information

GEF ID

10566

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

CBIT No

NGI No

Project Title

Lake Kivu and Rusizi River Basin Water Quality Management Project

Countries

Regional, Burundi, Congo DR, Rwanda

Agency(ies)

AfDB

Other Executing Partner(s)

Lake Kivu and River Rusizi Basin Authority (ABAKIR)

Executing Partner Type

Others

GEF Focal Area

International Waters

Taxonomy

Focal Areas, Chemicals and Waste, Persistent Organic Pollutants, Artisanal and Scale Gold Mining, Mercury, Waste Management, Land Degradation, Sustainable Land Management, Integrated and Cross-sectoral

approach, Community-Based Natural Resource Management, Improved Soil and Water Management Techniques, Food Security, Climate Change, Climate Change Adaptation, Disaster risk management, International Waters, Freshwater, Lake Basin, River Basin, Strategic Action Plan Implementation, Pollution, Persistent toxic substances, Nutrient pollution from Wastewater, Biodiversity, Wetlands, Biomes, Lakes, Rivers, Agriculture and agrobiodiversity, Mainstreaming, Influencing models, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Stakeholders, Civil Society, Academia, Private Sector, Individuals/Entrepreneurs, Large corporations, SMEs, Local Communities, Beneficiaries, Communications, Gender Equality, Sustainable Cities, Integrated Programs, Municipal waste management, Food Systems, Land Use and Restoration, Landscape Restoration, Capacity, Knowledge and Research, Targeted Research, Capacity Development, Knowledge Exchange

Sector

Mixed & Others

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

3/23/2020

Expected Implementation Start

6/1/2023

Expected Completion Date

5/31/2028

Duration

60In Months

Agency Fee(\$)

544,927.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
IW-3-5	Enhance water security in freshwater ecosystems through advance information exchange and early warning	GET	1,720,000.00	16,695,531.00
IW-3-6	Enhance water security in freshwater ecosystems through enhanced regional and national cooperation on shared freshwater surface and groundwater basin	GET	3,039,500.00	29,503,527.00
IW-3-7	Enhance water security in freshwater ecosystems through investments in water, food, energy and environment security.	GET	976,573.00	9,400,942.00
Total Project Cost(\$)			5,736,073.00	55,600,000.00

B. Project description summary

Project Objective

To improve water quality, environmental and economic services and practices of lake Kivu through improved transboundary cooperation

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
1. Enhancing regional and national cooperation	Technical Assistance	1.1 Strengthened collective management of Lake Kivu and River Rusizi Basin through institutional, policy and legal reforms	1.1.1 ABAKIR Institutional Capacity Developed 1.1.2 Adoption and implementation of the Strategic Action Plan	GET	517,927.00	5,133,407.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Improving water resource quality management	Technical Assistance	2.1 Water resource quality improved and further pollution minimised	<p>2.1.1 Adoption of a strategic framework for reducing pollution in the Basin</p> <p>2.1.2 Community-based water quality monitoring pilot program implementation in 3 sites (Burundi, DR Congo, Rwanda)</p> <p>2.1.3 Laboratories for water quality monitoring set up</p> <p>2.1.4 Reconnaissance Monitoring Survey</p>	GET	1,365,500.00	13,935,720.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
3. Providing catalytic investments in the water-food-energy nexus	Investment	3.1 Investment and incentive measures that address water security both in terms of quality and quantity/availability promoted	<p>3.1.1 Incentives for private sector to leverage investment identified.</p> <p>3.1.2 On-the-ground investments for reduced hazards</p> <p>3.1.3 Codes of good practice implemented at main pollution sources.</p>	GET	2,401,500.00	24,508,700.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
4. Monitoring and Evaluation and Knowledge management	Technical Assistance	4.1 Assessments conducted to supplement TDA and SAP and better guide decision-making	4.1.1 Capacity building for effective environmental monitoring.	GET	1,178,000.00	9,164,611.00
		4.2 Effective project coordination and M&E, learning and exchange at all levels underpin implementation	4.1.2 Best practice guidelines and guiding principles for environmental monitoring are disseminated and entrenched in local tertiary education institutions.			
			4.2.1 PMU established and project plan developed and implemented, including M&E			
			4.2.2 Knowledge Management strategy prepared and implemented.			
			4.2.3 Data and Information Portal designed and delivered			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
				Sub Total (\$)	5,462,927.00	52,742,438.00

Project Management Cost (PMC)

	GET		273,146.00		2,857,562.00	
			Sub Total(\$)	273,146.00	2,857,562.00	
			Total Project Cost(\$)	5,736,073.00	55,600,000.00	

Please provide justification

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	ADF	Grant	Investment mobilized	54,210,000.00
Other	CEEAC	In-kind	Recurrent expenditures	1,390,000.00
Total Co-Financing(\$)				55,600,000.00

Describe how any "Investment Mobilized" was identified

"Investment mobilized" for this project was identified from the active portfolio of projects financed (or in preparation) by the African Development Bank and secondly from ongoing initiatives in the area by various other institutions whose interventions contribute to improving the quality of Lake Kivu's water in relation to this GEF project.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
AfDB	GET	Burundi	International Waters	International Waters	5,736,073	544,927	6,281,000.00
Total Grant Resources(\$)					5,736,073.00	544,927.00	6,281,000.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
AfDB	GET	Regional	International Waters	International Waters	150,000	14,250	164,250.00
Total Project Costs(\$)					150,000.00	14,250.00	164,250.00

Core Indicators

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
1500.00	1500.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
750.00	750.00		

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
750.00	750.00		

Indicator 3.3 Area of natural grass and shrublands restored

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

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

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

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)
3000.00	3000.00	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)
1,500.00	0.00		

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)
0.00	0.00		

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)
1,500.00	3,000.00		

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)
0.00	0.00		

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)
Shared water Ecosystem	Kivu	Kivu		
Count	1	1	0	0

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

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Kivu	1	4		
Select SWE				<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)
Kivu	1	2		
Select SWE				<input type="checkbox"/>

Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministerial 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)
Kivu	1	3		
Select SWE				<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)
Kivu	1	4		
Select SWE				<input type="checkbox"/>

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
0.00	0.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
Select				

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochlorofluorocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

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

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

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

Indicator 9.6 Quantity of POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

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

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	9,360	6,775		
Male	8,640	5,780		
Total	18000	12555	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

1) *Global environmental and/or adaptation problems, root causes and barriers that need to be addressed*

The Lake Kivu and Rusizi River Basin is characterised by a diversity of vegetative cover, including grasses interspersed with trees, deciduous forest, savannah mosaics and montane woodlands. These have a high susceptibility to changes in land use and population pressure. An exacerbating factor is that the region has experienced, in the past decade, political instability, refugee migration and civil war. There is large-scale land clearance to satisfy rural energy demands, the construction industry as well as timber harvesting. The growing rural population of the basin is also resulting in rapid deforestation to meet food security needs (Majaliwa et al., 2009). A Baseline Study produced under the IWRM Support project identified several areas of land degradation and increased soil loss (Sher Consult, 2020), as well as deteriorating water quality.

The basin is also important for biodiversity and for ecosystem services that it provides. The Basin covers parts of at least 15 Key Biodiversity Areas (KBAs) of which 12 are terrestrial and 3 are freshwater KBAs, hosting 55 Red-Listed species. The Virunga National Park, a World Heritage site, is located on the DR Congo side of the basin. The Lake Kivu-Rusizi basin is consequently uniquely valuable, rich in biodiversity, and a catalyst for economic growth with high potential to improve the quality of life for the basin's communities. However, unfettered growth without attention to the environmental consequences, also poses an existential risk to these ecosystems and communities.

The Lake Kivu - Rusizi River Basin is home to the most fragile and sensitive ecosystems in the region. The lake is being affected increasing nutrient pollution, sediment loads, and growing populations. Wronski et al (2015) used biomonitoring to assess the water resource quality and biodiversity of the Rwandan rivers draining into Lake Kivu. Their results showed that the discharge of wastewater in the rivers, notably Burehe River, resulted in a deterioration of water resource quality.

Karamage (2016) notes that deforestation and loss of natural grassland constitutes a major threat and postulated that mean erosion rates approximate 20 to 41 t/ha/yr. Sher Consult (2020) determined considerably higher soil losses at 116 t/ha/yr for the Lake sub-basin, and 91 t/ha/yr for the Rusizi River sub-Basin using the Revised Universal Soil Loss Equation (RUSLE).

The towns of Goma, Bukavu, Bralima, the Pharmakina, the Cimenki and Genki in the DR Congo contribute to significant loads of solid waste and plastics which reduce the amenity value of the Lake and clog trash screens at the Rusizi I hydropower project, and the piping at the methane extraction plants (Sher Consult, 2020). Artisanal mining activities using mercury to extract gold, as well as other

rare metals pollutes the rivers throughout the region. Increasing cultivation on steep slopes, together with poor land management is also leading to increased sedimentation of the and nutrient washoff.

More than 150 Coffee Washing Stations on the Rwandan side of the basin discharge a high BOD effluent into the rivers and streams. Some tea packaging plants use natural biomass to dry the leaves because the wood from the woodlots provided takes too long to grow. About 70% of the forests in Rwanda are owned and operated by smallholder farmers. However, there is a tendency among private operators to plant faster growing trees with quicker returns. These are not as good at sequestering carbon. In addition, poor harvesting practices contribute to increased soil loss. There are currently a number of national level projects (e.g. EWRM) in place, as well as others in the pipeline (e.g. GCF funded Congo-Nile divide project).

However, not all water quality problems are anthropogenic. High salinity and pH in the Lake and Rusizi River are of volcanic origin. The former makes the lake waters unsuitable for irrigation and domestic use. The strongly alkaline waters would keep most toxic metals out of solution, and hence less biologically available. But monitoring programme for the alkalinity of the Lake and River should be established to assess these risks on an ongoing basis. The possible bioaccumulation of toxic metals and POPs in fish is unknown.

There is an active fishery on both the DRC and Rwandan side of Lake Kivu. Capture fisheries are currently valued at 6,000 T/year. The total number of people working in this sector has been estimated at between 6,500 and 7,000 in Rwanda and a similar population in DRC (Sher Consult, 2020). The fish biomass of the lake is monitored annually by the Lake Kivu Monitoring Programme (LKMP), now part of the Rwandan Environmental Management Authority (REMA) to assess the potential impacts of the methane extraction on lake ecosystems. However, these data are not readily available to stakeholders.

Since the waters of Lake Kivu flow into Lake Tanganyika through the Rusizi River, declining water quality in the lake will impact on the biodiversity of Lake Tanganyika. However, while these potential threats are well documented, there are very little water quality data for the Lake Kivu Basin, particularly in Burundi and the DRC. The understanding of the cause-effect relationships driving water quality has improved with the Baseline Study completed by Sher Consult (2020). The Strategic Action Plan (SAP), due for completion in mid-2022, will also provide a solid basis for water quality management planning. However, there is much that needs to be done to improve the collective understanding of the risks by all basin States, and to propose viable joint actions.

In addition, Lake Kivu is one of only 3 lakes at risk of limnic eruption. While many protagonists suggest the risk is negligible, this opinion is not universally held. Some hold that the methane extraction works will increase the risk of limnic eruption (Eric Ruhanamirindi Mudakikwa, REMA and others). Pratt (2015) reports in 'Earth' (<https://www.earthmagazine.org/article/ancient-floods-degassed-lake-kivu/>) that extreme turbidity inflows associated with floods have precipitated past limnic eruptions. Given the enormous consequences of a limnic eruption, it is prudent to monitor and report on the risks of limnic eruption based on several risk metrics including at a minimum volcanic activity, surface and bottom water salinity, levels of saturation of CO₂ and methane in the bottom water. REMA and the LKMP have prepared Terms of Reference aimed at assessing and monitoring these risks but the proposed project requires financial support.

There is consequently an urgent need to establish transboundary monitoring and data sharing information systems of the water quality of Lake Kivu and the Rusizi River. These monitoring programmes should include at a minimum turbidity (or suspended solid concentrations), salinity, and nutrient fractions in all major tributaries flowing into Lake Kivu. In addition, pollution from coffee washing stations, breweries, and solid waste needs to be tackled at the sources. Potential nutrient loading from the larger hotels on the lake shores, some of which operate their own small treatment plants, should also be monitored. The existing monitoring by the LKMP for several biotic parameters including chlorophyll, zooplankton, nutrient fractions, and salinity needs to be linked to shared database systems.

Threats

The water quality of Lake Kivu is declining, a process being driven by climate change a growing population and demographic changes, increasing nutrient and sediment loading due to catchment degradation (Bootsma et al., 1999; Hecky et al., 2006). Urbanisation without formal collection and treatment of solid and liquid waste, particularly in the DRC, is increasing nutrient loads to the lake. Eutrophication of the lake will drive algal growth, with a high risk of toxic cyanobacterial blooms, which will affect the biodiversity of the lake and potentially impact on the lake fisheries.

Urbanisation also poses a growing risk of solid waste pollution of the Lake. While this problem has largely been successfully addressed in Rwanda, the DRC has no formal solid waste collection and disposal systems. This has created problems for the Rusizi I hydropower project^[1], and for the methane extraction works.

Increased sediment loads in the Rwandan Rivers is reducing the capacity of the hydropower headponds, which leads to power supply problems.

The artisanal mining poses risks of heavy metal pollution which may bioaccumulate through the food chain. The small scale and artisanal nature of the mining makes this a difficult source of pollution to control. Bioaccumulation of toxic metals may pose risks to downstream fishing communities as well as affecting ecological functioning. Similarly, the use of pesticides on commercial agriculture may also pose a risk of POPs pollution. While much of the Basin area is at too high an elevation for malaria, it is possible that DDT may be used for pest control in some areas.

These problems are transboundary in nature, prompting the expansion of ABAKIR's mandate to address water quality challenges. However, ABAKIR is a young organisation and, at the time of writing, none of the member States had ratified the founding treaty. The initial funding for the organisation from the EU has also been diverted and ABAKIR is currently funded by very insecure funding from the member States. While staff appointed in interim are from each member state, the organisation offices and activities are mostly centred on Rwanda, with little apparent engagement from the other member States. Its mandate for establishing and policing regulations for water quality is also

very ambitious and likely to take years to realise. An interim and evolving role for ABAKIR, more attuned to its capacity will therefore be needed.

The potential overlap in the geographical scope of ABAKIR and the Lake Tanganyika Authority, while providing opportunities for collaboration may also pose institutional risks.

Root causes

The water quality and environmental challenges facing the Lake Kivu and Rusizi River Basin are underpinned by a complex of social (poverty and population growth), economic (the ability to recover the costs waste collection), natural (risks of limnic eruption, landslides), global (climate change) and institutional (local, national and transboundary) causes. The combination and interaction of these factors makes this a difficult problem to address. It is, however, also a common sustainable development problem in emerging economies, where the 'ability' to create environmental challenges initially exceeds the ability to regulate them.

The rural population of the basin is estimated at 8.5 million, or 77% of the total basin population. Population growth in these areas is increasing the pressure for agricultural land for food security, agricultural land has consequently increased by 29% over a quarter of a century (Sher Consult, 2020). Agricultural and agro-forestry practices are generally poor, leading to rapid soil loss. However, this is a difficult problem to regulate as it is driven by food security needs. Piloting and sharing approaches that reduce soil loss while increasing the productivity of the land are therefore much more likely to succeed. The widespread uptake of the better land use practices therefore depends on monitoring increases in crop yield through both Climate Smart Agriculture (CAP) and reduced soil loss.

Similarly, the urban area of the basin has increased by 43% over the last 10 years. The Cities of Goma and Bukavu in the DRC have more than one million inhabitants and a population density of around 13,500 inhabitants/km². Addressing non-point sources from such densely populated areas with limited institutional capacity is complex and is linked to social (misuse of services), physical (infrastructure and operations not sufficient for the population density or non-existent), and institutional (insufficient investment in infrastructure and operations) in nature. A further level of granularity lies in the ability of the local authority to secure cost-recovery and the non-payment or inability to pay for the costs of the services. Addressing these issues therefore requires more than providing the infrastructure, but also focussing on the underlying social, institutional and financial problems.

The Baseline Study supported by the EU and GIZ also stresses the potential problems associated with artisanal mining (Sher Consult, 2020). These are small businesses that do not invest in improving working conditions or environmental protection. The Study notes that the legislation in place is not really binding for these small-scale mines. However, even if the legal framework can be improved, implementing the legislation will be an intractable problem. Here too there is likely to be greater success in measures that demonstrably improve the miner's livelihoods and health.

Barrier analysis

Barrier 1: Inadequate basin wide governance vision

ABAKIR has a complex genesis. It was originally conceived in 2012 as a bilateral Authority focussed on regulating the emerging methane gas extraction industry. This configuration would have provided a focussed TbrBO providing an essential service to the DRC and Rwanda. When the Rusizi III hydropower project was mooted, the establishment of a trilateral TbrBO was a prerequisite to securing the funding. The work towards the establishment of ABAKIR was therefore hijacked to establish a trilateral organisation with primarily a water quality focus. This was not driven by the member States in response to a common set of water quality concerns. Indeed, the solid waste problem in Lake Kivu is the only substantive transboundary problem.

Nonetheless, in response to the need to secure financing for Rusizi III the three countries moved to establish the Lake Kivu and River Rusizi Basin Authority (ABAKIR) in 2014 with support from the EU. Its founding treaty, which was assented to in Kinshasa on 4 November 2014, provides it with considerable regulatory and enforcement powers, but is yet to be ratified. Nonetheless, the TbrBO has a staff complement of 7, a Co-ordinator (DRC), two deputy Co-ordinators (from Burundi and Rwanda), a Communications Officer, a Lawyer, a Finance Officer and an Administration Assistant. These staff are ostensibly paid through contributions from the 3 member States, although it was suggested that funds were insufficient to cover salaries.

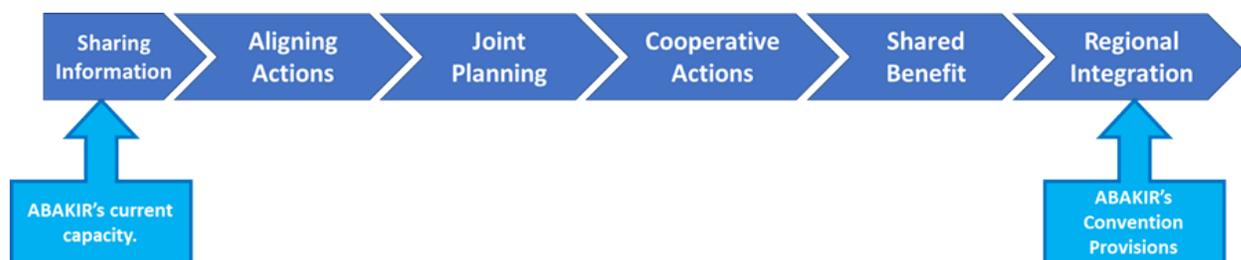
ABAKIR's current workplan focusses largely on communication outreach, raising awareness of its role and securing funding for its ongoing activities. However, in its current form it is unlikely to have the resources required to manage a complex multidisciplinary project like the one envisaged, without additional project management resources.

The currently ongoing SAP process has developed a vision for the Basin as follows:

“Lake Kivu and Rusizi River is sustainably managed between the riparian States granting equitable use of resources for the benefit of the population and health of the environment.”

The key issue to address is how the organisation will move from its current unratified status, to one that is fulfilling this vision. This is illustrated by the continuum of transboundary cooperation outlined below.

Figure 1: Continuum of transboundary cooperation.



The proposed GEF Project will have to engage this institutional conundrum to set the framework for the way the actions are addressed. This is particularly important given that ABAKIR does not yet have a legal standing in the member States.

Barrier 2: Weak operational capacity to increase water quality monitoring and management

ABAKIR does not have the capacity (or mandate until the Treaty is ratified) to monitor water quality, and monitoring actions will have to be undertaken by the member States. Rwanda has some operational capacity for monitoring and archiving water quality data through the Rwanda Water Portal (<https://waterportal.rwb.rw/>) and the Lake Kivu Monitoring Programme (LKMP). The LATAWAMA project for Lake Tanganyika aims to set up a monitoring programme including laboratories in Burundi, the DRC and Tanzania, as well as a water quality database system. In addition, there are water quality laboratories in Goma, including the OVG and the Appui Medical Integre (AMI-Kivu). The University of Bukavu also undertakes some studies on Lake Kivu and has laboratories.

However, beyond the monitoring and data management facilities outlined above there is little evidence of the data to support operational water quality management capacity in the region. These data need to be included in a basin-wide Data and Information System. The member States have policies and legislation regarding water quality management, but these are poorly harmonized and implemented. However, it is expected that the regulatory framework in Burundi and the DRC is expected to be weakly enforced due to overlapping institutional responsibilities, governance problems, insufficient funds and lack of technical capacity.

Currently, data and information systems (physical, technical, socioeconomic) relating to water resources in terms of quantity, quality, accessibility, dissemination, and use remains limited throughout the basin. The Rwanda Water Portal has been established to collate data across the whole country, but the amount of water quality data is still limited. Little is known about the trends in water quality because monitoring in the watershed has not been systematic. Without sufficient broad based data collection and inclusive information sharing, technical understanding of the water resource quality will remain limited.

Barrier 3: Insufficient incentives and investments

The Overseas Development Institute (ODI) (2002) and UN-Water (2008) cite the limited financing available to address the additional transaction costs of regional approaches as barriers to transboundary cooperation. This is often the weakest point of water resource quality management in developing countries.

A key feature of water resources management in the Lake Kivu basin is that all the riparian countries are still largely dependent on international aid. Investment in the water sector has traditionally been sponsored by development partners. The private sector has focussed on initiatives that guarantee some level of financial return. The communities, on their part, have largely been considered irrelevant in respect of the management of basin resources, even though they will be the main beneficiaries of water quality management actions as well as being the cause of water resource quality degradation.

Water quality monitoring programmes designed by the GEF project must consequently recognise the limited investments in monitoring and must link water resource quality to identifiable benefits for the communities and member States. Programmes must also differentiate between Reconnaissance, Surveillance and Compliance monitoring, recognising the importance of monitoring variables that are expensive to analyse at a lower frequency, and using indicator water resource quality monitoring approaches like biomonitoring which are cheaper to implement and can be done at a community level.

2) *the baseline scenario and any associated baseline projects*

Regional projects

Congo Basin Ecosystems Conservation Support Programme

The Congo Basin Ecosystems Conservation Support Programme (PACEBCo) aims at conserving the second largest tropical forest in the world found in the Congo Basin. The programme responds to the concerns of the countries found within the basin as expressed in their sector policies and programmes. This AfDB funded programme focuses as well on four of the 10 focus areas of the Convergence Plan of the Central African Forest Commission (COMIFAC) in the concerted management of the Congo forests:

- ? Management of ecosystems
- ? Biodiversity conservation
- ? Development of income generating activities and promotion of good practices in the exploitation of natural resources
- ? Capacity building, participation and information.

Phase I

The first phase of PACEB Co ran from 2009 to 2017, after having been extended after its initial five year plan. The main objective was to contribute to the sustainable and concerted management of forest resources and protected areas representing the biological diversity and ecosystems of the Central African sub-region, for the well-being of the populations and ecological balance of the planet. With 11 countries^[2] involved, the project focused on six ecological landscapes:

- ? The Monte Alen-Monts de Cristal landscape (Gabon, Equatorial Guinea)^[3]
- ? The Sangha Trinational landscape (DRC, RCA, Cameroon)
- ? The T?l?-Tumba lakes landscape (DRC, Congo)
- ? The Maringa-Lopori-Wamba Landscape (DRC)
- ? The Maiko-Kakuzi-Bega landscape (DRC); and
- ? The Virunga landscape (DRC, Rwanda).

The program was structured around four components:

? Component 1: Support to COMIFAC and its associated institutions ? activities included institutional audits, recruitment of experts, development of the Mass Communication Plan, revision of the Convergence Plan and the elaboration of the sub-regional strategy for forestry research in Central Africa, the establishment of a Monitoring and Evaluation database platform for the Convergence Plan.

? Component 2: Implementation of structuring tools - activities included support for the operationalization of the Central African Forest Observatory (OFAC), support for the development of the report on the elements of 2040 for the forest ecosystems of Central Africa, training of national executives at ERAIFT and support to youth and women's networks.

? Component 3: Strengthening and promoting biodiversity conservation - this component included the development of development and management plans, the training of eco-guards and the sensitization of several rural communities, landscape mapping, park/reserve delimitation activities, boundary trenching, and the installation of signage.

? Component 4: Adaptation to climate change - the project carried out research activities through CIFOR (COBAM project) and the completed publications are available at CIFOR, COMIFAC, PMU/PACEB Co and on the COBAM project website.

The main lessons learned from this first phase include :

? The simplification of institutional and operational arrangements and ensure the required capacity is available at all levels; this includes ensuring the understanding of agency procedures (AfDB),

streamlining roles and responsibilities in order to avoid duplication of efforts, as well as extends to the planning and monitoring of activities.

? Multi-stakeholder approaches are useful, fostering experience- and knowledge-sharing among beneficiaries; however these approaches need to start at project design in order to ensure the understanding and appropriation of the project itself.

? Project logical framework should be realistic; this includes the need to identify basic data properly to ensure that objectives are easily achieved and performance indicators are measurable.

? The accessibility of the sites needs to be taken into consideration, not only in terms of distance and transport options, but also insecurity which tends to be an issue in the basin (esp. Burundi and DRC).

In particular, it is key to highlight the vital importance of the first three points for regional projects, as these types of projects necessitate the alignment of capacity, understanding, priorities and scheduling of stakeholders in not just one, but multiple countries.

Phase II

The second phase of this programme is entitled, 'Congo Basin Ecosystems Conservation Support and Climate Change Resilience' (PACEBCo II). It is built around 4 components:

? Component 1: Ecosystem conservation and sustainable forest management - to achieve this, the following main activities include (i) the elaboration of management plans for protected areas and delimitation/zoning of protected areas; (ii) training and equipping of eco-guards (e.g. ecological monitoring) (iii) construction and equipping of Ecological Centres; (iv) training of populations in the sustainable use of natural resources; (v) elaboration and implementation of simple management plans for degraded forests; (vi) implementation of agroforestry plantations; and; (vi) development of the wood-energy sector.

? Component 2: Building community resilience and improving livelihoods - activities will include (i) the promotion and extension of sustainable and climate-smart agricultural practices; (ii) the establishment of agroforestry plantations; (iii) the support and accompaniment for land tenure security; (iv) promotion and development of ecotourism (construction/rehabilitation of reception, equipped and operational infrastructures), (v) training of managers and guides of ecotourism sites and; (vi) construction of infrastructures for access to basic socio-ecological services;

? Component 3: Institutional strengthening - (i) Carrying out the institutional and organisational audit of the COMIFAC; (ii) Strengthening human resources in key areas related to the objectives of the Programme (Environment/CC, M&E, Communication, Gender, etc.); (iii) Support to the COMIFAC ES in terms of equipment; Support to OFAC for the production of EdFs; (iv) Support to CEFDHAC and OCFA; (v) Support to the training of managers (awarding of training scholarships, special equipment)

? Component 4: The main activities are: (i) Establishment of a computerised networked administrative, financial and accounting management system, based on the revised Manual of Procedures; (ii) A PACEBCo2 communication strategy developed and implemented (iii) Preparation of annual work plans (AWPs), quarterly activity reports, agreed annual audits and the holding of steering committee meetings.

In addition to the six landscapes retained from phase I, three more will be added including the Rusizi basin (Burundi, DRC). The activities under component 2 will be tailored to each landscape and country, in order to ensure maximum benefit. This will include supporting Income Generating Activities (IGA) in the exploitation and valorisation of natural resources in the agro-sylvo-pastoral sector. Access to clean and safe drinking water will be promoted in the target landscapes, notably by the supply of 100 boreholes and an information campaign.

Gap analysis: As learned through Phase I, while regional projects are essential and useful, they often need to be scaled down and streamlined in order to be effective, realisable and manageable. However, when dealing with the Congo Basin, the second largest forest landscape in the world, this can be difficult as it involves a variety of ecosystems and landscapes, which all impact on one another. As such, having complementary efforts is essential to ensure the sustainability of the overall initiative and its pervasiveness in the area.

The new phase is focusing on nine landscapes, including the Rusizi basin. With one of the lessons learned in PACEBCo I being the importance of a strong yet realistic M&E programme, being able to expand the M&E to include other variables which can health assess ecosystem health and biodiversity is essential. In particular, water quality is one of the main variables for assessing aquatic and riparian ecosystems.

Regional institutional capacity, especially in transboundary ecosystems and catchments, is vital in order to ensure consistent efforts throughout landscapes. In such an ecologically diverse and important area, it is therefore necessary to not only have well-developed institutional capacity on the whole, but also for specific ecosystems and landscapes (e.g. catchments) in order to facilitate effective, tailored and sustainable management of all natural resources.

Support to the integrated management of water resources of Lake Kivu and the Rusizi River

The Support to the integrated management of water resources of Lake Kivu and the Rusizi River project is a 2 year project (extended by 6 months), which debuted in January 2019. Funded through the EU (80%) and the German Federal Ministry for Economic Cooperation and Development (BMZ), it is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The total budget amounts to ?2.5 million

The overall goal of the project is to improve the hydrological and operational management of Lake Kivu and Rusizi River basin. The project objectives and activities were scaled down after the mid-term review to adapt to the basin context, including the underdeveloped status of ABAKIR. The revised

logframe identified two main outcomes: i) 1. Strategic Action Plan based on the detailed baseline study on the basin's water resource completed; and ii) operationalisation of ABAKiR for integrated water resources management of Lake Kivu and Rusizi River.

For the first outcome, a transboundary diagnostic analysis was undertaken (completed December 2020), providing a basin-wide study of the characteristics of the basin, but also management options and evaluation framework. From here, a strategic action plan is being developed, which will create a 5-year vision for governance in the Lake Kivu and Rusizi River Basin.

Demonstration projects are being put in place in the basin (Rwanda and DRC), which will focus on agroforestry, community enterprise, and waste management. These are part of the effort to halt and reverse environmental degradation in the basin, particularly pertaining to poor land use (poor agricultural practices) and pollution.

Gap analysis: at completion, this project will have greatly advanced the development of a strategic action plan (SAP) for the basin, providing an up to date transboundary diagnostic analysis (TDA) and stakeholder approved SAP. However, the implementation and monitoring of said SAP are not included in the project.

While working on the Lake Kivu and Rusizi River basins, the project has mostly focused on Rwanda and Burundi, due to varying factors (e.g. political, Covid, etc.). There is therefore scope to build on the actions – especially pilot projects – developed in this IWRM support project and extend them in other communities across the three countries.

Lake Tanganyika Water Management

The Lake Tanganyika Water Management (LATAWAMA I) project is a four year project (2019-2022), funded by the European Union and implemented by Enabel. With a budget of ?6.9 million (7.82 million USD), the project seeks to support existing and ongoing efforts to preserve the water quality of Lake Tanganyika and its tributaries.

One of the main outcomes of this project is the creation of the Lake Tanganyika Water Monitoring Network, as well as the Lake Tanganyika Water Portal. This outcome includes rehabilitating water quality monitoring laboratories in each of the bordering countries (Burundi, DRC, Tanzania, DRC), including the building, equipment and training. The project will also be supporting 24 survey campaigns in Lake Kivu. There are talks to establish a second phase of the project, anticipated in the second half of the 2020s, which would expand the geographic reach of the activities of LATAWAMA into the Rusizi basin.

Gap analysis: There is a natural geographic link between this project and the proposed GEF project as the Rusizi River (and by association, Lake Kivu) is an important tributary to Lake Tanganyika. The LATAWAMA focuses mainly on the waters of Lake Tanganyika and its investments will greatly improve the monitoring of the lake waters. However, it is clear that the quality of these waters depend

largely on activities and environment upstream, in particular the Rusizi River and Lake Kivu. Furthermore, while there is interest in a second phase of the project, it is clear that there would be a gap between the two.

Hydropower investments

Rusizi III

The Rusizi III Hydropower Plant Project concerns the construction of a run-of-river dam on the Rusizi River, just downstream from the Rusizi II hydropower dam (13 km), a 206 MW power plant and a distribution station. It concerns Burundi, Rwanda and DRC, increasing the power capacity in all three. Construction is set to commence in early 2023. This venture is a PPP named Rusizi Energy Group III, with two main shareholders during construction and initial operation: Industrial Promotion Services (IPS) and SN Power AS (SNP). After financial close, the contracting states will join (30%).

The last round of studies and preparation for construction debuted in late 2015; these and construction are set to cost approximately USD 650 million, with roughly 22% to be financed by the AfDB's public sector window and 8% from its private window. The rest of the funding is being disbursed by grants from the European Investment Bank (EIB), the German Development Agency (KfW), and the French Development Agency (AFD).

Rusizi IV

In addition to the Rusizi III, a fourth hydropower station is in the pre-feasibility phase. Planned in the Rusizi District in Rwanda, it will generate an additional 287 MW to the power supply of the region. It was recognized as a priority option by Economic Community of the Great Lakes Countries, Energy of the Great Lakes Country and Economic Community of Central African States in 2010.

Currently, additional studies are being carried out, funded by the AfDB and NEPAD-IPPF (9.32 million). These studies are currently underway, to be completed by the end of 2023, with the following objectives:

carrying out technical and environmental studies & preparation of project tender documents,

carrying out institutional and financial framework studies & bankability study,

preparatory studies for the implementation of the project.

Gap analysis : with energy poverty remaining a rampant issue in the basin as well as a high reliance on biomass, it is clear that building the power generation capacity of the three countries is critical for their development ; however, for hydropower to be maximized and run as efficiently as possible, it is important to maintain healthy waterways, notably in terms of silt and solid waste. Ensuring the catchments are well and sustainably managed will therefore maximize the productivity and longevity of these important investments. It is also important to note, though, that while important for the countries

as wholes, the increased power capacity may not directly benefit the basin's populations in the short-term due to lack of connectivity to and/or high costs of the grid. It is therefore also necessary to take into account how best to counter overreliance on biomass in the basin in other manners.

National projects

Burundi

Dukingire Ibidukikije

The Conservation and valorisation of natural ecosystems and their biodiversity for a 'green growth' of rural communities in Burundi project is EU funded, and will launch in 2023 for 5 years. With a budget of '20 million, the project will focus on the Rusizi basin within Burundi, notably the provinces of Cibitoke and Bubanza. The project will be divided into three components:

- ? Component 1: Improving protected areas ? this component will focus on improving the protection and conservation of protected areas, notably through improving the management of said areas.
- ? Component 2: Restauration and protection of water resources ? this component will focus on interventions targeting pollution and erosion (e.g. through soil and water conservation practices);
- ? Component 3: Sustainable drinking water supply in rural area ? this component will focus on improving the infrastructure and management capacity for water resources (including water quality).

Gap analysis :while the proposed project will look to introduce some catchment management actions in the Burundian section of the Rusizi catchment, the Dunkingire Ibidukikije project will allow to upscale such efforts (component 2), as well as provide wider ecosystem conservation benefits.

Rwanda

Embedding Integrated Water Resource Management

The Embedding Integrated Water Resource Management project (EWMR) is a three year project in the Sebeya basin, which will end in June 2022. The project is funded by the Embassy of the Kingdom of Netherlands, and implemented by the Rwanda Water Resources Board, with technical assistance from the IUCN, Rwanda Rural Rehabilitation Initiative (RWARRI) and Netherlands Development Organization (SNV).

The main project objective is to increase livelihood and conservation benefits in Sebeya (and other) catchments through landscape restoration and improved natural resources management. The project centres around four components :

- ? Restore degraded lands in Sebeya and other catchments by radical and progressive terraces, agroforestry, afforestation, gullies rehabilitation, river bank protection and implementing flood control measures ;
- ? Develop innovative financing mechanisms and value chains for improved livelihoods through ecological and economic benefits ;
- ? Scale up catchment and micro catchment plans to Sebeya and other catchments ;
- ? Implement knowledge management systems for landscape restoration and integrated water resources management

The approach is highly participative, engaging communities through Village Land Use Action Planning to identify their own local issues related to water quality, and then developing their own plans to reverse degradation and benefit from sustainable development thanks to improved management of natural resources. Three catchments are being targeted :

- ? Karambo (in the Rubavu and Rutsiro Districts)
- ? Sebeya Upstream (in the Rutsiro, Rubavu and Ngororero districts)
- ? Sebeya Downstream (in the Rubavu and Nyabihu districts).

Gap analysis : this project focuses on an area that is within the larger Lake Kivu basin, and at the community level, focuses on similar issues, notably participative community natural resource management. As the project is ending prior to the start of the proposed GEF intervention, it will be possible to benefit from lessons learned, including types of soil and water conservation practices that do or do not work in the area. Furthermore, it can offer the opportunity to implement or further sustain activities from catchment management or village land use action plans that have already been developed, therefore ensuring a wider window for transformational behaviour changes at community level.

Forest and Landscape Restoration in the Congo Nile Divide

This five-year project is in the process of being assessed by the Green Climate Fund (GCF) for approval. It is programmed to last five years, and would focus on the Congo Nile divide region in Rwanda, which includes the Lake Kivu Basin. It is being presented by the Ministry of Environment (Department of Forestry) for Rwanda, with assistance from the Wildlife Conservation Society. The project itself focuses on forest and landscape restoration, with three pronged approach, notably: management of protected forests, smallholder forests and forest management, and agroforestry.

Gap analysis: Forest cover loss and reliance on biomass are still massive issues in Rwanda, with impacts not only on the terrestrial landscapes, but also waterways through increased erosion and

sedimentation. The impact on the latter is nonnegligible and being able to track and monitor water quality will inform of the impacts of landscape restoration on a larger scale.

GEF Interventions *(see table below)*

There have been a number of GEF interventions in the last 10 years which have direct and indirect links with the proposed project, especially in terms of working on international waters, water pollution control, land degradation, and international cooperation. The table below outlines these projects. The project adopts an ecosystems approach and has complementarity with other GEF Focal Areas, specifically Chemicals and Waste, Climate Change, Land Degradation and Biodiversity. Through the water quality monitoring component, the project addresses the Biodiversity focal area goal to 'mainstream biodiversity across sectors as well as landscapes and seascapes' by aiming 'to build the capacity of countries to identify, measure, and value natural capital, including biodiversity, and to integrate the understanding of this value into decision making and policy instruments'.

It is key to note that there have already been a number of GEF funded projects in tother Great Lakes (Lake Victoria, Lake Edward, Lake Albert), including TDA/SAP processes. These projects are of particular importance as they can provide insights into the process. Similarly, there have been efforts in terms of gold mining which can also provide insights.

In parallel, there are a number of efforts which are looking at landscape restoration; as noted earlier, land degradation is tightly linked to water quality in the region. As such, these projects, whether completed or planned, can provide key information and knowledge for activities linked to natural resource management, especially those engaging communities.

Baseline scenario and gaps to be filled - Synthesis

? The area is widely recognized for its unique ecosystem and biodiversity ? Lake Kivu and Rusizi River themselves, but also the wider Congo Basin. There are a certain number of initiatives looking at improving biodiversity conservation and natural resource management. However, simply due to the sheer size of the area, and some area related barriers (e.g. insecurity), efforts and successes are often . There is a need to ensure that complementary actions are , learning and basing themselves on other projects, thematics and successes, all while highlighting the linkages.

? There are a number of efforts and important processes that have been started in the basin, such as the development of ABAKIR and the TDA/SAP process. However, many of these project based initiatives have not been able to fully reach their ambitious targets. There is therefore a need to capitalize on these efforts, fully establish them, through narrow targeting of their shortcomings. This includes:

- o Advancing the establishment of ABAKIR, through a systematic and stakeholder driven process,

- o Implementation of the SAP currently in development in the basin.
 - o Focusing on ensuring the completion of such processes and targets will also provide the necessary baseline for other efforts currently in discussion in the region (e.g. LATAWAMA II).
- ? The current institutional set-up for the Lake Kivu/Rusizi River basin is still unclear and needs to be resolved in order to provide the necessary institutional tool for the sustainable management of water resources in the basin, but also in the region. Resolving these issues and providing increased capacity will also allow for a more comprehensive understanding of mandates and cooperation among river basin organisations in the region.
- ? It is important that there be coordinated efforts throughout the basin in order to maximize benefits on the shared water resources. This includes not only resolving common issues, but also tackling specific national issues. By association, it is also important that there be coordination and communication about proposed solutions and lessons within the basin.
- ? Land degradation is a universally recognized issues in the area; however, the ensuing water resource issues (sedimentation, turbidity, erosion) perhaps less. As such, projects that are dealing with land degradation in the countries of the basin are numerous, though few, if any, clearly recognize the interrelatedness of these issues with other ecosystems. Making the link between actions in the various landscapes and their repercussions, as well as involving local stakeholders in their monitoring, can help give a sense of responsibility and appropriation which should increase the durability of efforts.
- ? While energy and economic development is a vitally important in the area, it is also important to ensure that these are done in parallel with sustainable and inclusive environmental management in order to ensure their use and benefit in the long term.

[1] The Rusizi I trash racks collect the solid waste. This while increasing operational costs for Rusizi I, reduces the problem for the downstream projects.

[2] Angola, Burundi, Cameroon, Congo Gabon, Equatorial Guinea, Central African Republic, Democratic Republic of Congo, Sao Tome and Principe, and Principe, Chad and Rwanda

[3] The activities in this landscape were limited due to funding issues.

Table 1: Related GEF Interventions in Burundi, DR Congo, Rwanda and the wider region.

ID	Project Title	Grant and Co-financing	Implementing Agencies	Implementation Countries	Project Objectives	Project Duration
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10594	Burundi Landscape Restoration and Resilience Project	6,000,000 31,000,000	World Bank	Burundi	To restore land productivity in targeted degraded landscapes and, in the event of an Eligible Crisis or Emergency, to provide immediate and effective response to said Eligible Crisis or Emergency	2021-2024
10388	Biodiversity Conservation, sustainable land management and enhanced water security in Lake Tanganyika basin	14,599,083 60,772,579	UNEP	Burundi, Tanzania, Zambia, Congo DR	To enhance transboundary cooperation and SAP implementation through sustainable fisheries co-management, biodiversity conservation and restoration of degraded landscapes in selected key biodiversity areas of Lake Tanganyika	Concept Approved (60 months)
10314	Community-based forested landscape management in the Grand Kivu and Lake Tele-Tumba	13,761,468 76,532,813	UNEP	DR Congo	To scale up and improve forest landscapes through community-based natural resources management in targeted trans-boundary landscapes.	2021-2027

10208	The Congo Basin Sustainable Landscapes Impact Program (CBSL IP)	57,201,127 387,383,108	UNEP, IUCN WB, WWF-US	Cameroon, Central African Republic, Congo, Congo DR, Equatorial Guinea, Gabon	To catalyze transformational change in conservation and sustainable management of the Congo Basin through landscape approaches that empower local communities and forest dependent people, and through partnerships with the private sector.	Concept proposed (72 months)
10136	National action plan on mercury in the artisanal and small-scale gold mining sector in Rwanda	500,000 58,500	UNIDO	Rwanda	National capacity and capability improved for the management of mercury, through the preparation of National Action Plan (NAP) for the Artisanal and Small-Scale Gold Mining (ASGM) sector.	2019-2022
10116	Lake Victoria Environmental Management Programme Phase 3	9,132,420 251,000,000	World Bank	Burundi, Kenya, Rwanda, Tanzania, Uganda	To strengthen transboundary natural resources management and climate-resilience in the Lake Victoria Basin and reduce environmental degradation in selected hotspot areas.	

10099	Landscape restoration for increase resilience in urban and peri-urban areas of Bujumbura	8,932,420 16,024,270	UNDP	Burundi	Increase resilience of watershed communities in and around Bujumbura through a resilient integrated watershed management for landscape restoration and flood management	Concept Approved (60 months)
9912	Enhancing Conjunctive Management of Surface and Groundwater Resources in Selected Transboundary Aquifers: Case Study for Selected Shared Groundwater Bodies in the Nile Basin	5,329,452 25,850,000	UNDP	Burundi, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda	To enhance knowledge and capacity for sustainable use and management of transboundary aquifers and aquifers of regional significance in the Nile Basin.	2020-2025
9515	The Restoration Initiative, DRC child project: Improved Management and Restoration of Agro-sylvo-pastoral Resources in the Pilot Province of South-Kivu	3,600,000 12,381,530	FAO	DR Congo	To increase development opportunities in DRC through the sustainable exploitation of natural resources	2018-2023

5674	Lakes Edward and Albert Integrated Fisheries and Water Resources Management Project	8,100,000 23,425,000	AfDB	DR Congo, Uganda	To sustainably utilize the fisheries and allied natural resources of the Lakes Edward and Albert Basin through harmonized legal framework and policies.	2016-2021
5451	Strengthening Hydro-Meteorological and Climate Services	5,329,452 32,700,000	World Bank	DR Congo	Improve the quality of the Government of the DRC's targeted hydro-meteorological and climate services.	2017-2022
4631	Watershed Approach to Sustainable Coffee Production in Burundi	4,200,000 20,800,000	World Bank	Burundi	To promote sustainable land and water management on the country's coffee farms in Bubanza, Bururi, and Muyinga provinces.	2013-2019
3838	Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems and Support for Integrated Watershed Management in Flood Prone Areas	3,486,000 12,427,000	UNEP	Rwanda	To contribute to Climate Change Risk and Flood Disaster Preparedness in Rwanda by reducing the vulnerability of the Gishwati ecosystem and its associated Nile-Congo crest watersheds, and the people that derive their livelihoods from it, to increased floods and droughts due to climate change.	2010-2015

3399	SIP: Lake Victoria Environmental Management Project II	7,000,000 107,800,000	World Bank	Burundi, Kenya, Rwanda, Tanzania, Uganda	Strengthening institutions and mechanisms for management of transboundary resources (the lake and its watershed), policy reforms for improved management of transboundary resources (integrated water resources and land management), and joint planning to capture efficiencies and synergies, as well as catalyze priority transboundary investments.	2009-2017
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1) *the proposed alternative scenario with a description of outcomes and components of the project;*

The overall objective of the project is to improve water quality, environmental and economic services of Lake Kivu and the Rusizi River through improved transboundary cooperation. During this PPG phase, changes to the PIF have been proposed. These changes reflect new information gathered during consultations with various stakeholders and visits in the basin, and do not alter the overall objective of the project. Rather, the changes ensure that the project can be effectively implemented, provides complementarity rather than duplication with baseline projects, and provides means and incentives to

encourage the sustainability of actions, strategies and institutions after project closure. The table below summarizes the main changes made.

Table 2: Main changes and justifications.

Topic	Main changes from PIF
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Core indicator targets

Targets from PIF

Indicator 3 Area of land restored ? 1500 ha

3.1 Area of degraded agricultural land restored ? 750 ha

3.2 Area of Forest and Forest Land restored ? 750 ha

Indicator 4 Area of landscapes under improved practices ? 3000 ha

4.1 Area of landscapes under improved management to benefit biodiversity ? 1500 ha

4.3 Area of landscapes under sustainable land management in production systems ? 1500 ha

Indicator 7 Number of shared water ecosystems ? 1

7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation ? 1 (Kivu-)

7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation ? 1 (Kivu)

7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees ? 1 (Kivu)

7.4 Level of engagement in IWLEARN through participation and delivery of key products ? 1 (Kivu)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment ? 18,000 (M-8,640; F-9,360)

Revised targets in CEO-ER

Indicator 3 Area of land restored ? 1500 ha

3.1 Area of degraded agricultural land restored ? 750 ha

3.2 Area of Forest and Forest Land restored ? 750 ha

Indicator 4 Area of landscapes under improved practices ? 3000 ha

4.1 Area of landscapes under improved management to benefit biodiversity ? 1500 ha

4.3 Area of landscapes under sustainable land management in production systems ? 1500 ha

<p>Changes in budgeting</p>	<p>While the overall budget of the project has remained the same, there has been a shift of distribution among the various components, notably between Component 1 and Component 4. This change reflects a few issues identified during the PPG phase:</p> <p>? the TDA/SAP process has been undertaken by another project. As such, only the implementation is left to be secured.</p> <p>? At this point in time, due to ABAKIR's uneasy standing (no ratification, no permanent staff, etc), there is only so much capacity building that can be done. However, with its current role being more one of information sharing, it is key to support it in this capacity. As such, budget was shifted into Component 4 to reflect this.</p>
<p>Revised outcomes and outputs</p>	<p>Wording for all outcomes and outputs has been made clearer and more concrete. This includes some changes in the scope of certain components in order to better reflect the current socio-political conditions and institutional realities (e.g. ABAKIR) as well as rescale and reframe certain expectations so that they provide the most impact, both on their own, but also in order to improve coordination in the basin and ensure complementarity with other projects.</p> <p>In some cases, additional outputs/outcomes were added. These additions come as a way to :</p> <p>? Output 2.1.4 Reconnaissance Monitoring Survey</p> <p>? Output 4.2.3 Data and Information portal designed and delivered</p> <p>All in all, changes found here do not change the overall purpose or objective of the proposed project and will be subject to stakeholder validation during the validation workshop.</p>

Component 1

Enhancing regional and national cooperation

Under this component, Output 1.1.2 was modified to reflect the progress on the TDA/SAP process by one of the baseline projects. Instead, there will be a focus on the implementation of the SAP. Similarly, Output 1.1.3 was removed and incorporated under Output 1.1.1.

Previous outcome/output wording:

Outcome 1.1 Strengthened collective management of Lake Kivu and River Rusizi Basin through institutional, policy and legal reforms

Output 1.1.1 ABAKIR institutional capacity development

Output 1.1.2 Strategic Plan development and adoption

Output 1.1.3 Development of a shared vision document

New outcome/output wording:

Strengthened collective management of Lake Kivu and River Rusizi Basin through institutional, policy and legal reforms

Output 1.1.1 ABAKIR institutional capacity developed

Output 1.1.2. Adoption and implementation of the Strategic Action Plan

Component 2:

Improving water quality management

Revision: Improving water resource quality management

The change in wording in the component and outcome is just to clarify ? ?water resource? refers to the water throughout the basin.

? Output 2.1.3 ? changed to plural to reflect that its an activity that will take place in each country to better homogenize the efforts and make each country autonomous yet equal in its WQ testing

? Output 2.1.4 is new; it provides the possibility to ?jumpstart? the WQ monitoring, provide the example of how it should be done, all while ensuring that there is a reliable and recent baseline for the basin to refer back to.

Previous outcome/output wording:

Outcome 2.1 Water quality improved and further pollution minimized

Output 2.1.1 Adoption of legal framework for reducing point and non-point sources of pollution

Output 2.1.2 Community-based water quality monitoring pilot program implementation in 3 sites (Burundi, DR Congo, Rwanda)

Output 2.1.3 Laboratory for the lake water quality monitoring set-up

New outcome/output wording:

Outcome 2.1 Water resource quality improved and further pollution minimized

Output 2.1.1 Adoption of legal framework for reducing pollution in the basin

Output 2.1.2 Community-based water quality monitoring pilot program implementation in 3 sites (Burundi, DR Congo, Rwanda)

Output 2.1.3 Laboratories for lake water quality monitoring set-up

Output 2.1.4 Reconnaissance Monitoring Survey

Component 3 Providing catalytic investments in the water-food-energy nexus

The changes in wording here are simply to provide clarity in the outputs and ensure that there is accountability in the proposed outputs.

Previous outcome/output wording:

Outcome 3.1 Investment and incentive measures that address water security both in terms of quality and quantity/availability promoted

Output 3.1.1 Incentive for private sector to leverage investment

Output 3.1.2 On-the-ground investments for watershed management

Output 3.1.3 BAT/BEP adopted to reduce chemicals at source

New outcome/output wording:

Outcome 3.1 Investment and incentive measures that address water security both in terms of quality and quantity/availability promoted

Output 3.1.1. Incentive for private sector to leverage investment identified

Output 3.1.2 On-the-ground investments for reduced hazards

Output 3.1.3 Codes of good practice implemented at main pollution sources

Component 4:

M&E and Knowledge Management

It is under this component that there has been the most changes in order to ensure smooth project and knowledge management, which are at the crux of this multi-national project. As such, outputs were made more explicit and broken down (under outcome 4.2). Also, a provision for a data and information portal to be designed and implemented (Output 4.2.3) was added in order to complement the actions under component 1, as well as advance the knowledge sharing mandate of ABAKIR.

Previous outcome/output wording

Outcome 4.1 Assessments conducted to supplement TDA and SAP and better guide decision-making

Output 4.1.1 Capacity building for effective environmental monitoring

Output 4.1.2 Best practice guidelines and guiding principles for environmental monitoring are disseminated

Outcome 4.2 Effective M&E, learning and exchange at all levels underpin implementation

Output 4.2.1 Participatory M&E system is established

Output 4.2.2 Knowledge Management strategy prepared and implemented

New outcome/output wording:

Outcome 4.1 Assessments conducted to supplement TDA and SAP and better guide decision-making

Output 4.1.1 Capacity building for effective environmental monitoring

Output 4.1.2 Best practice guidelines and guiding principles for environmental monitoring are disseminated and entrenched in local tertiary education institutions

Outcome 4.2 Effective project coordination and M&E, learning and exchange at all levels underpin implementation

Output 4.2.1 Participatory M&E system is established PMU established and project plan developed and implemented, including M&E

Output 4.2.2 Knowledge Management strategy prepared and implemented.

Output 4.2.3 Data and Information portal designed and delivered

Co-financing amounts	<p>Co-financing amounts from PIF</p> <p>AfDB (African Development Fund) - \$10,650,000</p> <p>AfDB (Africa Water Facility) - \$5,000,000</p> <p>GIZ - \$2,000,000</p> <p>GoRwanda ? \$1,000,000</p> <p>GoDRC - \$1,000,000</p> <p>GoBurundi - \$1,000,000</p> <p>Rwanda Energy Group - \$2,300,000</p> <p>Nordic Development Fund - \$3,200,000</p> <p>Co-financing at PPG stage</p> <p>Co-financing is only coming from the AfDB and CEEAC sponsored PACECOB II Project</p>
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Theory of Change

THEORY OF CHANGE

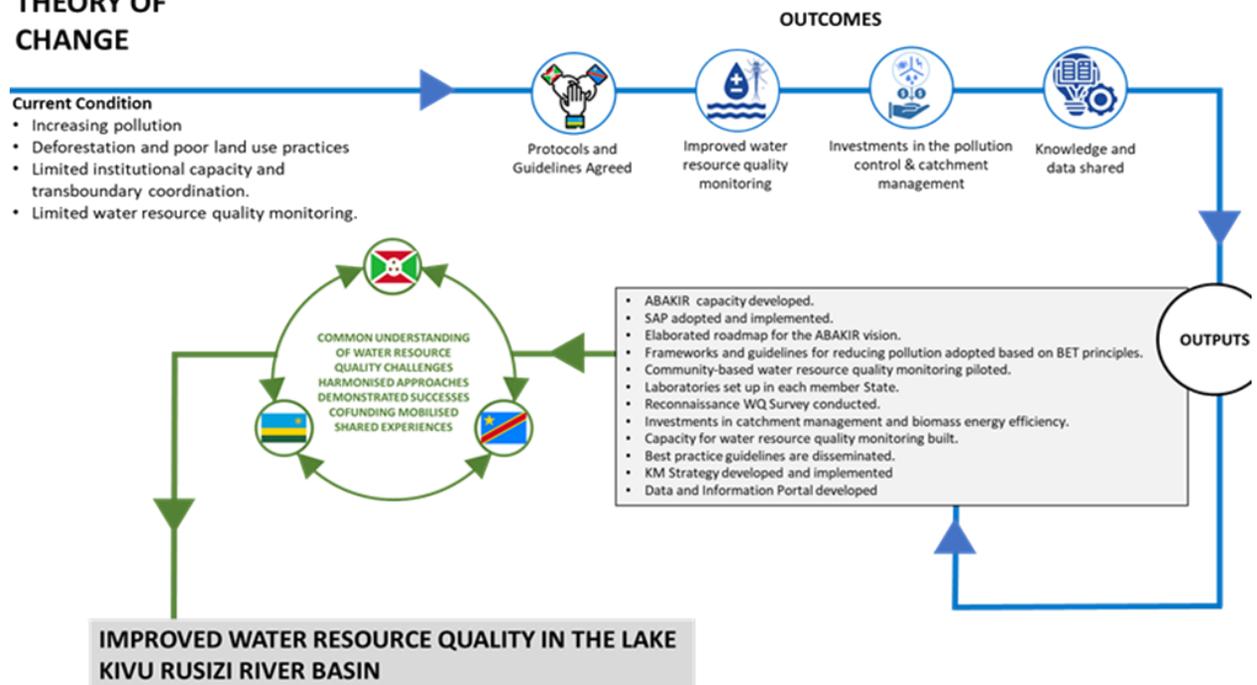


Figure 2: Theory of Change

Component 1: Enhancing national and regional cooperation

Outcome 1.1 Strengthened collective management of Lake Kivu and the Rusizi River Basin through institutional, policy, and legal reforms

This Outcome will be identify a roadmap for ABAKIR towards assuming its powers and functions conferred by the member States in its founding Treaty. The Treaty was assented to by all the Parties in November 2014 but has yet to be ratified. While some of the prospective member States indicated that they expect ratification very soon, nothing has changed in the last 7 years to think that ratification is imminent. This component will therefore aim at engaging the member States to outline a vision for the organisation itself, thus building confidence that ABAKIR will add value.

This process will be based on the continuum of transboundary cooperation outlined in Output 1.1.1 and will set the organisation on the path towards gradually realising its mandate. This will be done through agreement on the institutional, policy, and procedures which underpin its vision. This roadmap may outline a process lasting 10 years or more.

Recognising that ABAKIR does not yet exist, and that there appears to be some hesitancy to ratify, the key to achieving this outcome is to outline an initial role for ABAKIR better suited to the needs of the member States. This means that while a nascent ABAKIR may play a role in the coordination of the Activities, their execution will be undertaken by Ministries, inter-Ministerial committees, or inter-member State committees. Involvement of "ABAKIR? as it exists now as an interlocuter and champion of these processes will help build its capacity and establish its role in support of the member States. This has been reflected in the proposed institutional set-up.

Agreeing an institutional roadmap will then outline the changing functions of the organisation before and after ratification. As form follows function this will also outline the internal institutional arrangements and budgets required as ABAKIR gradually takes on its defined roles.

Output 1.1.1 ABAKIR Institutional Capacity Development

Activity 1.1.1.1 Development and agreement of a vision and roadmap for establishing the TbrBO.

The Treaty to establish ABAKIR and confer its powers and functions has not yet been ratified by the member States. In addition, the Authority is in a funding vacuum since the support from the EU dried up. It has been more than 7 years since the Treaty was assented to by the Ministers of Water from the

three basin States, and while some protagonists have expressed hope that ratification can be completed in March 2022, others are more pessimistic. Furthermore, it is important to consider how ABAKIR will function alongside the Lake Tanganyika Authority, and whether the Treaty should be adjusted to be more in line an advisory commission.

As a result, currently ABAKIR does not have legal standing, or the mandate and capacity to function as outlined in its founding Treaty or to take on the management of the Project without additional support. There is, nonetheless, still a desire to establish some form TbrBO. It is therefore important for the member States also agree on a roadmap for establishing an organisation and institutional arrangements with powers and functions that the member States are all comfortable with. This may lie anywhere along a continuum of cooperation from only sharing data, to a body with management and enforcement powers as is suggested by the current Treaty.

The GIZ / EU funded IWRM support project has established a vision as follows:

?Lake Kivu and Rusizi River is sustainably managed between the riparian States granting equitable use of resources for the benefit of the population and health of the environment.?

This does not specify a role for ABAKIR or provide guidance as to the functions that need to be established to work towards vision. ABAKIR's (or other TbrBO's) role will evolve as the organisation establishes its value to the member States, and as they gain confidence in the contribution it can make to achieving their national objectives.

Recognising that form must follow function, it is necessary to provide much more granularity on what benefits a TbrBO would hold along each step in this process, and what that means for the member States. This Activity will aim therefore to establish a vision and roadmap for the roll *a TbrBO would play*. This will describe how it will gradually take on powers and functions and if needed will revise the current Treaty in line with what the member States want from the organisation. The product of this Activity will be an *Institutional and Funding Roadmap* (Component 1 indicator) to fully establish the TbrBO. If necessary, an amended Treaty can be tabled for ratification.

This will establish the basis for agreement on the Rules of Procedure to enable the functioning of the organisation as envisaged by Activity 1.1.1.2. It is envisaged that a transboundary water resources specialist will be required to deliver this activity (2 months), as well as a two-day workshop which will cover staff from ABAKIR and member states (4 per country).

Activity 1.1.1.2 Institutional arrangements that support the [immediate and future] operations of ABAKIR are agreed, adopted and established.

As a corollary to Activity 1.1.1.1, the institutional arrangements for the TbrBO have to be agreed and formalised as Rules of Procedure. This will outline the structures of the organisation, how it will be

funded on an ongoing basis, the rules that will govern meetings, the initial administrative functions, and how staff will be appointed to a potential Secretariat.

The institutional vision and roadmap should also outline the procedures for appointing senior staff to ABAKIR. The process to appoint senior staff must ensure:

- a. equal opportunities for individuals with the right experience and skills from each member State,
- b. gender equity in identifying suitable candidates to apply,
- c. fluency in one of more of the languages of the Basin,
- d. nominations or applications from all the member States, and
- e. identification of the preferred candidate the member States.

It is understood that ABAKIR will, at least for the foreseeable future, be gradually evolving into its envisaged role as outlined in Activity 1.1.1.1. The institutional, staffing and funding arrangements may therefore also evolve over time. The Report on this activity will therefore accommodate these changing needs.

This activity will require the input of a transboundary RBO institutional specialist (1 month), as well as a 2 day workshop (up to 20 participants)[1].

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Activity_1.1.1.3 Regional and national [data and] information sharing protocol agreed.

Sharing data and information on matters of common interest is the first step in transboundary water resources cooperation. This works best when it is formalised in a data and information sharing protocol. This activity will deliver a Protocol for the TbrBO. The Protocol must:

- a. Commit the member States to making every effort to collate data and information on matters of common interest, and to share these according to agreed principles.
- b. Outline the ownership and access to the data via a data and information portal.
- c. Outline the structure of a data and information portal in terms of hardware and software requirements.
- d. Present measures to ensure data security.
- e. Outline the roles and responsibilities of the member States and ABAKIR.
- f. Indicate who will carry the costs of sampling, analysis and uploading of the data.

- g. Outline the sampling sites, the frequency of sampling, the variables to be analysed, the analysis methodologies, and measures for interlaboratory calibration.
- h. Any other issues requested by the member States.

The draft Data Sharing Protocol must be developed in consultation with the member States and must be finalised in a joint workshop[2], for ratification by the member States. A transboundary water resources/international water law specialist will help facilitate this activity (1 month).

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Output 1.1.2 Adoption and implementation of the Strategic Action Plan

The IWRM support project developed a Strategic Action Plan (SAP) and Vision for the basin. This Output aims at finalising the adoption (if needed) and implementation of the SAP. The realisation of the Output will be measured by commitments from the key Ministries in each member States, and the minutes / resolutions adopted by new or existing committees. The following Activities will deliver this Output.

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Activity 1.1.2.1 National Inter-ministerial committees established in all the riparian states, aligned with the SAP recommendations.

The execution of the GEF Project will require commitments from several Ministries in each member State, particularly if there is a period before the Treaty is ratified or amended and ratified. The aim of this Activity is therefore to:

Firstly, identify those Ministries that should be appraised of developments, or who need to be involved with the implementation of the GEF Project ; this work has been started in the Stakeholder Engagement Plan (see annex 6),

Secondly, to identify any existing Inter-Ministerial committees that could perform this function.

The success of this Activity will be measured by resolutions taken by existing inter-Ministerial Committees, or the minutes of the inaugural meetings of new committees. This activity will be coordinated through a transboundary water/institutional specialist.

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Activity 1.1.2.2 Ministerial agreed action programs are drafted and endorsed by all riparian States, as per the SAP recommendations, and Output 1.1.1.

Implementation of the SAP will require commitments and actions across several Ministries and cooperation between the Ministries in different member States. The aim of this Activity is consequently to firstly agree which action plans need to be implemented as part of the SAP process, and secondly to

outline the content of these plans for endorsement by the Committees identified in Activity 1.1.2.1. These plans should include details of the tasks that the committees will oversee, as well as how the implementation of these activities will be tracked and reported as part of the Knowledge Management Strategy and M&E process (Outcome 4.2).

Activity 1.1.2.3 [National] resource management plans [based on the SAP recommendations], are discussed, agreed and adopted by all three riparian State governments.

The EU/GIZ supported IWRM project has outlined actions required by all three basin States aimed at working towards the Basin Vision. Pending the member States' agreement on the roadmap for transboundary cooperation (Output 1.1.1), and hence the initial steps to be taken, this Activity will outline actions required to implement the SAP. These will be aligned sovereign actions or National Action Plans which are harmonised towards basin-wide resource management plans. This work is intended to be supported by transboundary water/institutional specialists (up to one per country).

These plans must be discussed on a national and basin-wide basis, and then adopted by the riparian States through the ratification by the GEF focal point. The successful accomplishment of this Activity will be measured through the adoption of the 3 harmonised National Action Plans.

Component 2 - Improving Water Resource Quality Management

The aim of this component is to characterise the causal chain for the priority pollutants and then to identify management interventions to minimise the impacts on aquatic ecosystems and the end users of the water. It is aligned with Activity 1.1.2.3, but whereas that Activity will identify the strategies and principles for managing water resource quality[3], this component will aim to identify the BET measures to reduce the loading of key pollutants to Lake Kivu and the Rusizi River, and to recommend management interventions.

This will be built around a comprehensive water quality monitoring programme based on Reconnaissance, Surveillance and Compliance monitoring programmes.

Outcome 2.1 Water [Resource] Quality Improved and further pollution minimised

The aim of this Outcome is to identify, in consultation with ABAKIR and the member States, the priority pollutants to be addressed by the GEF Project, then to establish community-based water quality monitoring and management interventions in pilot sites in each member State. This will be supplemented by water resource quality monitoring and analysis programmes supported by the member States. In addition, BET technologies suited to the capacities of the member States will be outlined.

Output 2.1.1 Adoption of a framework for reducing point and non-point source pollution

This output aims to build awareness of the causes and impacts of the priority pollutants with the affected communities and relevant state actors. Its success will be monitored through the implementation of community awareness programmes and codes for good management practices for the priority pollutants. The following Activities will be undertaken:

Activity 2.1.1.1 Stakeholder capacity development and participation in the formulation of water resource quality management plans.

Sediment wash-off from degraded lands, deforestation and erosion, heavy metals pollution from artisanal mining, and urban solid waste and nutrient pollution have been identified as some of the priority water resource quality problems in the basin. These problems are all underpinned by socio-economic challenges related to poverty and a poor understanding of the wider impacts of these problems. This activity will aim at addressing these challenges by identifying BET practices for community involvement in resource-quality management plans. This will include training the communities to implement these and monitor the impacts or these on aquatic ecosystems.

This will be done through community outreach and capacity development activities which will build an understanding of the cause ? effect relationships behind the main sources of pollution; a catchment management planning specialist and/or aquatic ecosystem health specialist will be recruited to help with this process, as well as support from local technical partners, including NGOs, CSOs and/or government technical officers. This will then be used to formulate local community-based water resource quality management plans for the key pollutants. This will be evidenced by the communities' adoption of the BET technologies, and commitments to action, as well as the plans being endorsed by the relevant State actors. These plans will be piloted under Output 2.1.2.

These BET practices will be endorsed by the member States, and once ABAKIR has been established by the TbrBO.

Activity 2.1.1.2 A draft code of BET agricultural practices in the basin is prepared and agreed by member States.

Pollution from degraded land has been identified as one of the main problems facing the basin. The Baseline study (2020) has identified hotspots in the basin in this regard, as well as tested the impacts of management interventions through modelling studies. The aim of this Activity is to formulate these management practices into interventions that can be implemented at a community level. Whereas the development of BET in the previous Activity will be aimed at addressing direct impacts on Aquatic Ecosystem Health, this Activity will aim at developing and testing measures to reduce sediment wash off from agricultural lands.

This will be captured in a draft code of good agricultural practices which are practical and implementable at a community level. These practices have been well documented in various countries in Africa, and these can be adapted to the characteristics of the Lake Kivu and Rusizi catchments and local cultural practices and indigenous knowledge. Many of these also have immediate benefits for the community in terms of increased food security and yields.

Women are usually responsible for food security from planting to cultivation, to harvesting and finally food preparation. The gender equity aspects of the code of good practice must consequently be highlighted to ensure that the women's influence associated with this food security is enhanced rather than minimised. To undertake this activity, a gender specialist will be employed alongside an agricultural best practices expert.

These BET practices will be endorsed by the member States, and once ABAKIR has been established by the TbrBO.

Activity 2.1.1.3 A draft code of BET practices for managing pollution from artisanal mining in basin is prepared and agreed by member States.

Pollution from artisanal mining has also been identified as critical to human and ecosystem health with a risk of bioaccumulation of some pollutants like mercury. The extent of this problem will be identified by the reconnaissance monitoring under Output 2.1.4. Pending the findings of this reconnaissance, the level of effort to be applied to this Activity can be adjusted. However, it is expected at a minimum, that codes of good practice can be identified by observing the processes used to mine the ore / sediments, to dispose of wastewater and to extract the metals, that good practices can easily be identified. To do this, it is expected that a mining water quality management expert be hired; a workshop as well as site visits will be organised to present the findings to ABAKIR staff and policy makers from each country.

These BET practices will be endorsed by the member States, and once ABAKIR has been established by the TbrBO.

Output 2.1.2 Community-based water resource quality monitoring pilot program implemented in 3 sites (one each in Burundi, DRC, Rwanda)

The aim of this output is to identify suitable sites to pilot the community-based water resource quality monitoring framework, and to implement the BET technologies developed. At least one site will be chosen from each of the three member states (see Activity 2.1.2.2). These sites should as far as is practical build on other initiatives around catchment management, land restoration or practices to reduce the loss of sediment. This must aim at maximising the cumulative benefits for all the activities in the community, while minimising the overlaps. The communities for biomonitoring should also lie close to the outflow of sub-catchments where the BET practices are being piloted.

Activity 2.1.2.1 Community-based land use and water [resource] quality monitoring plans are developed.

Using citizen science and crowd sourcing of data is becoming an increasingly useful way of gathering data from remote locations, particularly as smartphone penetration increases. Similarly, using community-based biomonitoring and monitoring of other water quality parameters like Electrical Conductivity, turbidity and pH has also been shown to be an effective way of involving communities in water resource quality management in southern Africa.

The intention of this Activity is therefore to design community-based water resource quality monitoring plans for the basin using simplified biomonitoring and water quality monitoring protocols (Biomonitoring/AEH specialist and catchment management planning expert) and provide the recommended material to undertake it (e.g. miniSASS equipment and smartphones). This will include developing measures for the communities to upload their data to the ABAKIR Data and Information Portal developed under Output 4.2.1 and as described in the Protocol developed under Activity 1.1.1.3. The communities to be targeted will be identified in Activity 2.1.2.2.

Activity 2.1.2.2 Catchment and sub-catchments management plans are developed and implemented.

This Activity will aim at implementing the BET practices developed under Output 2.1.1 in the selected sub-catchments.

The selection of the sub-catchments will be based on the hotspots identified in the Baseline Study and will be areas prone to land degradation, deforestation and expanding smallholder farming. This selection will be done by the PMU, with input from ABAKIR, the steering committee and co-financing project staff. The selection of these catchments as well as the pilot communities will be based on a number of criteria, some of which have already been identified (see section 4.2).

The results of this Activity will be a catchment management plan for 3 pilot sub-catchments, one in each member State. Rwanda has already developed catchment management plans in parts of the Lake Kivu catchment, and the selection of the most suitable pilot sub-catchments will also be influenced by these experiences.

Gold panning and extraction activities in Burundi are expanding rapidly and the competent authorities for water resource quality management may want to focus the development of catchment or sub-catchment plans on these activities.

This activity will necessitate the involvement of a catchment management specialist, a gender specialist and a community engagement specialist (preferably, country specific). Catchment surveys will be undertaken through a consultative process in order to properly assess the specific needs and opportunities in each location. Training of the communities should include at least one repeat visit after the initial training in order to help field any issues that have arisen. Technical support is envisaged from local CSOs, technical officers and local authorities.

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Output 2.1.3 Laborator[ies] for water quality monitoring set up

This Output has been expanded to set up a laboratory in each member State, building on the efforts of other studies and support. In particular, the LATAWAMA I project will be upgrading at least 4 laboratories, one each in Burundi, the DRC, Tanzania, and Zambia. The GEF support will be aimed at upgrading the LKMP laboratory on the shores of Lake Kivu in Rwanda, and potentially a laboratory in Goma, DRC.

? *In Rwanda*, the Lake Kivu Monitoring Programme (LKMP) was established in 2008 to monitor the impacts of the extraction of methane. The laboratory has now been absorbed by REMA but requires additional resources to expand its monitoring activities to include sites in the Lake Kivu catchment. The laboratory also intends to start monitoring the risks of Limnic eruption, and requires additional equipment to do this.

? *In Burundi*, the LATAWAMA programme of support has established a laboratory to monitor Lake Tanganyika and its catchment. The intention is to expand the capacity of this laboratory to accommodate the needs of the GEF Programme along the Rusizi River.

? *In the DRC*, no specific water monitoring program has been implemented to establish or upgrade a laboratory to monitor water bodies in the region of Lake Kivu and Rusizi River. Hence, the GEF support will be aimed at upgrading existing laboratories, depending on universities or public sanitary service. Three adequate laboratories in the DRC were identified during the project formulation? investigations: the UERHA (?Unit? d'Enseignement et de Recherche en Hydrobiologie Appliqu?e?) at the University of Bukavu, the Provincial Public Health Laboratory (AMI-LABO) and the Volcanic Observatory of Goma (OVG) laboratories in Goma.

This Output will be measured by the establishment / upgrade of the laboratories, the provision of the needed equipment, the provision of data under Output 4.2.1, and their participation in the inter-laboratory calibration assessments as part of the Reconnaissance Monitoring contemplated under Output 2.1.4. The emphasis for this Output will be on the financial and human resource sustainability of the laboratory systems established. Hence the cost of the analyses to be undertaken on an ongoing basis will be important. Each selected laboratory will have to sign an MoU committing them to the monitoring required for the GEF project. The following Activities will be undertaken.

Activity 2.1.3.1 Existing laboratories [in each member State] will be [identified] rehabilitated, re-equipped and revitalised.

This activity aims at identifying the most suitable laboratories to continue with the routine analysis of key water quality parameters. These will include those laboratories being upgraded under the LATAWAMA project. The equipment needs of all the laboratories identified during the project formulation have been investigated. The outcomes of these analyses are as follows:

? In Rwanda, the LKMP laboratory should likely be able to perform water quality analyses as they already monitor a number of variables as part of the Rwandan government efforts to monitor Lake Kivu waters. Currently, the LKMP is monitoring several sites, including meteo stations, seismic stations and sites near gas extraction plant. Sampling of water is happening at those last sites. Water quality monitoring is based on the analysis of the following variables: temperature, conductivity, dissolved oxygen, chlorophyll a, pH, and turbidity, once a month or once a quarter. Phosphates, nitrogen, and silica are monitored once a month on one site. The purchase of equipment and consumables should help to reinforce their capacity to take on more water resource monitoring functions. The detailed list of variables that this laboratory can monitor and of missing equipment is not known.

? In Burundi, the LATAWAMA laboratory is already appropriately equipped regarding the parameters that are considered for the Lake Kivu and Rusizi River Basin water monitoring. Indeed, except for Sodium, Potassium and Kjeldahl Nitrogen, the LATAWAMA laboratory should likely be able to analyse all variables for Lake Kivu and Rusizi River Basin water monitoring. Within the LATAWAMA I Project, organic matter parameters, inorganic parameters and nutrients are monitored in a monthly frequency, and microbiological parameters are analysed with a quarterly frequency. Sodium and Potassium should likely be analysed in the laboratory with the right reagents. The analysis of Kjeldahl Nitrogen requires a specific device. The availability of consumables may need to be reinforced.

? In the DRC, contrary to Rwanda and Burundi, no laboratory is specifically in charge of the monitoring of water bodies in the region. However, investigations were made to identify laboratories that already have partial appropriate means (equipment and staff) to monitor water quality:

- o The UERHA is the teaching and research unit of applied hydraulics within the University of Bukavu. Specialised in the field of aquatic sciences, its research focuses on the functioning, ecology and resources of aquatic ecosystems (lakes and rivers). As part of its mission, the UERHA laboratory is already well equipped and could analyse the majority of variables considered for the Lake Kivu and Rusizi River Basin water monitoring. During the project preparation phase, it was determined that Total Organic Carbon (TOC), Chemical Oxygen Demand (COD) and Kjeldahl Nitrogen cannot be analysed. Equipment for the sampling and *in situ* measurement is available. For the analysis of physical, chemical and biological variables, most of the equipment is available, except one echosounder, turbidimeter lamps, BOD5 measure system and incubator, GF5 47 mm filters and HANNA probes. The reagents needed for all these analyses are available but need to be reinforced. This laboratory is able to do biomonitoring.

- o According to the Provincial Public Health Laboratory (AMI-LABO), equipment and staff are available to perform the monitoring of physical, chemical and biological variables. The testing methods should be verified prior to the GEF support. This laboratory is able to do biomonitoring.

- o The laboratory at the Volcanic Observatory of Goma is not adequately equipped to perform the monitoring of water quality. Indeed, the laboratory is equipped with a spectrophotometer but the reagents to perform the analyses are not available. The laboratory is not equipped to analyse biological

variables. However, the laboratory has qualified staff that could perform the monitoring with adequate equipment and sufficient reagents.

The table below summarizes the outcomes of laboratories enquiries undertaken during the project preparation phase (capacity and equipment needs):

[1] The workshops and member State visits under this Output can be combined to save costs.

[2] Same as above

[3] Water resource quality is taken to include elements of water quality fitness for use, aquatic habitats, and aquatic ecosystem health assessed through biomonitoring programmes at State and community levels.

Table 3: Results of preliminary investigations on current equipment available in laboratories.

Member State Laboratory	Rwanda	Burundi	DRC		
	LKMP	LATAWAM A I	UERHA	OVG	AMI- LABO
Physical and chemical variables that can be analysed					
? Water temperature	Detailed list is not known	X	X	Detailed list is not known Based on the enquiry, equipment is available but reagents are missing	X
? pH		X	X		X
? Conductivity		X	X		X
? Total Alkalinity		X	X		X
? Turbidity		X	X		X
? TOC		X			X
? BOD5 at 20°C		X	X		X
? COD		X			X
? Dissolved Oxygen		X	X		X

Member State Laboratory	Rwanda	Burundi	DRC		
	LKMP	LATAWAM A I	UERHA	OVG	AMI- LABO
? Total Suspended Solids (TSS)		X	X		X
? Total Dissolved Solids (TDS)		X	X		X
? Nitrates (NO ₃ -)		X	X		X
? Nitrites (NO ₂)		X	X		X
? Ammonium (NH ₄)		X	X		X
? Total Nitrogen		X	X		X
? Kjeldahl Nitrogen					X
? Phosphates (PO ₄)		X	X		X
? Total Phosphorus (TP)		X	X		X
? Calcium (Ca ²⁺)		X	X		X
? Magnesium (Mg ²⁺)		X	X		X
? Sodium (Na ⁺)			X		X
? Potassium (K)			X		X
? Chloride (Cl ⁻)		X	X		X
? Sulphates (SO ₄)		X	X		X
Biological variables that can be analysed					
Total coliforms	Detailed list is not known	X	X		X
Faecal coliforms		X	X		X
<i>Escherichia coli</i>		X	X		X
Able to perform biomonitoring	No		Yes		Yes

Member State Laboratory	Rwanda	Burundi	DRC		
	LKMP	LATAWAM A I	UERHA	OVG	AMI- LABO
Missing equipment	Not known		? Echosounder ? Turbidimeter?s lamps ? Mineralizing filter ? GF5 47 mm filter ? HANNA probe ? Reagents		? Incuba for biologi culture:

This Activity will include:

- ? Technical Assistance to support Human Resource Capacity Development in laboratory analysis.
- ? Provision of key research laboratory equipment and consumables (for the duration of the GEF support).
- ? The development of laboratory QC and QA procedures.
- ? Provision of logistic equipment including field vehicles and research boats if needed.
- ? The establishment of a water quality monitoring fund to support the ongoing operational cost of the laboratories.

The laboratories benefitting from this Activity must sign an MoU committing them to ongoing cooperation and participation in regular inter-laboratory calibration processes, and to the upload of the data to ABAKIR?s Data and Information Portal.

A laboratory water analysis/sampling expert will be hired to lead this activity, which will also include the purchase of the identified laboratory equipment, training of staff (up to 5 in each lab) for analysis and/or monitoring. This activity will also support the cost of the trained staff participating in the baseline reconnaissance monitoring (see output 2.1.4), as it will provide an opportunity for the trained staff to practice their newly developed skills and build their confidence and ownership of the methods.

Output 2.1.4 Reconnaissance Monitoring Survey

The intention of this Output is to design and execute a reconnaissance survey that includes variables that may be expensive to sample and analyze like the presence of bioaccumulating metals (e.g., mercury) and POPS in sediments, fish tissue and bird eggs, as well as to include a basin-wide assessment of aquatic ecosystem health. The reconnaissance monitoring will provide the opportunity

for capacity building of staff in the member States, as well as to train the communities in simple biomonitoring techniques. This Output would also provide the opportunity for communication activities with communities and other stakeholders in each member State. It will be a once off event, with the ambition for a 5-yearly repeat exercise.

The Output will be measured through technical reports as well as layman's communication materials on the overall state of the basin and will include the following Activities.

Activity 2.1.4.1 Design and implement a Joint Water Resource Quality reconnaissance survey covering all 3 member States.

The aim of this activity is to provide a more comprehensive baseline assessment of potential water resource quality problems across the basin. As such it will build on the recommendations for additional monitoring made in the Baseline Study (2020). This will include monitoring of all the major Cations and Anions, nutrient fractions (TP, PO₄, KN, NO₃ and NH₃), as well as habitat and macro-invertebrate health assessments. The selection of the sampling sites will be based on establishing reference sites with little or no human impacts, as well as sites that assess the impacts of human activities on water resource quality. This development will be done under the leadership of a transboundary water resource management specialist, a water quality monitoring specialist and an aquatic ecosystem health /biomonitoring specialist, and include field work throughout the basin at established baseline and monitoring sites.

This Activity will also include sending spiked known concentration samples as well as duplicate samples to the participating laboratories for inter-laboratory calibration. Reputable commercial laboratories that are subject to certification controls may also be used to establish a reference result.

Activity 2.1.4.2 Design and implement monitoring programme aimed at bioaccumulating POPs and metals (mercury) in sediment, fish and bird eggs (raptors).

This Activity will be undertaken in conjunction with Activity 2.1.4.1 and will aim to identify whether there are any bioaccumulating POPs or metals that pose a risk to human health and / or aquatic ecosystems. The selection of the POPs and metals to analyze and sites to sample will be based on an assessment of the activities in the basin (e.g., the extraction of gold using mercury, or pesticide applications). It is expected that the analyses will have to be undertaken by laboratories in the EU due to the specialized equipment and techniques required. Like with activity 2.1.4.1, the development will be done under the leadership of a POPs specialist, a heavy metals specialists and sampling assistants[1], and involve a sampling campaign throughout the basin.

The report will assess the risks posed by these substances, and will make recommendations for further monitoring programmes, or the substances to include if a further reconnaissance monitoring is undertaken in 5-years.

Activity 2.1.4.3 Design and implement a communications programme to engage local communities and local authorities in the monitoring programme.

The aim of this Activity is to make use of the presence of specialist scientists and water resource quality managers, as well as staff from the competent authorities for water in each member State, to carry key messages across to the people of the basin. This may include using educational institutions or other NGOs / CBOs to magnify the message to a larger target audience. A communications specialist will be hired to help develop the campaign.

Communication sessions, one in each country, will be aligned with the biomonitoring for the reconnaissance monitoring and will be preferably be done at the monitoring site.

Component 3 - Providing catalytic investments in the water-food-energy nexus

The intention of this component is to encourage and incentivize the adoption the BET practices prepared under Output 2.1.1. This will lead to on the ground investments to reduce pollution from point and non-point sources and will be assessed against the implementation of these practices at selected point and non-point sources of pollution. The intention is that these pilot sites will be replicated across the basin through incentivizing the uptake of the BET practices.

Outcome 3.1 Investment and incentive measures that address water security both in terms of quality and quantity promoted

The aim of this Outcome is to encourage the adoption of, and investment in, the BET practices identified under Output 2.2.1. The key pollution sources identified include:

- ? Pollution from coffee washing stations.
- ? Solid waste pollution from urban centres (for example Goma and Bukavu).
- ? Heavy metals from artisanal mining.
- ? Sediment and nutrient loading from land cleared for farming.
- ? Deforestation for biomass fuel.

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Output 3.1.1 Incentives for the private sector to leverage investment identified

This Output will identify measures to incentivise the uptake of the BET practices identified. This may include, *inter alia*, the publication and/or policing of regulations, cost savings, improved access to reliable energy sources, reduced health risks to workers, benefit sharing or PES mechanisms, Corporate Social Responsibility, and reduced labour inputs. The following activities are proposed.

Activity 3.1.1.1 Assessment and recommendations for the implementation of BET practices for coffee washing stations.

There are some 150 coffee washing stations in the Rwandan portion of the Lake Kivu Basin and plans to expand the production of Coffee in the DRC portion of the Basin. Coffee washing to remove the husks from the beans produces an effluent with a high organic content and BOD. This can impact on aquatic ecosystem health for some distance downstream of the washing station. REMA identified this a major concern.

This action, led by a waste treatment specialist and a biomonitoring specialist, will identify a minimum of 3 coffee washing stations to pilot the BET practices developed. These will be selected to ensure:

- ? A range of different sizes of washing station.
- ? The impact on sensitive aquatic ecosystems.
- ? Their willingness to participate in the study and sign an MoU in this regard.
- ? Their willingness to cover the costs of the BET measures, and to monitor the impacts.
- ? Differences in processing (if any).

These stations will be followed over time, allowing to be monitor the implementation of the BET measures, problem-solve issues arising with them (through regular visits with the consultants as well as exchange visits between sites), and assess the impact on downstream river ecosystems. The data produced by this activity will be used to refine the BET measures.

Activity 3.1.1.2 Implementing the BET practices for solid waste management.]

Solid waste pollution of Lake Kivu creates problems for the methane extraction works by blocking the pipes, and at the Rusizi I hydropower plant by clogging the trash racks and increasing the maintenance costs. This activity is consequently aimed at implementing the BET practices for solid waste management in Goma and Bukavu. These may include recycling initiatives or support to the local authorities to establish community-based collection of recycling initiatives for defined communities in the cities, with a view to gradually expanding to cover the whole city. Options will be presented and assessed by the consultants (water quality management specialist, wastewater treatment engineer), prior to equipment and facilities being procured to undertake the most suitable action.

Activity 3.1.1.3 Promotion of the use of energy efficient stoves in the Rusizi Basin in Burundi.

Charcoal production biomass energy has been shown to use some 40% of the wood removed due to deforestation (ENABEL, pers. comm, 2022). While plans underway to expand the production of electricity would suggest a potential energy surplus in the region, the price of electricity will remain a barrier to uptake in the rural areas. Energy efficient stoves have been introduced in Rwanda. These use 80% less wood for cooking, and rural women are used to cooking with fire.

The intention of this activity is therefore to promote the use of these stoves working in parallel with the LATAWAMA I efforts towards catchment rehabilitation in the Rusizi Basin in Burundi. This will require working with the targeted communities (minimum 30), and especially the women promote the use of the stoves (100 people to be targeted, 70% of which female-headed households). Should it not be viable to work with LATAWAMA I, alternative projects could be identified. Careful monitoring of the uptake of the stoves, and the reduction of the use of biomass energy will be necessary to provide the catalyst for further uptake. Alongside awareness raising sessions in the communities on alternative cooking technologies and biomass use, it will require both purchasing of stoves, after a needs and technical based assessment, as well as regular engagement with the target communities, to provide training, trouble-shooting and monitoring of their uptake. This activity will require an agro-forestry consultant and gender specialist,

Output 3.1.2 On-the-ground investments for reduced hazards

This output aims at reducing the impacts of disasters due to limnic eruption, floods and landslides, as well as mercury pollution and accumulation in the food chain. This Output will be supported by the following Activities.

Activity 3.1.2.1 District level disaster risk mitigation and management plans are developed.

The topography of the Lake Kivu and Rusizi River Basin, together with the high rainfall, and land degradation, makes landslides and flash floods a risk to rural communities. The high-risk areas can be identified through areas of land degradation, slopes, population density, soil types and rainfall intensity. A tool to assess these risks has already been developed for Rwanda, which provides regular updates of the risks of landslides and floods for the whole of Rwanda. This tool could be expanded to include the parts of the Basin that fall in Burundi and the DRC. This can also be used to identify the hotspot areas for management interventions. These will be mostly associated with reforestation / vegetation of the steep slopes as part of the catchment and sub-catchment plans developed under Activity 2.1.2.1, and the implementation of these under Activity 2.1.2.1.

This activity will facilitate such developments, under the leadership of a Disaster Risk Reduction specialist, who will help design an early warning system to be set-up by ABAKIR. Awareness raising in the member states, as well as provision of hardware, is included.

Activity 3.1.2.2 A tool to assess the risk of limnic eruption is developed

The LKMP in REMA has developed a Terms of Reference for a project to provide near-real time monitoring of the risks of limnic eruption in Lake Kivu. While the risks of limnic eruption are considered by many to be negligible, this belief is not universally held. Given that:

$$\text{Risk} = \text{Probability} \times \text{Consequence}$$

and the enormous consequences of a limnic eruption, most stakeholders considered it prudent to include monitoring of the risks of an eruption. These risks will be a function of the level of saturation of CO₂ and methane in the bottom water, the density differences between the top and bottom waters, and the risk of volcanic activity and major floods.

Some of these data are already monitored, including seismic activity and depth profiles of salinity, DO and temperature; additional data may be available from the Observatoire Volcanologique de Goma (OVG). This Activity will therefore aim to provide the equipment needed by the LKMP to provide real-time monitoring of the key parameters underpinning the halo-thermal stability of the lake stratification. This includes thermal chains which will monitor key parameters at various depths and transmit these to the LKMP laboratory.

However, a complete near real-time monitoring warning system must include the software necessary to combine the data into an overall assessment of risk, as well as measures to disseminate this to the competent authorities in Burundi, the DRC and Rwanda. This activity will also support the LKMP laboratory in this regard. Once the Data and information portal envisaged under Output 4.3.2 has been established, the warning system can be duplicated in ABAKIR for sharing the risks with Burundi and the DRC.

Activity 3.1.2.3 Micro-projects on soil and water conservation, water source rehabilitation and improvements in communities? access to water are piloted.

This Activity will be implemented together with Activities 2.1.2.1 and 2.1.2.2, within the same target sub-catchments and communities, will aim at developing and implementing micro-projects within the sub-catchments where catchment management planning / implementation is ongoing. It will, however, aim at more granular planning and implementation at a village level and will focus on small scale enterprises based on limiting the impacts on the water resource. A catchment management specialist alongside a soil conservation practices expert will be hired for this activity. It is anticipated that technical officers and CSOs will provide technical support.

This could include tree lots which provide trees with medicinal or food value (fruit trees etc.) as well as the implementation of soil and water retention on agricultural lands. Other actions will include habitat restoration, protection of the riparian zone, providing safe places for livestock watering without causing erosion, the rehabilitation of drinking water wells, and sumps to safely drain away sullage water.

Output 3.1.3 Codes of good practice implemented at main pollution sources

Activity 3.1.3.3 Metals pollution from artisanal mining is reduced through adoption of the BET practices developed under Activity 2.1.1.3.

This Activity is aimed at implementing the BET practices developed under Activity 2.1.1.3 at selected mining sites in each of the prospective member States. The intention is to provide the materials needed, as well as training of the miners in the risks faced, and practices to implement.

Component 4. M&E and Knowledge Management

This component aims to establish a basin-wide M&E system to monitor the implementation, and efficacy of, the activities outlined above. This will include Data and Information Portal which will give effect to the Protocol developed under Activity 1.1.1.3. A KM system that improves information and data sharing for evidence-based decision making will also be formulated. At least 1% of the project resources will be dedicated to this process.

Outcome 4.1 Assessments conducted to supplement the Baseline Study and SAP, to guide decision making

This Outcome will be supported by the results of the reconnaissance monitoring under Output 2.1.4, and the detailed analyses of the pollution sources under Component 3, as well as the Baseline and SAP studies. This would provide further detail on the cause-effect relationships between pollution sources, degrading water resource quality, and the impacts on human health and livelihoods. Then it will include activities aimed at capacity building and sharing this knowledge.

Output 4.1.1 Capacity Building for effective environmental monitoring

Capacity building will be woven into each of the Outputs by ensuring the activities are undertaken together with, rather than for, officials from the member States. However, it is also important to provide formal training in the processes that underpin sustainable environmental monitoring programmes. The following Activities will be undertaken.

Activity 4.1.1.1 Documentation of regional experiences in water [resource] quality monitoring.

This activity aims to document the monitoring undertaken by the member States, as well as the preservation of those data and information in national databases. It will be led by a catchment management specialist and/or water quality management expert. It will focus on challenges faced by the agencies undertaking the monitoring in terms of:

- ? Funding for monitoring and maintenance of databases.
- ? Lack of sampling equipment, vehicles and boats.
- ? Accessibility of appropriate sampling sites, and difficulties in getting the samples back to the laboratories.
- ? Lack of laboratories and laboratory equipment for analyses, as well as funds and availability of reagents.
- ? Limited skills in sampling, analysis and archiving the data.

The approaches to the reconnaissance monitoring in terms of the best practices for these aspects will also be documented as a counterpoint to the challenges outlined.

Activity 4.1.1.2 Selective lesson learning visits to similar regional initiatives such as in Lakes Victoria and Tanganyika.

The Lake Victoria Basin Commission, and the LATWAMA project provide the opportunity for mutual learning and exchange of information with regional bodies. This Activity will aim to set up and execute exchange visits to do just this (min. 2 visits envisaged).

In addition, the opportunity for hands-on learning provided by the reconnaissance monitoring will also be exploited. The reconnaissance monitoring will aim to use the best practices for taking, handling, transport, and the analysis of samples. Inclusion of the member State staff in the reconnaissance monitoring will build capacity in this regard. An exchange visit to southern African Commissions who have undertaken these reconnaissance monitoring programmes may also be considered.

These exchange visits will be captured in a compendium of successful water resource monitoring programmes, made up of reports on the monitoring programmes in these other basins, and drawing out the lessons for the Lake Kivu and Rusizi River Basin.

Output 4.1.2 Best practice guidelines for environmental monitoring are disseminated

The aim of this Output is to produce a compendium of guidelines to support water resource quality management in the Basin. The following Activities will deliver and disseminate the first tranche of these Guidelines.

Activity 4.1.2.1 Environmental Impact Assessment Guidelines prepared and disseminated

This Activity will deliver EIA Guidelines and principles for the ABAKIR member States which supplement and draw parallels with national legislation and guidelines in the member States. The intention is not to develop a common EIA law, but rather to harmonise the existing legislation into guidelines for assessing projects that may have a transboundary adverse impact. This includes identification of which projects need to be discussed at a transboundary level, which need only to be notified, and which would be purely a sovereign matter. The procedures for involving the affected States in the EIA will also be outlined.

Activity 4.1.2.2 Water Resource Quality Assessment Guidelines prepared and disseminated.

This Activity will develop guidelines for water resource quality assessments. The intention is to determine how the water quality fitness-for-use will be assessed and reported. This will include aquatic species diversity, habitat quality, e-flows and water quality parameters. The intention is to set a monitoring framework which the prospective member States will aspire to over the medium term.

The intention is both to set goals and roadmaps for the inclusion of the parameters to monitor, as well as targets for these parameters. These may, for example, be descriptive (no further degradation of water bodies in a natural or good water quality or ecosystem health status, with the improvement of water bodies in a poor or heavily degraded status). These Guidelines will be based on a range of water resource quality guidelines from around the world, which describe gradually increasing risks posed by development on the main water quality variables of concern.

Activity 4.1.2.3 Guidelines for determining environmental flow requirements.

Environmental flows describe the quantity, timing, and quality of flows in natural river systems required to sustain freshwater and estuarine ecosystems and the human activities dependent on these ecosystems. While the amount of active storage in the Lake Kivu and Rusizi River Basin precludes management of flows, the determination of environmental flow requirements can guide the allocation of water abstraction rights.

Guidelines for determining environmental flows in this context will be developed to assist the member States in their efforts to manage aquatic ecosystem health, and will be based on international experiences, adapted for local conditions.

Outcome 4.2 Effective M&E, Learning and Exchange at all levels underpin implementation

Ongoing M&E is required not only to oversee the implementation of the GEF Project, but also to assess the long-term impacts of the support. Learning and exchange of data will help ensure the sustainability of the actions. Sharing these lessons and data through ABAKIR, once it is established, will help entrench its and contribution as a transboundary organization. This Outcome will therefore see the implementation of the data and information sharing Protocol developed under Activity 1.1.1.2 as well as the delivery of a Data and Information Sharing Portal for ABAKIR.

The following Outputs and Activities will be delivered.

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Output 4.2.1 PMU established and project plan developed and implemented, including M&E

While a pared down PMU is envisaged, it is necessary to ensure that a well-organized and functional one be set-up from the start to ensure that the project is adequately managed from day one, including the M&E system. The PMU will lead the day-to-day management of the project, hand in hand with the AfDB and ABAKIR; the full institutional set-up in detailed in the relevant section.

Alongside the hiring and establishment of the PMU, this output focuses on most of the project planning and management activities, including the M&E plan. These include:

Activity 4.2.1.1. Establish the PMU and hold an inception workshop

Activity 4.2.1.2. Establish and implement mechanisms for management of environmental and social risks, and gender sensitive/responsive, project-level grievance mediation

Activity 4.2.1.3. Coordinate the project, including adaptive project planning and management, and quarterly and annual reporting alongside the AfDB

Activity 4.2.1.4. Design and implementation of a detailed project-level and participatory M&E Plan based on detailed project life theory of change, including monitoring implementation of Gender Action Plan, Stakeholder Engagement Plan and Social and Environmental Management Plan (if any)

Activity 4.2.1.5. Organize Mid-Term and Final Evaluation, including financial audits

These can be further detailed in a specific activity plan; the budget associated with this output include the M&E budget (see relevant section for details).

Output 4.2.2 Knowledge Management Strategy prepared and implemented

This Output will focus on information sharing and the development of a Knowledge Management Strategy which will share information across borders through ABAKIR, and between levels of government and with communities through the national competent authorities. The Output will also make contributions to IWLEARN through the <https://iwlearn.net/iw-projects> website.

The delivery of the Output will be evidenced through the contributions to the IWLEARN website, as well as the dissemination of these materials in English and French among the stakeholders.

The following Activities will be undertaken.

Activity 4.2.2.1 Design of Knowledge Management (KM) strategy for information sharing and dissemination.

This Activity will deliver a KM Strategy that will outline the measures that will be taken to share the lessons learnt internationally, regionally and nationally. This will include actions to reflect project progress on the IWLEARN website and developing materials to upload to the website. It will also detail the tasks to be taken under the following Activities, including identification of the global and regional conferences that could be used to showcase the project, regional workshops to showcase the results of the reconnaissance and other monitoring activities, and journals that could be targeted for publications. This strategy will be developed by a knowledge management expert, with active participation of member States and ABAKIR through a workshop and consultations.

Activity 4.2.2.2 Support for participation in IW-global and regional conferences/meetings

This activity will include identifying, on an ongoing basis, potential IWLEARN (<https://iwlearn.net/events/conferences>) or other transboundary conferences and events which can be used to showcase the project, and to share lessons learnt.

Activity 4.2.2.3 Support to basin wide regional workshops on the status of water quality in the Lake Kivu basin.

The intention of this action is to hold regular regional workshops (3 annual workshops) presenting key milestones in this project, as well as presenting information on the water resource quality status of the Lake Kivu and Rusizi River Basin. This could include workshops to present *inter alia*:

- ? The results of the reconnaissance monitoring programme.
- ? The Early Warning Systems including for landslides, flash floods and limnic eruption.
- ? The Data and Information Portal.

- ? The results of the various demonstration projects.
- ? The design and implementation the BET practices.

Activity 4.2.2.4 Support to the publication of water quality related journal papers and policy briefs on Lake Kivu.

Lake Kivu is a unique Lake and ecosystem. It is, consequently, expected that the project will yield valuable new research and methodologies that should be shared with the wider community and policy makers in each of the member States. This Activity will provide the opportunity to present scientific papers for publication in selected Journals, as well as policy briefs for decision makers in each of the member States.

This may include the production of a regular brief / newsletter on the status of the basin and potential disaster risks.

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Output 4.2.3 Data and Information Portal designed and delivered

Activity 1.1.1.3 will deliver a Data and Information Sharing Protocol. However, this will have little value unless an IT mechanism for sharing the data is also delivered. Rwanda has developed the Rwanda Water Portal, which includes water quality data for the whole country, including the Lake Kivu Basin (available at <https://waterportal.rwb.rw/>). The LATAWAMA project will be developing a *Water Quality ? ALT? database and a WebGIS?* (<https://latawama.org/en/lake-tanganyika-water-monitoring/>). No similar database has been identified for the DRC.

However, there is a need to establish a Data and Information Portal for ABAKIR. This Output will deliver a portal which draws the data from the monitoring programmes established for this project, as well as the Rwanda Water Portal, the LATAWAMA database (and any identified for the DRC), into a common platform that is accessible by all the member States.

The establishment of a Data and Information Portal inside ABAKIR will go a long way establishing its value to the member States and building its capacity, and as such is likely to generate momentum towards ratification.

The following Activities will be undertaken.

Activity 4.2.3.1 Identify databases in each of the member States that hold data of common interest.

As a corollary to Activity 1.1.1.3, this activity will identify those data held by each member State, or other projects that are of common interest and which should be shared. This will include water resource

quality data, data produced by the community-based monitoring programmes and the reconnaissance monitoring developed by the GEF Project, data on disaster risks (limnic eruption, landslides, volcanic activity). Spatial and other data produced by the Baseline study and the SAP process also need to be included in the Data and Information Portal. The data produced during the GEF project implementation, and the ongoing implementation of the monitoring programmes put in place by the project will also be included in the Portal.

The relevant authorities in each member State will be consulted to determine their IT hardware and software needs to enable them to share the data. This will include determining ABAKIR's IT needs with respect to hosting, archiving and displaying the data via internet. This may include cloud-based systems or servers provided to ABAKIR.

Activity 4.2.3.2 Design and deliver a data and information portal

This Activity will design and deliver the data and information portal including training and hardware. The portal will:

- ? Host spatial, GIS, and water resource quality data on the Lake Kivu Rusizi River Basin.
- ? Include mechanisms to pull data off other related databases in the member States, as well as for community-based monitoring programmes to upload their data.
- ? Be intuitive to access by users familiar with navigating the internet.
- ? Enable pushing warning messages onto mobile phones and emails for alerts that must be disseminated rapidly.
- ? Push information onto the IWLEARN website.

Project management support

Given ABAKIR's current limited human resource and financial capacity, it is recommended that embedded project management support is provided for the duration of the project. This will include a budget for a project manager and support staff, a vehicle (4x4, which would be left with ABAKIR after the project) and funds for travel to ensure that the PMU is active throughout the basin.

1) alignment with GEF focal area and/or impact program strategies;

The proposed project supports the GEF International Water Focal Area goal ? ?To support transboundary cooperation in shared marine and freshwater ecosystems? and falls primarily under objective III which seeks to, ?Enhance water security in freshwater ecosystems?.

Specifically, the project has been identified as falling under the following entry points:

- ? IW-3-5 Enhance water security in freshwater ecosystems through advance information exchange and early warning
- ? IW-3-6 Enhance water security in freshwater ecosystems through enhanced regional and national cooperation on shared freshwater surface and groundwater basins.
- ? IW-3-7 Enhance water security in freshwater ecosystems through investments in water, food, energy and environment security.

The proposed project is fully consistent with the long term goal of the IW focal area and enhances basin wide integrated water resources management (IWRM) as well as strengthens the water-food-energy Nexus initiatives in the basin. By satisfying these developmental objectives, the GEF project will help strengthen multi-state cooperation in the Lake Kivu basin. In addition, the project's focus on comprehensive water quality monitoring will offer the basin stakeholders a baseline upon which to anchor their strategic planning for all subsequent basin initiatives. This is because water quality data provides an integrated indicator covering all activities in the basin without being confined to any specific sector. The project will strengthen multi-stakeholder, multi-sector cooperation, monitoring, knowledge, capacity building, and enabling frameworks that will eventually bring sustainability. The project will be instrumental in catalysing national policy processes, regional harmonisation, stimulating essential infrastructure investments and safeguarding long term engagement strategies at the local, national and regional levels.

The project adopts an ecosystems approach and has complementarity with other GEF Focal Areas, specifically Chemicals and Waste, Climate Change, Land Degradation and Biodiversity. Through the water quality monitoring component, the project addresses the Biodiversity focal area goal to 'mainstream biodiversity across sectors as well as landscapes and seascapes' by aiming 'to build the capacity of countries to identify, measure, and value natural capital, including biodiversity, and to integrate the understanding of this value into decision making and policy instruments'.

Similarly, the project strongly links to the GEF CW elements and addresses two of the focal areas:

- ? Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination (CW-1-1),
- ? Strengthen the sound management of agricultural chemicals and their wastes, through better control, and reduction and/or elimination (CW-1-2).

Furthermore, it is hoped that the improved monitoring, and adoption of the results in decision making within the basin, will result in reduced pollution to the basin water bodies. Thus, the project addresses the Chemicals and Waste focal area Enabling Activities by assisting the riparian countries in designing Integrated National Planning for MEAs and SDGs particularly targeting the management and disposal of industrial and agriculture chemicals.

Finally, through demonstration pilots in the catchments the project provides the opportunity for an integrated approach to foster climate smart agriculture and sustainable land management while also increasing the prospects for food security for smallholders and communities that are dependent on farming for their livelihoods and therefore addresses the CC focal area The Food Systems, Land Use, and Restoration Impact Program. Equally, the objective of the Land Degradation focal of supporting on-the-ground implementation of SLM to achieve LDN will be realized through demonstrating arresting and reversing land degradation by involving smallholder farmers and local communities and facilitating a mutually beneficial engagement with the private sector.

[1] it is recommended to consider the partner laboratory staff if possible.

1) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Table 4:Project Incremental reasoning

Current scenario	Scenario with GEF financing
Component 1: Enhancing regional and national cooperation	
<p>ABAKIR is currently a transitional body, with poor capacity and visibility by stakeholders in the basin. There is no clear calendar or pathway to its ratification nor for how its mandate, which has been described, will be achieved. While support has existed over the years from external donors (most recently through the GIZ/EU funded IWRM support project), the situation is not</p>	<p>The current ABAKIR, along with key stakeholders from each member states, takes part in a rethink of the vision and roadmap to its establishment. The resulting report and product will be presented and approved by relevant parties in order to better transition ABAKIR into a fully functional and ratified authority over time.</p> <p>In addition, in order to support its current activities and increase its visibility and recognition among stakeholders, a clear data sharing protocol is developed and shared. This will further increase the local and national level trust in the purpose and utility of a TRBO.</p>
<p>Currently, thanks to the IWRM support project, a TDA/SAP process was underway, which will be providing a SAP for the basin. However, while the document is the result of a thorough and participatory process, there is currently has no clear pathway for the SAP implementation.</p>	<p>The SAP is formally adopted by each country and its inter-ministerial committees and integrated within their own national action plans and resource management strategies, creating a coordinated effort throughout the basin.</p>
2. Improving water resources quality management	

Current scenario	Scenario with GEF financing
<p>Water pollution is an important, if not underestimated issue in the basin. Efforts in the basin are unequal, with some countries, such as Rwanda being ahead in terms of catchment management planning (e.g. EWRM project), awareness of pollution generating activities, and monitoring.</p> <p>Simple, common guidelines championing Best Environmental Technologies in some of the main pollution generating activities are not available ? in particular agriculture, whose basin-wide unsustainable practice cause widespread erosion and sedimentation, and gold-mining, which results in mercury bioaccumulation and other heavy metal pollutions.</p>	<p>Communities throughout the basin will benefit from community outreach and capacity building activities regarding the cause-effect relationship between pollution generating activities, as well as how community level management can be achieved.</p> <p>Through consultations, a draft code of BET agricultural practices as wells a BET for artisanal mining is prepared and adopted by member states.</p> <p>Through these actions, there will be more homogenized knowledge and capacity in the basin regarding water quality and catchment management.</p>
<p>Through the LATAWAMA I project, a laboratory in Burundi has been refurbished and able to undertake regular campaigns of water quality monitoring and analyses in Lake Tanganyika, . However, while Lake Kivu and the Rusizi river are part of the wider Lake Tanganyika basin, there is little capacity and or coordination between countries in terms of monitoring of water quality.</p> <p>As such, it is currently impossible to understand the trends and origins of pollution in Lake Kivu and Rusizi River basin, let alone the wider basins such as Lake Tanganyika or the Congo River.</p>	<p>Using the Burundi laboratory as a benchmark, all three states will have the equipment and capacity lakeshore laboratories able to undertake routine water quality monitoring and analyses. These will be comparable and complementary to the WQ monitoring abilities of the laboratories in the wider Lake Tanganyika basin, generating data which can be used to monitor WQ on a larger scale.</p> <p>Furthermore, in order to further increase the interest and ownership among the populations in the basin, a community water monitoring pilot scheme is implemented.</p>
<p>Furthermore, efforts to monitor water quality are unequal among the countries, with no baseline data available against which change monitoring would be achievable.</p>	<p>A Reconnaissance Monitoring Survey, including POPs and heavy metal detection, is designed and implemented; training is provided to WQ technicians in all three countries prior to the campaign. Outreach campaigns are provided in all member States throughout the Survey, in order to build awareness, as well as ownership, in the prospect of it becoming a quintennial event.</p>

Current scenario	Scenario with GEF financing
3. Providing catalytic investments in the water-food-energy nexus	
<p>The wider Congo Basin has a number of efforts under way to help protect its biodiversity and habitat (e.g. PACEBCoII). Other efforts in the basin mainly focus on combatting erosion and deforestation ? these include regional projects and well as national level projects; while there is an evident link with water quality, this is not necessarily made clear to stakeholders in the basin, nor is there any concerted, transboundary efforts to reduce other sources of pollution, notably those resulting from common activities in the basin such as artisanal gold mining, solid waste management in the two most densely populated urban areas, and coffee washing.</p>	<p>The project will provide opportunities to directly engage with stakeholders undertaking some pre-identified activities that are creating deterioration of water quality. These projects, spread throughout the basin, will allow to pilot BET developed in Component 2, generate data and lessons regarding these to share on a wider scale, as well as promote the engagement of a variety of stakeholders in the improvement of water quality in the basin, and by extension, the preservation of aquatic habitats and their unique ecosystem services and biodiversity. Furthermore, the project will complement national level efforts towards the reduction of the use of biomass for fuel and deforestation, through the provision of awareness raising workshops and improved cookstoves.</p>
<p>In addition, the Lake Kivu Basin is prone to the impacts of disasters due to limnic eruption, floods and landslides, as well as mercury pollution and accumulation in the food chain. Again, while there are past and current efforts throughout the basin (e.g. LKMP project monitored methane in the Lake, Rwanda alert system), there is a dearth of concerted effort between the countries.</p> <p>In particular, it is important to note that there is currently no common initiative in place for limnic eruptions, despite the high impact this could have on the lakeshore populations.</p>	<p>A homogenization process will be undertaken in order to ensure that similar disaster risk reduction tools are available to all three member states. In particular, an early warning system housed by ABAKIR based on the Rwandan example will be created, as well as a limnic eruption risk assessment tool. This will also further contribute to the visibility of ABAKIR in the basin.</p>
4. M&E and Knowledge Management	
<p>While the IWRM support project and the development of the TDA and SAP have provided the first steps towards increasing the cooperation in the basin, there are still very few tools in place to promote regional cooperation between the three countries and guide decision making. For instance, despite the importance of the Rusizi River for transboundary hydropower projects, there are no clear guidelines regarding environmental impact assessments or e-flows.</p>	<p>The project will create a certain number of tools to help better coordinate basin management among countries. These will also include lessons learned from the activities undertaken during the course of the project, notably the various BETs. Exchange visits with other transboundary basin authorities will further allow to inspire and indicate the direction that ABAKIR and its member states want to take.</p>

Current scenario	Scenario with GEF financing
Data and information is being generated in member countries (Rwanda Water Portal), and at larger scales (e.g. Lake Tanganyika Water Portal). However, at the Lake Kivu / Rusizi Basin level, there is no centralized access to data, experience, lessons learned, etc.	A knowledge management strategy is prepared, and a platform is secured to help ABAKIR share and disseminate relevant information.

1) *global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);*

The overall objective of the project is to improve water quality, environmental and economic services of Lake Kivu and the Rusizi River through improved transboundary cooperation. This overall objective is directly in line with the main GEF International Waters objective, to promote collective management for transboundary water systems and foster policy, legal, and institutional reforms and investments towards sustainable use and maintenance of ecosystems. The proposed project will provide forums for information sharing and also brainstorming issues common to the three riparian states involved. In addition, the cooperation platforms will operate at all institutional levels, regional, national and local as well as connect with wider experiences in the east African region and beyond thus opening the basin community to similar experiences outside the basin.

Specific benefits targeted by GEF's work in international Waters include:

- ? Improving multi-state cooperation to reduce threats to international waters: this project looks to increase and homogenize capacity relating to water resources management, especially water quality in all three countries of the basin. Furthermore, it focuses on the strengthening and institutionalization of ABAKIR which will further allow for long-term multi-state management and cooperation at the basin level.
- ? Reducing pollution load in international waters from land based activities: this project directly targets the improvement of water quality of the Lake Kivu/Rusizi River catchment, specifically pollution sources resulting from common anthropogenic activities in the basin, such as agriculture, gold mining, coffee washing, and domestic solid waste.
- ? Reducing vulnerability to climate variability and climate-related risks, and increased ecosystem resilience: improving water quality through best environmental practices, including improved land and forest management, will build climate resilience into these ecosystem, notably in terms of flood and landslide protection.
- ? Restored and sustained freshwater, coastal, and marine ecosystems goods and services, including globally significant biodiversity, as well as maintained capacity of natural systems to sequester carbon: the Lake Kivu/ Rusizi River catchment is located in an area known for its unique and varied biodiversity ? the larger Congo Basin is one of the most important forest landscapes in the world, and

rift valley is renowned for its unique and rich plant and animal life. By focusing on the improvement of water quality in the area, this project will allow to improve the ecosystem resilience of both terrestrial and freshwater systems (sustainable agriculture, improved environmental practices).

2) *innovativeness, sustainability and potential for scaling up.*

Innovation

The innovation in the project mainly refers back to the innovation in the context of the Lake Kivu and Rusizi River basin. Project innovativeness relates to its truly integrated, cross-sectoral, inclusive and participatory nature. While some of the approaches may not seem 'ground-breaking', they are important steps in this basin which has been at the unrest, epidemics and natural disasters.

In particular, the involvement of communities in water quality monitoring is a great way not only to spread information, but also build trust between communities and institutions, something that is particularly important in this region which has seen and continues to see insecurity and conflict. Similarly, using laboratories which are already in place, will also show a trust in the local capacity, as does the focus on local small scale industries/activities (e.g. coffee washing, gold mining, local waste management). Finally, the inclusion of the private sector will allow to further its involvement in the basin and create stronger communication avenues.

In particular, by building common platform enables different interests, including those of the private sector, to be openly debated and reconciled with environmental concerns and national developmental goals. Such openness makes it difficult for private sector players to hide sensitive information while at the same time it encourages them to invest in mitigation actions.

Sustainability

One of the main aspects of sustainability is the focus on the operationalization of ABAKIR. The current standstill of the organization, still at the transitional phase, is a hindrance to meaningful cooperation in the basin. Streamlining its establishment process, starting from the first step and ensuring that steps are not skipped, will allow for a more instinctive growth of the organization, build its visibility in the basin, and altogether allow for a clearer mission and appropriation of the mission that is in line with its current reality. By going back to the basics, this project will provide an effective base from which the future of ABAKIR can be built on.

Another aspect of sustainability comes from the inclusion of community level efforts in all three countries. In the end, while there is need for a strong and well-managed policy and institution, the actions of the communities in the basin are the ones that will impact first-hand the basin and its water quality. The project recognizes this and allows for a certain number of communities to participate in a meaningful manner in the project, by being sources of information in a number of assessments, but also benefiting from micro-projects and associated . By limiting the number of communities, there will be more resources available to provide more meaningful engagement by project implementors and

support. This builds trust not only in the project, but also in the skills and practices that are being piloted.

In addition, this is extended to specific issues/activities that are commonly found in the basin, such as coffee washing, artisanal gold mining and solid waste management. Working on these specific problems, not only by drawing up BET, but also by engaging with the actors, providing training and repeat support during the project, will allow to create examples to replicate both within these sectors, but also in other sectors. As with the communities, such approaches build a sense of ownership of the skills, techniques and practices, which are then more likely to persist and permeate through other communities once the project is over.

Finally, this sustainability is also built on developing communication and knowledge on a larger scale, i.e. the IW-Learn platform, regional engagement and M&E. Tracking project progress, its success and gaps, on a variety of platforms can help other projects and initiatives grow. This allows for a more cohesive regional effort which is absolutely necessary as Lake Kivu and Rusizi River basin remains a sub-basin to the larger Lake Tanganyika and Congo River basins.

Scaling up

This project offers a number of opportunities for 'scaling up?', most notably through the implementation of the SAP; by providing a means to kick-start its implementation, it will allow to ensure a real continuity in the TDA/SAP process, which will build confidence and impetus in the basin around the efforts towards improving the catchment. This is extended through the other actions and activities of the project, which while are at a localized scale, permit to create comprehensive and well-

Component 1 focuses on an opportunity to 'scale up?' on the institutional level, not only by strengthening the roots on which ABAKIR is built, but also by ensuring that the visions, objectives, and strategies developed by the SAP permeate into the national policies and strategies of the three basin countries.

All in all, while the focus of the project seems limited (water quality), it affects a number of other areas including agriculture, industry, deforestation, energy and biodiversity, to name a few. As such, while keeping the breadth of the project limited, its repercussions and applicability to other areas is large and as such, particularly appealing in an area where a multipronged approaches will stretch a long way.

1b. Project Map and Geo-Coordinates. Please provide geo-referenced information and map where the project interventions will take place.

Much of the project looks at improving the governance of water resources, and especially water quality, in the entirety of the Lake Kivu and Rusizi River basin. However, there is also a part of the project looks to work with local communities in all three of the countries.

At this stage, it has been decided that the main administrative region being targeted are:

- ? The Western province in Rwanda ;
- ? Three provinces in Burundi ? Bubanza, Bujumbura Rural and Cibitoke
- ? Two provinces in DRC ? North Kivu and South Kivu

These choices are due to the importance of the basin area within these areas. However, it has not been possible to fully identify the communities that will be targeted due to a variety of factors, including the current development of the SAP and the evolving nature of the baseline landscape.

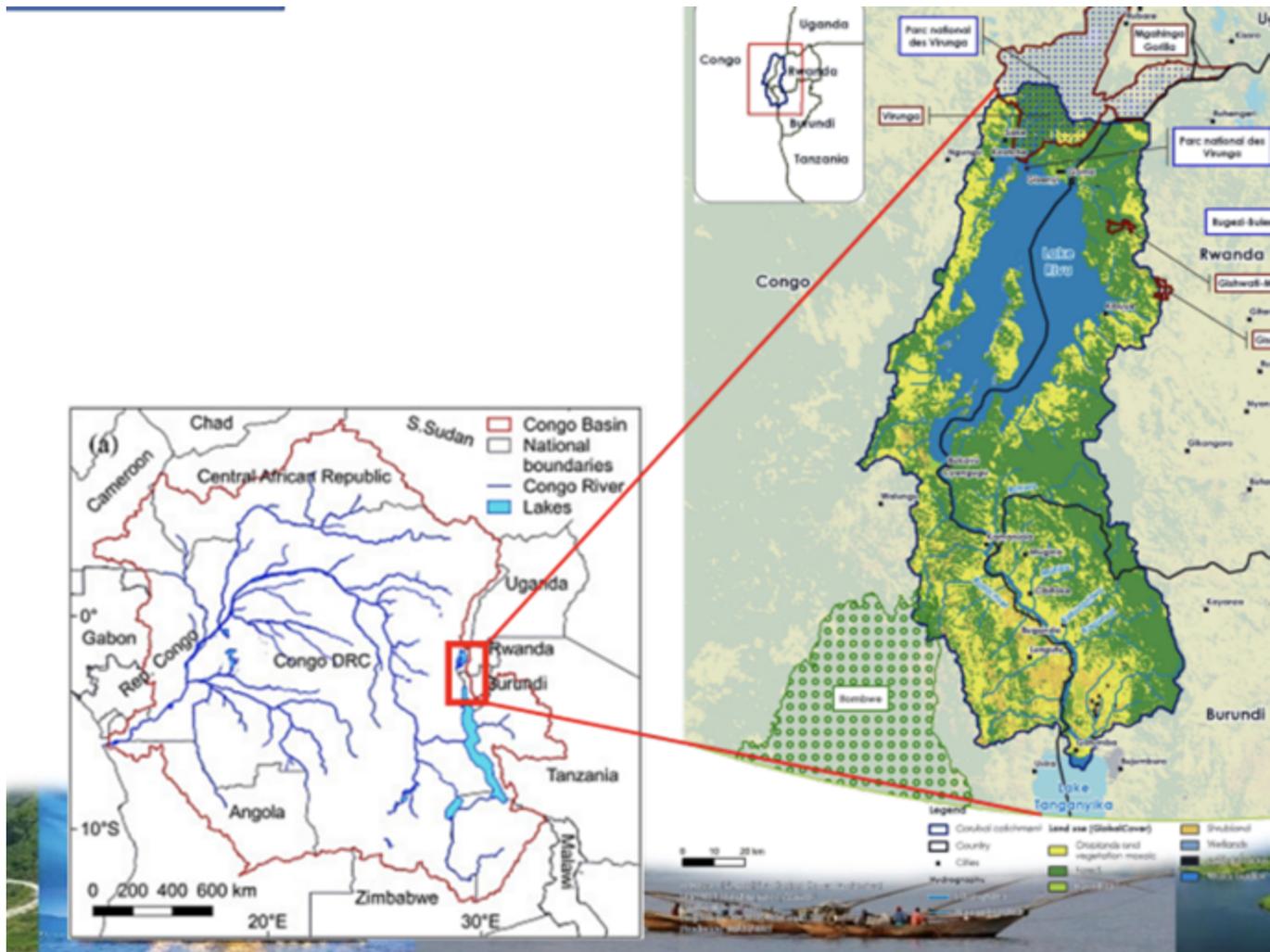
As such, the assessment and choice of communities are part of the project (under Component 2); however, certain criteria have already been identified. These have been informed by stakeholder consultations, analysis of the baseline and lessons learned from past projects:

- ? Hotspots identified in the Transboundary Diagnostic Assessment and Strategic Action Plan, as these are recent documents that have been developed through a participatory process;
- ? The communities chosen must be easy to access and pose low security risks, especially in the DRC and Burundi portions of the basin. The success of the project's interventions rely on a close partnership between the recipient communities and the project team/contractors. In order to build the trust and partnership, it is therefore necessary to ensure that communication and contact can be maintained and is facilitated during the entirety of the project.
- ? Supporting other initiatives: this is relative to the complementarity aspects of GEF projects. There are a few alternatives that have been identified:
 - ? There have been a number of IWRM and catchment management planning initiatives in the Rwandan portion of the basin (see section 3.4); it is therefore suggested to consider communities in an area where catchment management planning may already be in place at the district level, therefore capitalizing on the successes and results of prior efforts, and ensuring a continuity in the IWRM process ;
 - ? Working with communities that are engaged in projects focusing on complementary themes (e.g. biodiversity conservation).

1b. Project Map and Coordinates

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

Below is a general location map of the project area showing Lake Kivu and its riparian states in the wider Congo Basin. The project areas under the jurisdiction of each riparian state over the lake area are further presented in three separate annexes to this main document.



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 Yes

If none of the above, please explain why:

The stakeholder engagement in the project preparation phase built on the stakeholders identified in the PIF. Being a regional level project, this involved understanding the players at the regional and national levels, as well as grasping who were the key players at the local level.

For regional and national level stakeholders, an inception workshop was held in order to discuss the issues and needs for the project at the larger scale, tease out interactions between various projects and interventions in the basin, as well as guaranteed ownership of the project by all three countries. In addition, specific interviews/meetings were undertaken to engage on particular topics, such as water management, current water quality strategies and liminic eruptions. Local stakeholders were also involved in the design of the project whenever possible, with some community visits which allowed to discuss issues and opportunities as perceived by local populations.

The inception workshop took place at the beginning of the project preparation phase, virtually due to the Covid 19 pandemic. This workshop allowed to confirm the approach to formulate the GEF component, as proposed in the PIF, as well as get a better understanding of the baseline as it stood in November 2021.

Field investigations were done at the national level in the countries of the basin. In Rwanda, these were undertaken in late January-early February 2022. These mainly involved interviews in Kigali and Rubavu. The targeted stakeholders included various stakeholders involved in water resource management in the country, including REMA, RWB, and REG, as well as a site visit of the local hydropower station. The consultations in DRC were done in February 2022. These involved focus groups (community, CSOs and NGOs) as well as local authorities and research institutions.

In total, 210 people were approached during the PPG Stakeholder Engagement process, 24% of which were women^[1]. The Stakeholder Consultation Matrix, which details consultations carried out during project design, can be found in Appendix 6. As such, stakeholder collaboration was started during the design phase of the project and will be continued and furthered throughout the project implementation.

^[1] This included women within communities, women in leadership positions as well as women in technical roles.

Please provide the Stakeholder Engagement Plan or equivalent assessment.

In summary, the stakeholder engagement will include consultations and workshops for assessments; workshops for training and capacity building; information campaigns (incl. radio, printed materials, meetings) for awareness raising. Project partners and members of the steering committee will be engaged in regular communications and meetings in order to ensure the smooth planning and adaptive management of the project. Regional stakeholders, such as other river basin organizations, will also be invited for exchange visits in order to promote cooperation and sharing of experiences. At a wider level, there will be access to all project information, products and lessons learned via the IW-Learn platform.

In order to adequately fulfil the SEP, two key activities are expected at the inception phase ? the first is the updating of the stakeholder analysis and SEP in the first few months in order to ensure that any changes arising are incorporated and the SEP best reflects the reality of the basin. The second is the development of a knowledge strategy, which is mainly geared to developing the IW-Learn and data portal, but will also include elements allowing to reach stakeholders who may not have access to such information platforms.

Furthermore, there are sufficient provisions in the project budget for travel among the three basin states, in order to ensure that there is equal visibility and recognition of the project PMU and ABAKIR (who are inherently responsible for the SEP) throughout the basin.

The stakeholder engagement plan has been developed in the form of a table, and provided in Annex H to this document.

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

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor; Yes

Other (Please explain)

It is envisaged to have civil society play a multi-pronged role ? CSO representatives from each country will be present in the Steering Committee, in order to ensure that their PoV is taken into consideration during the adaptive management of the project. CSOs will also be consulted during the various assessments and consultations that are undertaken in order to include their experiences and knowledge in the creation of workshops, assessments, guidelines and others. Finally, for some of the training activities with communities, the support of CSOs will be sought, especially if they have previous experience with target communities and the workshop thematics.

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

A gender analysis and action plan was produced during the PPG phase, which has allowed to identify the key issues and opportunities relating to natural resource use and management faced by women in the basin, including the differences and commonalities found among the three countries. The analysis has allowed to draft a gender action plan (GAP) which highlights by types of activities the specific practical methods and M&E indicators that can be used to follow progress on gender responsive objectives. These are provided as two Annexes, Gender Analysis and Lake Kivu Gender Gender Action Plan.

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.

Private sector actors of various sizes will be engaged through a number of activities in the project. Firstly, through the development of BET for a certain number of activities, namely coffee washing, urban waste management, gold mining, etc. These parties will be consulted during the development of the BET, but also called upon to pilot them. Through these pilots, these small/medium level enterprises will be able to thoroughly engage with the process of ensuring a more sustainable future for their activities in the basin.

In addition, private sector actors engaged in energy production ? hydro and methane extraction, will be approached. One of the main activities involving them relates to the development of a limnic eruption tool. Their involvement is critical due to the nature of their activities in Lake Kivu. By engaging them, and encouraging their ongoing communication with the ABAKIR located tool, a positive relationship will be fostered, in particular with ABAKIR, which will further help their engagement in other basin matter in the future.

Finally, all of the stakeholders listed above, as well as others (e.g. breweries, pharmaceuticals) can be included in the consultations and assessments, in order to garner their PoV. Similarly, information pertaining to the project activities, especially the reconnaissance monitoring report, will include the private sector in their dissemination.

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):

The table below relates to the main risks identified for the project. Some are external to the project ? notably the possible security issues in the region and the current health pandemic. Safeguards have been put in place for the former in the project (e.g. criteria in community choice), while a Covid-19 plan is detailed below.

The other risks presented relate directly each component. However, some may be regrouped; for instance poor uptake of project activities by beneficiaries; implementation delays and/or financial shortcomings. Some of the mitigation measures identified are already incorporated. However, others will necessitate actions as and if the issues arise, and the mitigation measures are provided as a first set of options. This matrix should be revised during the project inception workshop. The risk level describes the residual risks considering that mitigation measures are adequately implemented.

Table 5: Risk analysis and proposed mitigation measures by component.

Risk	Risk level	Risk Management Measure
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<i>External risks</i>		
<p>? Political and security issues make it difficult to execute the project.</p> <p>? The COVID pandemic continues into the Project delivery phase and restricts travel to and between the member States</p>	<p>Moderate</p> <p>Moderate</p>	<p>? Develop contingency plans to deliver elements of the project remotely, or from safe venues.</p> <p>? Include security and accessibility as a key criteria in site choices</p> <p><i>The section below presents a preliminary Covid-19 plan.</i></p>
<i>Component 1: Enhancing national and Regional Cooperation</i>		
<p>ABAKIR does not have the capacity to manage the Project.</p>	<p>Moderate</p>	<p>? Develop a roadmap for ABAKIR to assume its de jure mandate.</p> <p>? Embed a Project Manager in ABAKIR.</p> <p>? Implement the project through the member States with ABAKIR's involvement.</p> <p>? Include training in transboundary water resources management and international water law early in the project.</p>
<p>Member States do not establish Ministerial Committees</p>	<p>Moderate</p>	<p>? Outline the benefits of the committees to coordinate national action.</p>
<p>SAP is not agreed and finalised by the GEF focal points</p>	<p>Low</p>	<p>? Early and sustained engagement with Stakeholders involved in the IWRM Support project (incl. donors) in order to anticipate barriers and take into consideration lessons learned</p> <p>? Propose interim institutional arrangements</p>
<i>Component 2: Improving Water Resource Quality Management</i>		
<p>Data and Information Sharing Protocol is not agreed</p>	<p>Low</p>	<p>? Address the member States concerns in the design of the Protocol and negotiate a final consensus text.</p>

Codes for Agricultural, municipal and industrial good practice in water quality management are not agreed.	Moderate	? Prepare the Codes at a principle rather than a specific technology.
Communities do not support the community-based monitoring programmes	Low	? Provide incentives by demonstrating the benefits. ? Involve local education institutions in the monitoring ? Use technical partners with previous experience and contact with communities
Community cannot upload monitoring data	Low	? Provide smartphones to the community, with applications that allow them to upload data.
No suitable laboratories available (specifically in the DRC ? Goma)	Low	? Early engagement with potential options ? Consider establishing a laboratory from scratch using co-financing or government support. ? Request Methane Extraction Industry to provide laboratory services.
Reconnaissance monitoring programme not supported by the member States due to lack of resources	Low	? Support the costs of participation under Output 4.2.2
<i>Component 3: Providing Catalytic investments in the Water-Food-Energy Nexus</i>		
Industries are not receptive to the introduction of cleaner production technologies	Moderate	? Demonstrate cost savings by adopting the technologies. ? Build on existing Corporate Social Responsibility (CSR) programmes. ? Internalise the external costs in the price of the product.
Cost recovery for waste services in the major towns remains elusive	Moderate	? Include awareness raising activities to highlight the health risks associated with failing services.

Communities do not engage catchment management planning, or implement agreed measures	Low	<ul style="list-style-type: none"> ? Incentivise involvement by demonstrating benefits through exchange visits. ? Use technical partners with previous experience and contact with communities
Artisanal miners, coffee producers, and/or solid waste stakeholders not receptive to engagement	Moderate	<ul style="list-style-type: none"> ? Focus engagement on immediate benefits from (e.g. health benefits for artisanal miners) ? Seek ways to 'market' BET to wider communities in order to create wider interest/pressure
Commercial agriculture reluctant to shift away from POPs or toxic chemicals due to costs	Moderate	<ul style="list-style-type: none"> ? Identify and make available cheaper alternatives.
<i>Component 4: M&E and Knowledge Management</i>		
Member States to not maintain water resource quality monitoring programmes due to O&M and cost issues	Moderate	<ul style="list-style-type: none"> ? Report on data received and results in regular policy briefs to incentivise action. ? Establish monitoring and analysis processes that are cost effective.
ABAKIR cannot host and maintain the Data and Information Portal	Moderate	<ul style="list-style-type: none"> ? Host the portal in one of the member State Ministries. ? Host the portal on the IWLEARN website ? Agree on member State contributions that provide adequate resources. ? Seek external donor or private sources of funding

Covid-19 action framework

Analysis of risks

The covid-19 pandemic presents a number of risks that could affect the project's timeline, implementation and impacts. Alongside a specific risks and opportunities framework provided below, the project also has

an adaptive capacity to deal with changes as and when they arise. The project inception will allow the review of the project framework, targets and timelines in order to ensure that emerging operational, stakeholder, budget or co-financing related challenges can be addressed. A review of the national and global Covid-19 situations will also be reviewed during the annual review process.

Table 6: Covid-19 pandemic risks and proposed mitigation measures.

Risks	Mitigation measures
<p>International and regional consultants and organisations are not able to travel between countries in the basin.</p>	<p>Various possibilities according to the situation:</p> <ul style="list-style-type: none"> ? Activities are postponed to a later date in the project, when travel is allowed ? Local experts are recruited to work in pair with international experts: the local experts carry out the field work, guided by and with the input of international experts at a distance, thereby building capacity of local experts in the process
<p>Rwanda, Burundi and DRC stakeholders are limited or not able to travel for the various cross-border exchanges and activities planned</p>	<p>Various possibilities according to the situation:</p> <ul style="list-style-type: none"> ? Activities are postponed to a later date in the project, when travel will once again be allowed ? A smaller number of stakeholders travel, thereby decreasing the covid risks ? Activities are carried out at a distance with the help of visio-conference technology

<p>National sanitary measures limit the possibility of stakeholders to meet and limit stakeholder and project staff/consultant mobility</p>	<p>The project will implement adaptive management, and the stakeholder engagement plan will be adjusted, as necessary, to reflect the impacts of COVID-19.</p> <p>Various possibilities according to the situation:</p> <ul style="list-style-type: none"> ? Activities are postponed to a later date in the project, when meetings and mobility are once again made easier ? Meetings and consultations are carried out through a combination of means, depending on the types of stakeholders involved and the objective of the meetings: a higher number of smaller meetings (instead of a few large meetings) are carried out, meetings are carried out at a distance with the help of visio-conference technology, certain exchanges can be done via e-mail communication or surveys? ? For workshops in communities, find local facilitators and limit group sizes; provide additional sanitary protocols . ? Include health information and outreach in workshops and consultations
<p>The economic impacts of the pandemic lead affected local communities to put increased pressure on natural resources (e.g. increased logging and artisanal mining), rather than searching for alternatives</p>	<ul style="list-style-type: none"> ? Focus micro-projects on initiatives that may have visible short-term benefits ? Increase effort in outreach to communities in order to ensure follow-up on proposed actions/pilot projects and provide trouble-shooting during the project implementation.

Analysis of opportunities

The covid-19 crisis provides a number of opportunities to contribute to reducing the risk of future zoonotic and infectious diseases appearing. In particular, interventions under this GEF project will contribute to:

- ? Promotion of water resource management principles, in particular with regards to water quality, from policy to local level, which supports healthier, more resilient ecosystems. Specifically, focusing on pollution management and resource management to protect both ecosystems and livelihoods in the water catchment (SAP and investments in C3) ;
- ? Creation of a comprehensive and cooperative sharing of information regarding water quality data, which includes a platform through which other information relating to the basin can be shared;
- ? Support of sustainable use and protection of water resources at multiple stakeholder levels ? communities, vulnerable groups, industry, etc. ;

? Awareness raising of the water-food-ecosystems nexus through the engagement of stakeholders in energy, waste disposal, agriculture and water sectors.

Overall, through its focus on regional cooperation and a cohesive 'basin approach', this project offers a chance for sustained and homogenized institutional and technical skill which will indirectly benefit the fight against Covid-19 and any future zoonotic and infectious disease. This project is a gateway to more sustainable water management in the Kivu and Rusizi river basin, including the involvement of regional, national and local actors; it is through such initiative that ecosystems and communities will build resilience, which will slow the loss of biodiversity and ecosystem functioning, as well as mitigate impacts of climate change, both of which are factors in the rise and spread of zoonotic and infectious diseases.

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.

The proposed institutional set-up for the project has evolved from that proposed during the PIF stage. It is believed that due to unique circumstances, **the ABAKIR cannot be the sole executing agency, it will need full support from Economic Community of Central African States (CEEAC) which is implementing the Bank baseline PASECOB II project and an embedded full-time support (the PMU).** This set-up is being proposed as ABAKIR is not yet formally established and lacks permanent technical and financial staff, and at this time the mandate and organization structure of the organization may still be adjusted.

However, ABAKIR as it stands, will retain an important role, as it will be included in the Project Steering Committee, but also will house the reduced PMU in the Rubavu offices, therefore allowing a close association between the project and ABAKIR. Under this arrangement, AfDB will provide the administrative capacity (procurements, logistics etc.) needed to implement the project, while the nascent ABAKIR and the PMU made up of the 3 States will provide the technical guidance and will drive the completion of the tasks.

As per GEF guidelines, related roles and duties of the separate responsible units within the Agency will be subject to a regular review by Agency management and action by the Agency is required when discrepancies and exceptions are noted.

Some of the key benefits of this set-up include:

? It will allow ABAKIR to increase its visibility in the basin and take on more responsibility in a way that is in line with its current capacity, while minimizing risk for the project itself. By housing the reduced PMU and providing support, it will cement its current role of 'sharing information', all while gradually taking on more responsibility as per Output 1.1.1 (the desired level of continuum).

? It will allow for a streamlined financial management process; one of the lessons from PACEBCo Phase I was the importance of homogenizing the institutional capacity of the various coordination units and technical partners, notably in terms of financial management and procedures. By keeping these 'in-house' at the AfDB, but still aligned with the GEF separation of functions requirement, there is a reduced risk of project delays related to lack of administrative capacity in this area. It can also be seen as an opportunity to train national level partners, without bearing the risks onto the project itself.

? It will allow for closer coordination with the PACEBCo 2 baseline project, therefore ensuring a level of cooperation between the two projects and promoting their natural complementarity.

Project steering committee

A project steering committee will be set-up with representation from each of the governments. It is proposed that the committee is chaired on a rotational basis between the countries, with the host country taking on the chair, minuting of the meeting and the administrative arrangements. Other members will include representatives from the national ministries in charge of water and the environment in each country (director level or higher), the African Development Bank (GEF Unit), the African Water Facility, representatives of NGOs (1 for each country) and representatives from co-financing projects.

The overall roles for the Steering Committee include, but are not limited to, :

- ? The review and adoption of the project implementation plan ;
- ? The review and adoption of the project evaluation reports ;
- ? The review and adoption of the activity plan and financial reports ;
- ? The review and adoption of the annual program of activities, budget and procurement plan ;
- ? To ensure the implementation of the recommendations of the Committee, oversight and monitoring missions, and audits; and
- ? To make recommendations to the project coordinator and the various actors involved in the project.

Project management unit

A technically focused project management unit will be created to manage the project with administrative and backstopping support from the AfDB. It will be permanently staffed by a project manager, with a water resources quality and transboundary management profile, and a senior administrative assistant with AfDB and transboundary project experience. **Both will be hired by the CEEAC directly, and should be familiar with CEEAC procedures, notably in terms of procurement and reporting. In addition, short-term consultants will be hired throughout the project, including:**

- ? Transboundary Water Resources/River Basin Specialist
- ? Transboundary EIA/Water Law specialist
- ? Transboundary Water Institutional Specialist(s)*
- ? Catchment Management Planning specialist

- ? Aquatic Ecosystem Health (AEH) specialist
- ? Agricultural specialist (sustainable land management)
- ? Agro-forestry specialist
- ? Gender specialist
- ? Water Quality management specialist (mining sector)
- ? Water Quality guidelines for use specialist
- ? Community Engagement specialist*
- ? Communications specialist*
- ? POPS and heavy metals specialist(s)*
- ? Water sampling technicians
- ? Wastewater/Waste treatment engineer *
- ? Biomonitoring specialist
- ? Disaster risk reduction specialist
- ? Knowledge/Data management specialist*
- ? IT specialist
- ? Environmental flows specialist
- ? Physical Limnology specialist

All these staff positions will be recruited on a competitive basis with provisions for annual performance review for staff appointed for more than 1 year. Some positions may be conflated into one specialist.

The PMU will manage the project on a day to day basis and ensure that project resources are properly accounted for and that all project targets are timely delivered in a timely manner. The PMU will be responsible, among others, for:

- ? Coordination and monitoring of the implementation of project activities;
- ? Providing technical support and assessing the products generated by the project;

- ? Ensuring a high level of coordination and collaboration among participating institutions and organizations at the regional, national and local levels;
- ? Supporting the organization of the mid-term and final evaluations;
- ? Ensuring proper financial management and reporting of the project resources;
- ? Ensuring compliance with GEF and AfDB project management procedures and standards;
- ? Preparing bid documents;
- ? Administering and assuring compliance of contracts, including timely reporting;
- ? Procuring any necessary equipment and supplies;
- ? Providing reimbursements for expenses (e.g., daily allowance for participation to meetings, transport costs, etc.); and
- ? Other duties as defined or required by the PSC.

The PMU will directly report to the CEEAC, who is acting as the executing agency. The PMU will be supported by two other units ? the first will be ABAKIR, with whom it will share the Rubavu office. This partnership is essential to increase the visibility of ABAKIR and build its capacity. ABAKIR will mostly provide information and communication support, thanks to its prior presence in the basin and understanding of the issues and communities.

The PMU will also be supported by the PACEBCo II Rusizi basin office, as well as the PACEBCo II Regional project management unit. This unit will be available to help with monitoring and evaluation (M&E) as well as technical support/advice on activities relating to development, gender, biodiversity, agronomy, and sustainable forest management.

This strategy will allow an optimized and streamlined institutional set-up, while taking into consideration the need to keep ABAKIR, as it stands, visible and included in the project implementation. It will also allow for proper integration of the project with the AfDB water management unit as well as the baseline project, PACEBCo II.

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 project is fully aligned with regional and national priorities, plans and policies relating to the main themes of the project, notably water resource management (including regional management), pollution management, sustainable land-use, catchment management, etc.

Table 7: Project alignment with national priorities.

National/Regional priorities	Project Consistency
Burundi	
Vision 2025 (2011)	<p>This document is the main strategic document which guides all the policies and strategies found below. The vision states, " In 2025, Burundi is a United, Solidary and Peaceful Nation; A Country Built on the Rule of Law with a Rich Cultural Heritage; A Prosperous Economy Serving the Welfare of All?. The main three objectives are to: (i) establish good governance in a state governed by the rule of law, (ii) develop a strong and competitive economy, (iii) improve the quality of life of Burundians.</p> <p>The vision is built on eight pillars:</p> <ul style="list-style-type: none"> ? Good Governance and State Capacity Building ? Human Capital ? Economic Growth and Poverty Reduction ? Regional Integration ? Demography ? Social Cohesion ? Regional Planning and Urbanisation ? Partnership. <p>Alongside, cross-cutting themes are identified, notably gender, youth, vulnerable groups and environmental protection/respect.</p>

<p>National Development Plan 2018-2027 (2018)</p>	<p>This document promotes the following vision: ?a united, democratic and prosperous nation, through a structural transformation of the national economy to put it on a new high-growth trajectory, deeply reducing social inequalities and rural and urban poverty?. The associated objective to fulfil this vision is: ?Structurally transform the Burundian economy to achieve strong, sustainable, resilient and inclusive growth that creates decent jobs for all and improves social welfare?.</p> <p>To achieve this objective, Burundi's National Development Plan 2018-2027 is based on five (5) strategic orientations, namely:</p> <ul style="list-style-type: none"> ? SO1: Boosting growth sectors: two of the targetted secots include energy (incl. biomass) and water (drinking water). ? SO2: Developing human capital: focus on resilience and incorporating youth in national development. ? SO3: Protecting the environment, adapting to climate change and improving land-use planning: one of the specific areas of interest are water resources, including water quality, as well as disaster management (esp. linked to CC). ? SO4: Strengthening governance, security and safeguarding national sovereignty ? SO5: Mobilising resources, improving the management of public expenditure and developing regional and international cooperation. <p>With its focus on regional cooperation, water resource managemenet and capacity development, the proposed project falls squarely within the strategic orientations.</p>
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<p>National Water Strategy 2011-2020 (2011)</p>	<p>The National Water Strategy was developed in line with the 10 year National Water Policy, with the overall vision: ?to ensure that the water needs of all users are met in a sustainable manner through the harmonious development of national water resources?.</p> <p>The strategy is therefore declined into seven strategic areas, including:</p> <ul style="list-style-type: none"> ? 1: Creating an enabling environment for good governance of the sector ? 2: Intergrated Water Resources Management ? this SA looks at the development of a IWRM framework in Burundi ? 4: Water valuation for socio-economic development and for environmental preservation and management of water-related disasters ? this SA includes ensuring that stakheolders are aware of and practicing IWRM, trained in disaster preparedness, as well as improving water quality management. ? 5: Transboundary water resources management in Burundi ? this SA specifically targets management of transboundary water resources, including the ratification of ABAKIR, and increase and improvement of transboundary water resource management (incl. various development projects) ? 7: Creation of training structures in water sciences and technologies ? this SA includes developing capacity, at professional but also local levels. <p>While there is still need for national level coordination, notably in the updating of the NWS and NWP, the current GEF project adheres to the strategic areas highlighted above and would therefore continue contributing to such efforts.</p>
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<p>National Biodiversity Strategy and Action Plan (2013 edition)</p>	<p>The National Biodiversity Strategy and Action Plan was first developed in 2000. The National Report has been published 5 times, most recently in 2014, and the NBSAP revisited in 2013, with a 2013-2020 horizon.</p> <p>Five main challenges were identified, three of which are directly dealt with in the proposed project: <i>deforestation</i>, overexploitation of animals, <i>pollution</i>, invasive species, and <i>climate change</i>.</p> <p>The overall vision of the strategy is: "By 2030, biological diversity is restored, conserved and used wisely by all stakeholders, ensuring the maintenance of ecosystem services and securing essential benefits for present and future generations."</p> <p>Five strategic areas are targeted, three of which are directly in line with the current project:</p> <ul style="list-style-type: none"> ? Strategic Area 1: Addressing the underlying causes of biodiversity loss through the involvement and commitment of all stakeholders at all levels ? this project focuses on building capacity and awareness of water quality issues at the local, national and regional scale. ? Strategic Area 2: Reducing direct pressures on biodiversity and biological resources ? through implementation of the SAP, micro-projects linked to erosion and water pollution, the project is directly looking to improve water quality in Lake Kivu and the Rusizi River which will improve the ecosystem health and biodiversity. ? Strategic Area 4: Valuing and sustaining the benefits of biodiversity and ecosystem services ? aquatic ecosystems are particularly targeted in this SA (objective 15), as well as the involvement of local communities, in particular women and vulnerable groups. <p>While the time span of this SAP is lapsed, the overall vision is set for horizon 2030.</p>
<p>National Adaptation Programme of Action (2007)</p>	<p>The 2007 National Adaptation Programme of Action identified 12 priority projects. The proposed GEF project is particularly in line with four of these:</p> <ul style="list-style-type: none"> ? Rehabilitation of degraded areas ? Safeguarding of the natural environments ? Capacity building to promote energy-wood saving techniques ? Education on climate change adaptation. <p>Burundi is currently undertaking the National Adaptation Plan process, started in 2017.</p>

<p>Second National Communication to the UNFCCC (2010)</p>	<p>The Second National Communication to the UNFCCC presented the 2050 projections for GHG emissions, and highlighting vulnerable sectors and suggested mitigation. The water sector was one of the key sectors presented, alongside the energy and agricultural sector. Fifteen mitigation actions were identified, eleven of which are relevant to the proposed GEF project:</p> <ul style="list-style-type: none"> ? Reinforcing national capacities in water resource management for food production. ? Reinforcing national capacities in evaluating available and exploitable water resources. ? Land management of the hillsides for water and soil protection. ? Reforestation of the hillsides in order to contribute to the restoration of Burundi's eco-climatic system. ? Preventing floods and water level rise in rivers. ? Reforestation and management of existing forests. ? Setting up a lasting management program for traditional forms of energy by promoting techniques of saving wood energy. ? Reinforcing the capacity of hydroelectric power production. ? Preserving natural ecosystems. ? Rehabilitating degraded areas. ? Reforestation of degraded mountains and hillsides in Burundi.
<p>National Agriculture Strategy 2018-2027 (2018)</p>	<p>The National Agriculture Strategy's overall vision is, "By 2030, an agriculture that respects the environment, guarantees food and nutritional security for the entire population of Burundi and ensures a decent income for sectoral actors". The overall objective is, "to ensure sustainable food and nutritional security for all, increase household incomes, generate foreign exchange, provide material for the industrial sector and create jobs in the processing and service sector related to agriculture".</p> <p>To achieve this, three strategic areas are targeted. This present GEF initiative directly supports the first one, notably:</p> <ul style="list-style-type: none"> ? Sustainable increase in agricultural, livestock and fisheries production ? this includes sustainable and rational use of natural resources, including water, as well as increasing climate change resilience.

<p>Intended Nationally Determined Contribution (INDC) (2015)</p>	<p>The INDC submitted in 2015 recognizes the impacts of climate change on a number of sectors, including water, where it is notably found to lead to the deteriorating quality of water, as well as increased flood risk and a degradation of the Ruzisi floodplain.</p> <p>With similar preoccupations, the GEF initiative aligns with the INDC, notably through supporting initiatives such as:</p> <ul style="list-style-type: none"> ? Integrated Water Resources Management by small hydrological unit ? Protection of aquatic and terrestrial ecosystems ? Supporting people to build resilience to climate change (through component 2) ? Development of institutional and operational capacities for the coordination of climate change resilient programmes ? Establishment of functional mechanisms for climate variability monitoring and assessment, information and knowledge management; ? Dissemination and promotion of improved cookstoves. ? Climate Smart Agriculture ? Improved data and information management and dissemination mechanisms ? Strengthening the system of communication and exchange of information and data.
<p>Democratic Republic of Congo</p>	
<p>National Strategy and Action Plan for Biodiversity (2016-2020)</p>	<p>This national strategy came as a replacement for the outdated 2001 National Biodiversity Strategy and is in line with the Aichi Targets and other national development plans, particularly in terms of biodiversity conservation ? notably in protected areas ? and reducing carbon emissions related to deforestation and for the reduction of emissions from deforestation and forest degradation. The document covers the 2015-2020 period, and is the first of three, with an overall vision for 2035: ?By 2035, biodiversity is managed sustainably through its integration into all relevant national sectors, contributes to the country's development and all Congolese are aware of its value and contribution to their well-being?. The SAP is built around the following strategic areas:</p> <ul style="list-style-type: none"> ? Integration of biodiversity into all relevant national sectors: ? Reduction of pressures on natural habitats; ? Sustainable fisheries; ? Improving the management of existing protected areas and extending their network their network; ? Safeguarding endangered species of fauna and flora; ? Promotion of payments for environmental services and access to genetic resources genetic resources and benefit sharing; ? Restoration ; ? Biosafety; ? Promoting taxonomic research and knowledge acquisition; and ? Increased funding for biodiversity. <p>While the GEF project?s focus is on water quality, it will by association impact the health of both terrestrial and aquatic ecosystems and their associated biodiversity. In particular, the community actions and implementations of the SAP which will help reduce pressure on natural habitats and provide restoration opportunities.</p>

<p>Second National Program for Environment, Forests, Water and Biodiversity (PNEFEB2) 2013-2023</p>	<p>This second iteration of the PNEFEB2 has the overall goal of, ?the Congolese state, in collaboration with stakeholders, ensures environmental protection and sustainable management of natural resources in order to perpetuate their ecological, economic, social and cultural functions?. The objective is therefore</p> <p>There are five strategic areas. The section below highlights the specific themes within each that pertain to the proposed GEF project.</p> <ul style="list-style-type: none"> ? Environmental protection ? under this SA, there is a focus on creating/preserving healthy environments, including avoiding pollution, combating climate change, sustainable land management, and continuous environmental monitoring. ? Forestry management ? alongside increased community management of the resource, there is a focus on re/afforestation and agroforestry and ? Water resource management ? this SA focuses on the inherent/ecological value of water as well as its economic value. One of the components specifically targets transboundary water management. ? Biodiversity Conservation: this SA focuses on the management of National Parks and associated protected area, including community involvement and transboundary areas. ? Institutional and Capacity building ? this SA focuses on strengthening the institutional set up and capacity within the natural resource management structures. It also targets the internal (to government) and external information sharing regarding environmental issues.
<p>Water Law (2010)</p>	<p>The Congolese Water Law is based on the Constitution and the principles of IWRM. It aims to:</p> <ul style="list-style-type: none"> ? Set the rules for the sustainable and equitable management of water resources to ensure their protection and regulate their use ? Determine the instruments required to support the rational and balanced management of water resources, using a multisectoral approach that takes into account both current and future needs ? Establish a monitoring and disaster prevention system ? ? Strengthen the requirements for environmental and social impact assessments, prior to the concession and abstraction of water resources. This is to be achieved by establishing a legal regime based on declaration, authorization and concession ? ? Set the responsibilities for the public water and sanitation services, adapting them to the country?s current economic and social development needs ? ? Establish the principle of prior consultation of the Congolese people through stakeholder consultation on any transfers of freshwater ? ? Attract investors to the sector and promote the development of water resources through the use of the public-private partnerships. <p>In particular, it is key to note that this law enshrines the right to water access (Art. 5). , provides for decentralized management of water (Tilte 3, Chapter 1) , the environmental protection of water resources (e.g. minimum environmental flow, pollution) (Title 6).</p>

<p>* Plan Strat?gique de developpement 2019-2023 (</p>	<p>This five-year strategic development plan is built around five objectives:</p> <ul style="list-style-type: none"> ? Human capital development, social and cultural development ? Strengthening good governance, restoring state authority and consolidating peace. ? Consolidation of economic growth, diversification and transformation of the economy ? Spatial planning, reconstruction and modernisation of infrastructure. ? Protection of the environment, fight against climate change, sustainable and balanced development. <p>This current project is clearly in line with the final objective; however, some of its cross-cutting themes, such as community involvement , including women, youth and the vulnerable, are in line with the first.</p>
<p>Rwanda</p>	
<p>Rwanda Vision 2050 (2020)</p>	<p>Rwanda Vision 2050 is a long-term strategic document, following up from Rwanda Vision 2020. The overall objective is to promote economic growth and prosperity and high quality of life for Rwandans, centred around five pillars: i) human development; ii) competitiveness and integration; iii) agriculture for wealth creation; iv) urbanization and agglomeration; and v) accountable and capable state institutions.</p> <p>The proposed project is in line with the vision, particularly through the promotion of increased water quality and its availability (urbanization and agglomeration). In particular, by focusing on the improvement of catchment management and water quality, the project will contribute to achieving the objective, ?urbanization as a driver of growth?.</p>
<p>National Land Use and Development Master Plan 2020-2050 (2020)</p>	<p>This document is a key plan stemming from Vision 2050, and focuses on land use and development over time, in order to efficiently use these resources all while facilitating development : a ? land-use balance sheet based on spatial and economic analysis ?. It is itself in line with the National Land Policy (2019).</p> <p>The plan recognizes 13 main users, including three types of agricultural land (incl. Wetlands), Natural Forests and Forest Plantations, Wooded savannah and Shrublands. This project aligns itself with the recommendations of the Environment and Natural resources report of NLUDMP, namely :</p> <ul style="list-style-type: none"> ? Sustainable Agriculture, ? Environmental and Social safeguards, ? Resource Efficiency and Cleaner Production. <p>In particular, its actions in terms of soil and water resource conservation, protection of water bodies and their buffer zones, promoting green energy and better controlling the use of biomass, building a stronger water monitoring network, including catchment management, and improved pollution management (solid waste and waste water).</p>

National Forest Policy
(2018)

The 2018 National Forest Policy sets out the Rwandan government's medium to long term strategy for sustainable forest resource development and management. The overall vision is, 'Forest resources will be managed to play an integral role in supporting Rwanda's

development goals for sustainable, low-carbon and climate resilient to improve livelihoods of present and future generations'. This is developed by seven priority statements, four of which are in particular consistent with the proposed project objectives and activities:

- ? 4: Appropriate regulatory instruments will be developed and implemented to ensure sustainable and efficient biomass supply. ? developing greener biomass practices and promoting alternatives
- ? 5: Biodiversity and ecosystems services and values will be enhanced in accordance with national and international agenda.- better managing existing resources, and rehabilitating degraded ones to promote ecosystem services
- ? 6: Active participation of stakeholders in Sustainable Forest Management to ensure ownership and proper benefit sharing. ? active participation of communities, including youth and women;
- ? 7: the adoption of Agroforestry and Trees Outside Forest (TOFo) techniques will be enhanced to contribute to overall forest resources and agriculture productivity.

While not the direct objective of the proposed project, the project recognises that addressing the forestry sector and forest resources inherently improves the issues of water quality central.

<p>National Policy for Water Resources Management (2011)</p>	<p>This policy, developed in 2011, has five objectives:</p> <ul style="list-style-type: none"> ? Provide a comprehensive and suitable policy framework that will strengthen the Government's ability to conserve and protect Rwanda's water resources ? Provide a legal and institutional framework for water resources conservation and management throughout the country and at trans-boundary level. ? Promote partnerships, incentives and benefit sharing to enhance water resources conservation and management. ? Provide a framework for equitable allocation of water resources and the sharing of benefits derived from that resource. ? Promote positive attitudes towards water resources conservation and management. <p>The proposed project, focusing on water quality management, at a local, national and transboundary level, is therefore completely consistent with the above objectives. In particular, it is important to single out three of the policy statements:</p> <ul style="list-style-type: none"> ? Water resource conservation : The water resources of Rwanda will be conserved, protected and managed in order to secure and enhance its availability for, and utility to, the present and future generations. ? Shared water resources: The Government of Rwanda shall foster co-operation in the sustainable management and equitable utilization of shared water resources. ? Climate change resilience: The Government shall establish systems and technology to monitor and observe water resources, to understand the water balance and perform water accounting, improve meteorological services, and observe and respond to climate variance and long term impacts of climate change, and ? Capacity building: The Government will develop the human, technical and managerial capacity of institutions involved in water resources management at central and local levels so as to provide the necessary capacity for the sustainable management of the country's water resources.
<p>Nationally Determined Contributions</p>	<p>Rwanda submitted its updated NDC in 2020, the first country in the world to do so. These come as an update to the 2016 NDC (based on 2015 INDC).</p> <p>In terms of mitigation measure, this project will help work towards the following:</p> <ul style="list-style-type: none"> ? Grid connected hydroelectricity production ? Efficient cookstoves ? Soil and water conservation <p>This project will contributed to the effective development of adaptation measures outlined in the water, agriculture, land and forestry as well as cross-cutting issues, as follows:</p> <ul style="list-style-type: none"> ? Water: develop National Water Security, develop water quality testing ? Agriculture: sustainable land management practices, improve water management ? Land and forestry: agroforestry and sustainable agriculture (control of soil erosion), promote afforestation/reforestation, ? Cross-cutting: establishment of warning systems, disaster risk monitoring, access to finance.

<p>National Environment and Climate Change Policy (2019)</p>	<p>This policy is an update of the 2003 Environment Policy. Its overall goal is ? Rwanda to be a nation that has a clean and healthy environment, resilient to climate variability and change that supports a high quality of life for its society ?.</p> <p>Seven objectives are presented :</p> <ul style="list-style-type: none"> ? Greening economic transformation ? Enhancing functional natural ecosystems and managing biosafety ? the focus on water quality monitoring as well as soil and water conservation practices will directly help achieve this objective in the Lake Kivu and Ruzizi River catchments. ? Strengthening meteorological and early warning services ? the focus on the water quality monitoring as well as the limnic eruption risk will feed directly into this objective. ? Promote climate change adaptation, mitigation and response ? Improve environmental well-being for Rwandans ? again, through its focus on water quality, the project will help achieve this objective. ? Strengthen environment and climate change governance ? this project directly applies to this objective as it looks to strengthen coordination mechanisms, improve access to water resource information as well as promote inclusiveness and participatory environmental management, at local and transboundary levels.
<p>National Strategy for Transformation 2017-2024</p>	<p>The NST 1 is effectively the tool to bridge between Rwanda?s 2020 and 2050 Vision. Alongside its three main priorities (economic transformation, social transformation and transformational governance), the NST recognizes a number of cross-cutting issues . While the current project will indirectly help reach economic transformation (through its promotion of sustainable management of natural resources, priority 7) and transformational governance (by strengthening international cooperation, priority 3), the project focuses on a few of cross-cutting issues, notably:</p> <ul style="list-style-type: none"> ? Capacity development ? Environment and Climate Change ? Disaster Management.
<p>Green Growth and Climate Resilience (2011)</p>	<p>The overall goal of this is for Rwanda to be a developed climate-resilient, low- carbon economy by 2050. There are three strategic objectives:</p> <ul style="list-style-type: none"> ? To achieve Energy Security and a Low Carbon Energy Supply that supports the development of Green Industry and Services ? To achieve Sustainable Land Use and Water Resource Management that results in Food Security, appropriate Urban Development and preservation of Biodiversity and Ecosystem Services ? To achieve Social Protection, Improved Health and Disaster Risk Reduction that reduces vulnerability to climate change; <p>These are to be implemented under 14 Action Programmes; this project pertains directly to the Integrated Water Resources Management and Planning AP as it promotes catchment management at multiple levels, water quality monitoring, and promoting water conservation strategies, but also indirectly others such as:</p> <ul style="list-style-type: none"> ? AP 4: Sustainable Land Use Management and Planning ? AP 7: Green Industry and Private Sector Development ? AP 12: Sustainable Forestry, Agroforestry and Biomass Energy ? AP 13: Disaster Management and Disease Prevention.

<p>National Biodiversity Strategy and Action Plan (NBSAP) (2016)</p>	<p>The current National Biodiversity Strategy and Action Plan (NBSAP) is the revised version from 2006. The major objectives of the NBSAP are:</p> <ul style="list-style-type: none"> ? to improve environmental stability for natural ecosystems and their biodiversity; ? to restore degraded ecosystems and maintain equilibrium among biological communities; ? to establish an appropriate framework for access to genetic resources and equitable sharing of benefits arising from biodiversity use and ecosystems services; ? and to improve policy, legal and institutional framework for a better management and conservation of national biodiversity. <p>The plan had 19 targets for 2020; while this plan needs to be updated, the current project will continue supporting its objectives, as well as some of the key targets such as:</p> <ul style="list-style-type: none"> ? reducing degradation and fragmentation of natural habitats; ? sustainable management in agriculture and forestry, taking into consideration ecosystem specificities to ensure biodiversity conservation; ? lowering pollutant levels as not to harm ecosystems; ? restoring and safeguarding ecosystems that provide essential services to human well-being and contribute to health as well as livelihoods,, taking into account the needs of women, local communities especially the vulnerable groups.
<p>National Adaptation Programme of Actions (2006)</p>	<p>The Rwanda NAPA was finalized in 2006, and is structured around six priority adaptation options:</p> <ul style="list-style-type: none"> ? An Integrated Water Resource Management ? IWRM; ? Setting up an information systems to early warning of hydro-agro meteorological system and rapid intervention mechanisms; ? Promotion of non agricultural income generating activities; ? Promotion of intensive agro-pastoral activities; ? Introduction of species resisting to environmental conditions; ? Development of firewood alternative sources of energy. <p>The proposed project falls in line mainly under the first option, with a focus on water quality monitoring, participatory and inclusive capacity building, and improved land management, notably in terms of erosion</p> <p>The National Action Plan process started in 2017.</p>

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.

Communication and knowledge management is an essential element of the project, both at an institutional level in order to properly develop a transboundary basin organization, but also at national and local level,

to ensure appropriate diffusion of information, guidelines and policies ; it is specifically targeted within Component 4, as well as through specific activities in Components 1-3.

Component 4 is at the heart of the communication and knowledge strategy. Under Outcome 4.1., a cohesive and comprehensive knowledge consolidation will take place. This will include documenting regional experiences in water resource quality monitoring, in order to better understand the challenges and successes related to this, as well as supporting learning visits between basin organizations. Under Output 4.1.2, the best practices developed through the project will be consolidated and distributed; this includes the BET for key anthropogenic activities in the basin, but also guidelines for EIA pertaining to all three countries, and e-flow requirements. Importantly, along with the consolidation of this knowledge, there is also a means to distribute both through the IW-Learn platform, as well as a dedicated Data and Information portal (Output 4.2.3), which will ensure that this information is readily available at a regional and international level.

The regional and national data and information sharing platform is based on the protocol developed and agreed under Component 1 ; this is a crucial step in the development of transboundary water resources cooperation. This protocol will be the commitment basis for the member states in terms of efforts to collate data and information on matters of common interests and the principles along which they are shared.

Alongside communication and knowledge management in Component 4, there are a variety of actions to both consolidate information as well as disseminate it in the other components. For instance, output 1.1.2 sees the dissemination and implementation of the information gathered, analyzed and developed into the basin Strategic Action Plan. It provides opportunity to translate the SAP into nationally oriented action programs and resource management plans, which will help inform the Knowledge Management Strategy and M&E process. These action programs and resource management plans will be developed through diffusion of the SAP and stakeholder driven discussions at national and basin levels.

Similarly, under component 2 and 3, there are numerous consultative assessments, trainings and micro-projects which will all involve the development and implementation of best practices related to key anthropogenic activities which impact water resource quality in the basin. While these will be consolidated and diffused at national and regional level under component 4, it is in the activities under component 2 and 3 that local communities will be engaged and information diffused at a more local level.

Table 8: : Project communication targets and examples of communication tools

Scale	Target	Examples of communication tools
Regional	? River basin authorities	? IW-learn platform ? Exchange visits ? Workshops and training ? National action and resource management plans

Scale	Target	Examples of communication tools
National	<ul style="list-style-type: none"> ? Centralized government staff/agencies ? Other decision and policy-makers ? Civil society, including notably national leaders, influencers, organizations active at the national scale ? National & international ngos ? Other national level projects ? Technical & research institutions/initiatives ? Private sector actors active at the national scale 	<ul style="list-style-type: none"> ? National action and resource management plans ? Publications, leaflets, pamphlets briefs, best practice documents (including guidelines) ? IW-learn platform ? Water resource quality databases (national and regional) ? Workshops and training
Local Level	<ul style="list-style-type: none"> ? Decentralized government staff/agencies ? Local administrative authorities ? Civil society, including notably leaders, influencers and organizations ? Professional/smallholder associations ? National & international NGOS ? Baseline projects in the district ? Private sector actors ? Community members, including vulnerable groups 	<ul style="list-style-type: none"> ? Local consultations, meetings, workshops ? Live Communications events ? Publications, leaflets, pamphlets briefs, best practice documents ? Trainings and learning visits (exchange) ? Project posters and signs

9. Monitoring and Evaluation

Describe the budgeted M and E plan

Monitoring and evaluation (M&E) of the proposed project will be carried out in accordance with the procedures/guidelines established by the AfDB and the GEF.

Table 9: M&E activities, schedule and responsibilities.

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)
Inception workshop and inception report	The inception workshop brings together the stakeholders involved in the project and the inception report. It provides an opportunity and means to finalize preparations for the implementation of the proposed project, including the formulation of the first annual work plan, details of stakeholder roles and responsibilities, and reporting and monitoring requirements. This inception workshop will be crucial for this project in order to ensure the full cooperation and involvement of the three member countries	Within the first two months of project inception	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	US\$ 15,000
Baseline Study	The project's logical framework - in particular the reference level of SMART indicators.	At the start of the project ? possibly during inception workshop	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	None

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)
Logical results framework	The project's logical results framework includes SMART indicators for each expected result as well as medium- and end-of-project targets. These indicators will be the main tools for assessing the progress of project implementation and the achievement of project results. Means of verifying the progress of the results and the implementation of the project will be carried out throughout the implementation period.	Data collected on an ongoing basis to provide the required quantitative and qualitative data on progress against each indicator before project evaluation reports and the definition of annual work plans.	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	None
Quarterly progress reports	The PMU will prepare a summary of the substantial and technical progress of the project towards achieving its objectives. The summaries will be reviewed and approved by the AfDB Water Management Unit, before being passed on to the AfDB GEF unit.	Quarterly	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	None

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)
Annual Project Report	The annual project report covers the evaluation of the advance on the project's outputs and outcomes, key achievements, evidence of success, constraints, lessons learned and recommendations, as well as the overall evaluation of the project. The annual progress report will be prepared by the Project Coordinator and ABAKIR, after consultation with relevant stakeholders and will be submitted to the AfDB GEF Unit.	Annual	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	None
Evaluation by the Steering Committee	The members of the Steering Committee will meet twice a year (mixed medium to be promoted ? virtual and in person) to assess the progress of the project and take decisions on recommendations to improve the design and implementation of the project in order to achieve the expected results.	2 times / year	Steering Committee Project Coordinator (PMU) AfDB ? GEF and Water Management Unit	US\$ 15,000 (US\$ 1,500 per Committee meeting)

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)
Independent external mid-term evaluation	A mid-term evaluation of the project will be carried out at the beginning of the third year of implementation, focusing on relevance, results (effectiveness, efficiency and timeliness), issues requiring decisions and actions and early lessons learned in project design, implementation and management	Half-way through project implementation.	AfDB Project Coordinator	US\$ 50,000
Independent external evaluation at the end of the project	A final evaluation, which takes place three months before the last TPR meeting, focuses on the same issues as the mid-term evaluation but also covers impact, sustainability and monitoring recommendations, including the contribution to capacity building and the achievement of global environmental objectives.	At least three months before the end of the project implementation.	AfDB Evaluation Office	US\$ 50,000
Final evaluation report	A final evaluation report will be produced after the project feedback meeting.	At the end of the final evaluation	Project Coordinator (PMU) AfDB (Water Management Unit + GEF Unit)	None

M&E activity	Description	Frequency	Responsible persons	Budget (GEF funded)
Financial monitoring report	The PMU, with support from the AfDB Water Management Unit, will be required to produce financial monitoring reports (FMR) on a quarterly basis. These FMR will be prepared and submitted to the Bank (GEF Unit) no later than 45 days after the end of each quarter.	Quarterly	Project Coordinator (PMU) AfDB (Water Management Unit)	None
Budget review	Revisions to the project budget will reflect the final expenditures of the previous year, in order to allow for the preparation of a realistic plan for the provision of inputs for the current year. Significant revisions are expected to be approved by the AfDB/GEF Coordinator to ensure consistency with the GEF principle of the additional eligibility criteria and the GEF before being approved.	At least annually and as required during the life of the project	Project Coordinator (PMU) AfDB Project Coordinator (Water Management Unit)	None
Financial audit	A financial audit will be carried out each year. The AfDB Water Management Unit will develop and implement a strategy to address the audit recommendations after each audit.	Annual	AfDB Water Management Unit	US\$ 25,000 (US\$ 5,000 per year).
TOTAL indicative costs		US\$ 155,000		

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)?

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 (LDCF/SCCF)?

The population in the basin rely heavily on its natural resources ? water, land, forest, etc. Poor management of these, whether it be in one, two or all three countries, will directly impact the lives of the population all throughout the basin ? food security, WASH, productivity and economic opportunity. By focusing on the development of shared management of the basin, this project will provide an improved means for stakeholders to dialogue and develop effective and joint solutions to priority environmental problems. This is particularly translated on the local level through the capacity building and support for catchment management planning and soil and water conservation techniques.

The project specifically targets certain industries, such as coffee washing, developing BET which will also be piloted and improved. These should not only help reducing the negative impacts that these anthropogenic activities have on water quality, but also render these industries more sustainable in the long run, which in turn, will provide more economic stability and opportunity for the local populations. The focus on solid waste management in Bukavu and Goma will allow to foster innovation, benefit the energy sector (by maintenance costs for hydropower plants), as well as improve water quality for a booming urban population.

Similarly, by supporting the creation of a network of laboratories capable to support a long-term monitoring of the water quality in the basin will provide job opportunities for those trained, as well as increase local and national level capacity, which will decrease reliance on external support.

Finally, by focusing on the knowledge gathering (e.g. reconnaissance monitoring, limnic eruptions) and dissemination (e.g. data portal), the project is building a strong, transparent and evidence based system that will allow for national level stakeholders to access data which will help guide their decisions as well as improve dialogue between member countries. This will be of particular importance for the development of any transboundary projects, such as hydropower stations, but also in the case of disaster preparedness, whether it be landslides, flooding or limnic eruptions. Disaster risk reduction is of vital importance in this densely populated region.

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*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

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.

A preliminary environmental and social safeguards risk screening has been undertaken for the project. A detailed Environmental and Social Safeguard Risks assessment is still to be concluded, pending final agreed categorization of the project which is still under discussion with stakeholders.

Under AfDB guidance, the project is still categorized as a **Category 3** project:

?Category 3 projects do not directly or indirectly affect the environment adversely and are unlikely to induce adverse social impacts. They do not require an environmental and social assessment. Beyond categorization, no action is required. Nonetheless, to design a Category 3 project properly, it may be necessary to carry out gender analyses, institutional analyses, or other studies on specific, critical social considerations to anticipate and manage unintended impacts on the affected communities.?[1]

[1] African Development Bank (2013). African Development Bank Group's Integrated Safeguards System: Policy Statement and Operational Safeguards. Safeguards and Sustainability Series, Volume 1, Issue 1.

Supporting Documents

Upload available ESS supporting documents.

Title

Module

Submitted

**Lake Kivu Project
Environmental And Social
Management System**

CEO Endorsement ESS

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).

The project results framework is provided below.

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
1. National and regional capacity for cooperation enhanced					
1-1. Strengthened collective management of Lake Kivu and the Rusizi River Basin through institutional, policy, and legal reforms					
1.1.1. ABAKIR's Institutional Capacity Improved.	ABAKIR's institutional structures and staffing outlined on a form follows function basis	0	ABAKIR's institutional structures and staffing and remuneration signed off by member States in the second quarter	Approved Institutional Design Report	<p>R: Member States cannot agree on the staff, remuneration and structure for ABAKIR.</p> <p>Member States do not make financial contributions.</p> <p>No external sources of funding can be found.</p> <p>Little political will to ratify the Treaty.</p> <p>Treaty does not align with national priorities and sovereignty.</p> <p>M: Agreed staffing structure in place and recruitment starts</p>

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
1.1.2. Strategic Plan for the Basin developed with EU and GIZ support adopted and implemented.	Resolutions by inter-Ministerial Committees Signed SAP document	0	Committees established with participation by key Ministries in each member State in the first quarter	Minutes of the meetings	R: Lack of capacity or interest in establishing the committees. Limited resources to implement the actions identified in the SAP.
1.1.3. A shared institutional vision for ABAKIR	Agreed Vision and Roadmap for ABAKIR as an institution	0	Agreed Vision and roadmap for ABAKIR in place in the first quarter	Approved Vision and Roadmap Document	R: Member States cannot agree on a vision. M: Institutional Visioning Workshop attendance & Report Agreed by the Member States.
2. Improving Water Resource Quality Management					
2.1. Water Resource Quality Improved and further pollution minimised					

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
2.1.1. Adoption of a framework for reducing point and non-point source pollution	<p>Stakeholder's capacity to participate in Water Resource Quality Management Planning improved</p> <p>Agreed codes of good practice for agriculture, agroforestry and artisanal mining.</p>	<p><20%</p> <p>0</p>	<p>More than 75% of the stakeholders engaged indicate an improved understanding of water resource quality monitoring.</p> <p>Codes of good practice reports</p>	<p>Before and After Surveys of Capacity.</p> <p>Codes of Good Practice Guidelines</p>	<p>R: Too few resources available to cover all the interested stakeholders.</p> <p>M: Trained staff self-evaluations.</p> <p>R: Member States cannot agree on the codes of practice.</p> <p>M: Member States adopt Codes of Practice.</p>
2.1.2 Community-based water resource quality monitoring pilot programmes implemented in the 3 member States	Water Resource Quality monitoring initiated at, at least 3 sites (at least one in each member State.)	0	3 pilot monitoring projects initiated.	Data from the monitoring programmes uploaded to the Data and Information Portal.	<p>R: Communities do not implement the monitoring without incentives.</p> <p>Communities willing to participate cannot be identified.</p> <p>Security risks in Burundi and DRC prevent engagement with the communities.</p> <p>M: Data uploaded to the Portal.</p>

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
2.1.3 Laboratories for water quality monitoring set up	Laboratories are established and equipped for each member State. QA/QC procedures established in each laboratory	1 (Burundi) 0 0	At least 3 laboratories established / upgraded Staff for 3 laboratories trained in WQ monitoring procedures as per 3 Laboratories participate in inter-laboratory calibration.	Inventories of equipment and consumables at each laboratory. Data uploaded to the Data and Information Portal. Number of staff trained and providing data. QA/QC procedures available. Data from the calibration highlighting laboratory performance	R: Laboratories unwilling to participate. Laboratories do not want to participate in the interlaboratory calibration. Laboratories can't sustain operational costs. M: Minimum no. of water quality parameters agreed and shared.
2.1.4 Reconnaissance Water Resource Quality Survey	Reports and data from the Reconnaissance Survey	0	Once of Survey of Aquatic Ecosystem Health, POPs and metals	Reports and data presented and uploaded to the ABAKIR Data and Information Portal	R: Insufficient funds available.
3. Providing catalytic investments in the water-food-energy nexus					
3.1. Investment and incentive measures that address water security both in terms of quality and quantity promoted					

Lake Kivu and Rusizi River Basin Water Quality Management Project

Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
<p>3.1.1. Incentives for the private sector to leverage investment identified.</p> <p>(Coffee washing stations, Tea leaf drying, pelleting factories, Breweries, solid waste recycling)</p>	<p>Incentives and BET technologies presented to private sector.</p>	<p>0</p>	<p>Major pollution sources in each member State adopt BET (at least for 3 common activities amongst coffee washing, tea leaf drying, pelleting, breweries or solid waste).</p>	<p>Official communication from industries agreeing</p> <p>Feasibility level designs and operating manuals.</p> <p>Monitoring of use of biomass energy and COD / BOD monitoring of rivers.</p> <p>Volume of waste collected and recycled.</p>	<p>R: Industries do not want to cooperate. Incentives insufficient to motivate the investments.</p> <p>Plastics recycling not viable.</p>

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
3.1.2. On-the-ground investments for Watershed Management [and energy efficiency]	Training Programmes undertaken, numbers of trainees	0	Training programmes held for District officials and community leadership in 3 catchments (1 in each mS)	Number of trainees included in attendance lists. Pre and post training self-evaluations.	R: District officials not available for training
	Disaster risk mitigation plans and monitoring presented to the competent authorities	0	Plans for flood and landslide risk assessment and mitigation for each member State.	DRR Tools and contingency plans made available.	M: Districts implement the Contingency Plans. Hits on the DRR Tools site in ABAKIR.
	Tool to assess risks of limnic eruption available	0	Tool operated by LKMP/REMA shared on the ABAKIR Data and Information Portal, presenting near real time qualitative risk of limnic eruption.	Near real time risks shared available on the ABAKIR Data and Information Portal.	
	Uptake of energy efficient stoves in selected communities	0%	At least 75% of the stoves provided are still in use (min 70% women)		

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
3.1.3. BAT/BEP adopted by Coffee washing stations, Tea leaf drying, pelleting factories, Breweries, solid waste recycling and artisanal mining.	Agreed basin wide approach to BAT / BEP for main pollution sources	0	BAT / BEP approaches for Coffee washing stations, Tea leaf drying, pelleting factories, Breweries, solid waste recycling and artisanal mining in place (at least 3)	Approaches BAT / BEP for the main pollution sources approved for use in the member States.	R: Member States do not adopt the proposed BET interventions. Pollution sources do not implement the proposed BET. Plastic waste recycling not viable.
	Code of practice for reducing mercury contamination implemented.	0	Implementation of the code of practice at least 3 sites in each member State initiated.	Monitoring of key pollutants at each site initiated and shared on the Data and Information Portal.	
4. Monitoring and Evaluation and Knowledge Management					
4.1. Assessments conducted to supplement the Baseline Study and SAP to guide decision making					

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
4.1.1. Capacity building for effective environmental monitoring	Communities and officials trained in biomonitoring protocols.	0	Communities and NGOs in 3 pilot sites are trained [one in each country; 50% women]	Data of water resource quality and water quality uploaded to the Data and Information Portal.	R: Communities do not continue with biomonitoring.
	MoU signed with University Of Rwanda Centre of Excellence in Biodiversity	0	Officials from each member State trained in water quality sampling and water resource monitoring. 1 MoU signed	Reports from the exchange visits	Security conditions do not allow for community engagements.
	Reports on regional experiences in environmental monitoring	0	1 report produced, and disseminated nationally as well as made available on IW-Learn platform and others		
	Exchange visits to similar regional projects.	0	At least 2 exchange visits arranged and reported.		

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
4.1.2 Best Practice Guidelines for Environmental Monitoring are disseminated	TbEIA Guidelines are available	0	EIA Guidelines / notification agreed by the member States.	Guideline documents are available in each member State.	R: Member States cannot agree on TbEIA / Notification Guidelines
	Water resource quality Guidelines are available	0	Water resource quality guidelines are agreed by the member States.		Member States cannot agree on Water Resource Quality Guidelines
	Guidelines for e-flows are available	0	E-flows guidelines are agreed by the member States.		Member States cannot agree on eFlows Guidelines
4.2.1 PMU established and project plan developed and implemented, including M&E	PMU staff hired and in satisfactory standing	0	Minimum 2 FT staff	Evaluation reports, audits, quarterly/annual monitoring reports	R: Security or Covid 19 inhibits the timely rollout of project, including ability to reach stakeholders
	Participatory planning workshops undertaken	0	1 inception workshop Yearly annual SC workshops (5)		
	Monitoring, Evaluation, Learning and Reporting systems developed and operationalized	0	1 overall M&E system developed and operationalized, with SEP, Gender AP, and ESMP		

Lake Kivu and Rusizi River Basin Water Quality Management Project					
Expected results	Indicator	Base	Target	Source of verification	Measurement (M) / Risk (R)
4.2.2 Data and Information Portal designed and delivered	Active data and information portal	0	1	IW-Learn website	R: unequal participation/delays from member countries in data retrieval
	Project information available on IW-Learn	0%	100% of Project characteristics and digital outputs available on IW-Learn		
Project management					
Project Costs and Performance					
5.1. Project management team in place and functional	Project monitoring report	0	Completed and documented procurement plan	PMU / project manager appraisal reports	R: Delays in validation and disbursement of work plan and procurement plans M : Effectiveness of PMU
	Equipment purchase			Audits of project procurement	
5.2. Project evaluation and audit mission carried out	Mid-term evaluation	0 0	1 completed mid-term evaluation	Audits	
	Final evaluation		1 completed final evaluation		

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).

The responses to project reviews are still being finalized.

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

The PPG activities are still on-going. The below table summarizes the utilization of funds to date.

PPG Grant Approved at PIF:	\$150,000		
Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount (\$)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Remuneration: Fees and other staff costs	\$124,163.00	\$86,914.00	\$37,249.00
Reimbursables: Local Transport and Accommodation Field Mission, Stakeholder Workshops.	\$25,837.00	\$18,086.00	\$7,751.00
Total (Consultancy Preparation Contract)	\$150,000.00	\$105,000.00	\$45,000.00

ANNEX D: Project Map(s) and Coordinates

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

These have been uploaded as annexes to this document, being:

03_Burundi_A4 - the project areas in Lake Kivu basin under the jurisdiction of Burundi

05_RDC_A4 - the project areas in Lake Kivu basin under the jurisdiction of DR Congo

04_Rwanda_A4 - the project areas in Lake Kivu basin under the jurisdiction of Rwanda

ANNEX E: Project Budget Table

Please attach a project budget table.

	3 day training sessions in pilot communities	-	30,000	-	-	30,000	-	-	30,000
	Training of laboratory and monitoring staff	-	20,000	-	-	20,000	-	-	20,000
Communication and education									
	Communication event	-	21,000	-	-	21,000	-	-	21,000
	Communication material	-	-	-	90,000	90,000	-	-	90,000
Equipment									
	Biomonitoring equipment	-	20,000	-	-	20,000	-	-	20,000
	Laboratory equipment	-	583,000	-	-	583,000	-	-	583,000
	Equipment and facilities for pilot sites	-	-	500,000	-	500,000	-	-	500,000
	Energy efficient wood burning stoves	-	-	1,000	-	1,000	-	-	1,000
	Hardware equipment	-	-	30,000	-	30,000	-	-	30,000
	Thermal chains and telemetry equipment and O&M	-	-	1,300,000	-	1,300,000	-	-	1,300,000
	IT equipment and software	-	-	-	20,000	20,000	-	-	20,000
	Office sundries and field equipment	-	-	-	7,500	7,500	-	-	7,500

	4x4 vehicle	-	-	-	-	-	-	30,000	30,000
Operating Costs									
	Travel of workshop participants	20,000	-	-	-	20,000	-	-	20,000
	Travel to each of the 3 member states	3,000	13,500	15,000	55,500	87,000	-	-	87,000
	Travel around the sub-basin	-	-	1,000	-	1,000	-	-	1,000
	Travel to Goma and Bukavu	-	-	3,000	-	3,000	-	-	3,000
	Travel to communities	-	-	1,500	-	1,500	-	-	1,500
Project Team	Project management travel	-	-	-	-	-	-	40,000	40,000
	Project Manager	-	-	-	-	-	-	240,000	240,000
Consultants & surveys/assessments									
	Consultant	420,000	580,000	270,000	540,000	1,810,000	-	-	1,810,000
	Catchment survey	-	3,000	-	-	3,000	-	-	3,000
	Reconnaissance monitoring	-	20,000	-	-	20,000	-	-	20,000
	Biomonitoring at reference and monitoring sites	-	20,000	-	-	20,000	-	-	20,000

	Analysis of reference samples by external accredited laboratories	-	15,000	-	-	15,000	-	-	15,000
	Basin-wide sampling / survey programme	-	10,000	-	-	10,000	-	-	10,000
	Development of an early warning system	-	-	30,000	-	30,000	-	-	30,000
	Implementation of small-scale micro projects	-	-	210,000	-	210,000	-	-	210,000
Support Staff									
	Inception workshop	-	-	-	15,000	15,000	-	-	15,000
	Steering Committee meetings	-	-	-	-	-	-	-	-
	Evaluation	-	-	-	-	-	100,000	-	100,000
	Financial audits	-	-	-	-	-	25,000	-	25,000
Sub-Total (USD)		503,000	1,365,500	2,401,500	1,013,000	5,283,000	125,000	310,000	5,718,000

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).