Strategic Action Plan for the integrated management of the Lake Kivu and Rusizi/ Ruzizi River Basin and its Basin Authority ABAKIR

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Acknowledgements

This first Strategic Action Plan (SAP) for the Lake Kivu and the Ruzizi River Basin was developed between August 2021 and July 2022, based on the findings of the Transboundary Diagnostic Analysis from 2020 and in discussions and consultations with over 150 stakeholders from the three riparian states of Burundi, the Democratic Republic of Congo and Rwanda. These stakeholders represented local authorities, civil society groups and non-governmental organisations, regional organisations at basin level, academic and research institutions, national ministries and their technical departments, international development actors and financing agencies. The Authority for Lake Kivu and the Ruzizi River Basin (ABAKIR) is grateful to all who contributed to this process, and all those engaged in projects and programmes for the sustainable management of water resources in the basin.

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Participating institutions

The following institutions contributed to the elaboration of this SAP:

Government Organisations:

- Ministry of Agriculture, Environment and Livestock Burundi
  - Permanent Secretary
  - Director General
- Direction Générale de l’Environnement, des Ressources en Eau et de l’Assainissement de Base, Burundi
- Direction Provinciale du ministère de l’Environnement de l'Agriculture et de l'Elevage in Cibitoke, Burundi
- Ministry of Hydraulics, Energy, and Mining Burundi
  - Director General for Energy
- Ministry of Foreign Affairs and Development Cooperation Burundi
  - Director General of Regional Integration
  - Conseiller Regionale, responsible for ABAKIR dossier
- Office Burundais pour la Protection de l’Environnement (OBPE) Burundi
- Mayor of Bukavu
- Ministry of Environment Rwanda
  - Permanent Secretary
- Rwandan Water Board (RWB)
- Rwanda Forestry Authority (RFA)
- Rwanda Environment Management Authority (REMA)

Non-Governmental Organisations

- AVEDEC - Association des Villageois d’Entraide et de Développement

Communautaires Burundi
- Albertine Rift Conservation Society – ARCOS
- World Agroforestry – ICRAF
- SOCIERUCO - Société Civile Environnementale et Agro Rurale du Congo
- Comité de Réhabilitation du Sinistre dans son Milieu (CRSM) Goma
- HCS society Goma
- LOFEPACOGE (Ligue des Organisations des Femmes Paysannes du Congo) Goma
- Congo Men's Networks (COMEN) Goma
- One Acre Fund Rwanda
- IUCN Rwanda

National State Actors

- Régie de Distribution d'Eau – REGIDESO Kivu
- Rwanda Energy Group (REG)

Regional Cooperation Organisations / International Cooperation Initiatives

- Economic Community of the Great Lakes Countries (CEPGL)
- L'Energie des Pays des Grands Lacs (EGL)
- Société Internationale d'Electricité des Pays des Grands Lacs (SINELAC)
- Lake Tanganyika Authority (LTA)
- ENABEL/LATAWAMA
- Projet Régional de Développement Agricole Intégrée des Grands Lacs (PRDAIGL)

Development Partners

- EU Délégation Burundi
- EU Delegation Rwanda
- African Development Bank / Global Environment Facility

Academic and Research Institutions / Consultancy Agencies

- Université Officielle de Bukavu (UOB)
- Institute Supérieure Pédagogique UERHA-ISP/Bukavu laboratoire - Unité de Recherche et d'Enseignement du Département de Biologie-Chimie de l'ISP
- Global Green Growth Institute (GGGI Rwanda)
- SHER
- BRLi

Private Sector

- Shema Power Lake Kivu Ltd (SPLK)
- Contour Global/Kivu Watt
- BRALIMA (DRC)
- BRALIRWA (Rwanda)

List of Abbreviations

ABAKIR	Autorité de Bassin du Lac Kivu et de la Rivière Ruzizi, Lake Kivu and Ruzizi River Basin Authority
AFD	African Development Bank
AHT	AHT GROUP GmbH
ARCOS	Albertine Rift Conservation Society
ASCENT	Africa Sustainability Centre
AVEDEC	Association Villageoise d'entraide et de Développement communautaire
BDEGL	Banque de développement des Etats des Grands Lacs
BMZ	Federal Ministry of Economic Cooperation and Development / Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
BRALIMA	La Brasserie de Léopoldville - Subsidiary of the HEINEKEN Group
BRALIRWA	Bralirwa Public limited company - Subsidiary of the HEINEKEN Group
BUCECO	Burundi Cement Company
CBFP	Congo Basin Forest Partnership
CD	Capacity Development
CEPGL	Economic Community of the Great Lakes Countries / Communauté Économique des Pays des Grand Lacs
CESM	Community Earth System Model
CICOS	Commission Internationale du Bassin Congo-Oubangui-Sang
CIMERWA	Rwanda Cement Factory
CIP	CRAG Intervention Plan
CIWA	Cooperation in International Waters in Africa
CND	Congo Nile Divide
COM	Council of Ministers (of ABAKIR)
COMEN	Congo Men's Networks
COPILAC	Coopérative des Pêcheurs de Isambaza du Lac Kivu
CR	Critically Endangered
CRAG	Climate Resilient Altitudinal Gradient
CRSM	Comité de Réhabilitation du Sinistre Dans Son Milieu
CSA	Climate-smart agriculture
CSR	Corporate Social Responsibility
DGIS	DG for International Cooperation in the Netherlands
DRC / RDC	Democratic Republic of Congo
DRR	Disaster preparedness and Disaster Risk Reduction
DUKINGIRE IBIDUKIKIJE	Conservation et valorisation des écosystèmes naturels et de leur biodiversité pour une croissance verte des communautés rurales au Burundi
ECGLC	Economic Community of the Great Lakes Countries
ECHO	European Commission Directorate-General for Humanitarian Aid and Civil Protection
EDF	European Development Fund
EGL	Énergie des Grands Lacs
EIB	European Investment Bank
EN	Endangered

EPI	Enterprise Partnership Initiative
EPPM	Engineering Procurement & Project Management
EU	European Union
EUR	Euro
EWE	Projet de reboisement national
FEGF	French Global Environment Fund
FONERWA	Rwanda Green Fund
GEF	Global Environment Facility
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
GIS / SIG	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HCS	Histochemical Society
ICRAF	World Agroforestry
IEC	Information, Education, Communication
IFI	Internal Financing Institution
IGEBU	Institut Géographique du Burundi
IMF	International Monetary Fund
INES	Institute of Applied Sciences of Ruhengeri
IPCC	Intergovernmental Panel on Climate Change
IRAZ	Agronomic and Zootechnical Research Institute
IRD	Institut de Recherche pour le Développement
IUCN	International Union for the Conservation of Nature
IWRM	Integrated Water Resources Management
KAGU	Kagunuzi River
LATAWAMA	Lake Tanganyika Water Management
LHDA	Lesotho Highlands Development Authority
LHWP	Lesotho Highlands Water Project
LKMP	Lake Kivu Monitoring Programme
LOFEPACO	Ligue des Organisations des Femmes Paysannes du Congo
LRBO	Lake and River Basin Organisation
LTA / ALT	Lake Tanganyika Authority / Autorité du Lac Tanganyika
LVBC	Lake Victoria Basin Commission
MAM	March, April and May
MINAGRI	Ministry of Environment; Ministry of Agriculture and Animal Resources
MINEMA	Ministry of Emergency Management
MININFRA	Ministry of Finance and Economic Planning; Ministry of Infrastructure
MONUSCO	United Nations Organization Stabilization Mission in the DR Congo
MS	Member State
MSW	Municipal Solid Waste
MW	Mega Watt
NAP	National Action Plan
NBA	Niger Basin Authority

NBI	Nile Basin Initative
NDC	Nationally Determined Contribution
NGO	Non government organisation
NRW	Non-revenue water
OBPE	Office Burundais pour la Protection de l'Environnement
ORASECOM	Orange–Senqu River Commission
PICADL	Regional Great Lakes Integrated Agriculture Development Project
PICAGL	Project Régional de Développement Agricole dans les Grands Lacs
PND	National Development Plan
PNEFEB	Programme National Environnement, Forêts, Eaux et Biodiversité
PNSADR-IM	Platform for Food Security and Rural Development of the Imbo/Mosso
PRDAIGL	Projet Regional de Developpement Agricole Integre dans les Grands Lacs
RAB	Rwanda Agriculture Board
RBO	River Basin Organisation
RCP	Representative Concentration Pathway
REG / RDB	Rwandan Energy Group
REGIDESO	Region of Production and Distribution of Water and Electricity
REMA	Rwanda Environmental Monitoring Authority
RIP	Regional Indicative Program
RMB	Rwanda Mining and Petroleum Board
RNRA	Rwandan Natural Resources Authority
RWB	Rwanda Water Resources Board
SAP	Strategic Action Plan
SDAR	Schéma Directeur d'Aménagement de la plaine de la Ruzizi
SINELAC	Societe Internationale des Pays des Grand Lacs
SNEL	Société Nationale d'Electricité
SOCEARUCO	Société Civile Environnementale et Agro-Rurale du Congo
SOND	September, October, November and December
SP	Strategic Priority
SPLK	Shema Power Lake Kivu
SUV	Sport Utility Vehicle
TA	Technical Assitance
TAC	Technical Committee
TCTA	Trans-Caledon Tunnel Authority
TDA	Transboundary Diagnostic Analysis
UERHA-ISP	Institute Supérieure Pédagogique
UKAID	Department for International development
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOB	Université Officielle de Bukavu
UR	University Rwanda
US	United States

USD	United States Dollar
VLUAP	Village Land Use Action Plans
VU	Vulnerable
WB	World Bank
WCS	Wildlife Conservation Society
WEF - Nexus	The Water-Energy-Food Nexus
WEFE	Water, Energy, Food and Ecosystems
WFD	EU Water Framework Directive

Foreword

This Strategic Action Plan is an important element for the implementation of Integrated Water Resources Management in the Lake Kivu and Ruzizi River basin, based on the findings of the Basin Baseline Study / Transboundary Diagnostic Analysis (TDA) from 2020. It establishes clear strategic priorities to resolve the key transboundary problems identified in the TDA, and contains actions that are planned to address these, piloting the basin from today towards an agreed upon tomorrow.

The SAP has been developed jointly with the Lake Kivu and Ruzizi River Basin Authority (ABAKIR) and relevant basin stakeholders at the national and subnational level. As ABAKIR is a nascent institution, awaiting ratification of its founding International Convention Relating to the Integrated Water Resources Management of the Lake Kivu and Ruzizi/Rusizi River Basin, the SAP also serves as an initial planning document and implementation guide for the authority. It has thus been developed with the current personnel and budgetary resources of the authority, and the ongoing or planned interventions from implementing organisations active in the basin in mind. In line with the Convention, the SAP is oriented by the process of Integrated Water Resources Management (IWRM), promoting ”the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment”.

This first SAP is set for a 5-year period (2022-2027) and is intended to be an evolving plan, to be extended and updated as conditions change within the basin and with changes in the status and capacities of ABAKIR over that time. It should be a key element in the cycle of water, land and related resources in the basin.

The SAP is divided into five Strategic Priorities, with linkages to the TDA and the stakeholder’s agreed vision of the basin and aligned with the objectives of other regional initiatives.

Executive Summary

The development of a first Strategic Action Plan (SAP) for the Lake Kivu and the Ruzizi River Basin is part of the project "Support to the integrated management of water resources of Lake Kivu and Ruzizi River", financed by the European Union (EU Delegation to Rwanda) and the German Federal Ministry for Economic Cooperation and Development (BMZ), and implemented under a delegation agreement by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The project aims at improving the hydrological and operational management of the Lake Kivu and the Ruzizi River Basin.

The Lake Kivu and Ruzizi River Basin

The Lake Kivu and Ruzizi River Basin covers 13 385 km², between Democratic Republic of Congo, Rwanda and Burundi, with almost half of the basin (46.5%) in the DRC, one third (33.3%) in Rwanda, and one fifth (20.2%) in Burundi. It is part of the Lake Tanganyika Basin, which in turn is part of the Congo River Basin.

The Lake Kivu catchment covers over half (55%) of the basin, with the southern part (45%) forming the Ruzizi River catchment. The catchment descends from a maximum altitude of 4 507m (Mount Karisimbi) in the north to 773m at the outflow of the Ruzizi River into Lake Tanganyika. Lake Kivu has a maximum depth 485m and in the deeper regions (280 m and deeper) contains considerable reserves of methane gas.

Lake Kivu is drained by the Ruzizi River at the outlet in the south, at the border between Bukavu (DRC) and Rusizi (Rwanda). Over the first 50km the river has significant hydropower potential (73.6 MW already installed and a further 434 MW planned). The river then flows south through the Ruzizi Plain, which has a huge potential for irrigated agriculture.

Average annual temperatures range from 14 °C in the mountains in the north, east and west, to 25 °C in the Ruzizi Plain. Average annual rainfall ranges from 1 020 mm (Cibitoke in the Ruzizi Plain and Rubavu, Rwanda) to 1 830 mm (in Kalonge, DRC). Whilst there is no consensus on the scale, climate change is expected to have an impact on the basin with the winter rainy season becoming wetter with time. By 2060 the temperature may shift such that the coolest months of the year will be approaching levels found in the warmest months in the present day. The quantity of water in the basin is not expected to change, however water quality is expected to further deteriorate.

The basin lies in one of the most species rich regions of Africa. Of the species found within the Lake Kivu and Ruzizi River Basin, at least 71 are threatened (Critically Endangered, CR; Endangered, EN; or Vulnerable, VU). In addition to the impacts of rising temperatures, other anthropogenic drivers of environmental change are decreasing biodiversity, including changing land use practices (deforestation, urbanisation, increasing agricultural surfaces) and infrastructure developments.

In 2020 an estimated 11 million people were living in the basin, with over 80% of the urban population of 2.5 million, living on the shore of Lake Kivu in the cities of Bukavu and Goma in the DRC. Urban areas secure their water supplies either from Lake Kivu or nearby rivers, whilst rural areas depend mainly on spring catchments. The current drinking water demand of 111 million m³ per year is forecast to increase by some 250% by 2050.

Poverty rates prior to the COVID 19 pandemic varied across the basin, peaking in the provinces of South Kivu (84.7%) and North Kivu (72.9%) in DRC and were lowest in the towns of Rubavu (35%) and Ruzizi (33%) in Rwanda. Livelihoods are predominantly agriculture based and agriculture is mainly rain-fed and subsistence. Land is under extreme pressure due to population growth, severe soil erosion and degradation, limited agricultural productivity and

economic vulnerability.

Towards a coordinated basin management

The basin states, Burundi, DRC and Rwanda, signed *the International Convention Relating to the Integrated Water Resources Management of the Lake Kivu and Ruzizi/Rusizi River Basin* on the 4th November 2014 and founded the sub-regional "Authority of the Lake Kivu Basin and the Ruzizi /Rusizi River" (ABAKIR) with the mission "to ensure and represent the common interests of the Member States on subjects relating to the Integrated Water Resources Management in the Basin, in a process of consultation with the various stakeholders in each of the Member States". ABAKIR has a transitional structure pending ratification of the Convention by the Member States. Responses to the challenges facing the basin are not yet coordinated and are being implemented outside of a basin governance structure which would ensure equitable, efficient, sustainable and productive water resources management.

The Strategic Action Plan (SAP) for the Lake Kivu and Ruzizi River Basin seeks to make a step towards improving this situation. It is oriented by the process of Integrated Water Resources Management (IWRM), and provides a framework for action in the basin, oriented towards the stakeholder's shared vision for the basin, developed at the kick-off workshop of the SAP, that "the Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment".

Given the current transitional nature of ABAKIR and acknowledging that it may take several years before the ratification of the Convention, a priority in the SAP is to provide support to the basin authority to develop institutional and organisational capacity to enable a coordination of interventions in the basin, and to other actors to engage in the process of IWRM.

Approach for the Development of the Strategic Action Plan

The SAP is developed for a 5-year period (2022-2027). It is intended to be an evolving plan, to be extended and updated as conditions change within the basin and with changes in the status and capacities of ABAKIR over that time. Given the necessary conditions (ratification and capacity development), ABAKIR can prove its added value to all key stakeholders and confirm and reinforce its legitimacy in these 5 years. At the same time, the planning period is short enough for it to remain relevant even in the face of financial challenges to longer term planning.

The SAP has been developed according to international standard practice and using the methodology proposed by Global Environment Fund (GEF) using a two-phase process: a phase of strategic thinking leading to a phase of strategic planning.

The Strategic Action Plan

Long term vision for the basin

The long-term vision of the basin shared by the stakeholders which orients the SAP for the next 5 years is:

"The Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment"

Strategic Priorities for the Basin

A series of five Strategic Priorities and objectives to improve the management of water and related resources in the basin were identified for the basin. These are:

Strategic Priorities of the SAP	Objectives
SP 1: Adapt to and mitigate the impacts of climate change in the basin	*Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place*
SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy and food securities	*Improved knowledge on the availability and state of the water resources enables competent management approaches that consider the interactions, synergies and trade-offs of water, energy and food for socio-economic development*
SP 3: Preserve and protect the environment and ecosystem health	*Critical habitats are protected, and ecosystems are stabilised and restored through conservation measures and sustainable land management practices*
SP 4: Develop stakeholder capacity for integrated water resources management	*Stakeholders are aware of the importance of water and land management and their role in it and take appropriate measures to address challenges arising at their level*
SP 5: Develop institutional and organisational capacity of the Basin Authority	*ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and the active management of relevant information and data from across the basin*

The vision and the Strategic Priorities for the SAP are compatible and complementary to ongoing and planned regional initiatives and programmes, including The Lake Tanganyika Authority Strategic Action Programme, Lake Tanganyika Water Management Project (LATAWAMA), Phases 1 and 2, the Rwandan Water Board (RWB) Strategic Plan 2021 – 2030, the Lake Kivu and Rusizi River Basin Water Quality Management Project" of the African Development Bank / Global Environment Facility (GEF), and the Development Master Plan for the Ruzizi Plain (SDAR).

The strategic priorities cover the following activity areas:

Strategic Priority 1: Adapt to and mitigate the impacts of climate change in the basin

Climate Change is a cross-cutting theme, impacting all sectors, interests, and interventions across the basin. The activities included under this strategic priority are projects and programmes that are planned or already in implementation that increase the resilience of the ecosystems and population of the basin in the face of the projected impacts of climate change, through the promotion of adaptation measures. These include the integration of climate adaptation into land use planning and forestry restoration, adapted on-farm practices and soil and water conservation measures and enhancing resilience in urban areas through improved urban planning.

Mitigation measures are also included under this strategic priority, principally with the promotion of low emissions electrical energy production through ongoing hydropower projects and methane-to-power projects. An important contribution would also be measures to substitute wood or charcoal as the main cooking energy source for households in the basin. This would have multiple environmental and social impacts.

In addition to the planned projects, a series of pilot activities which could be carried out by ABAKIR are proposed. These include developing a natural disaster preparedness and risk

management plan for the basin, the introduction of climate smart agriculture in the basin and fostering the development of carbon dioxide neutral energy sources / low CO_2 emitting energy generation in the basin for households and institutions.

Strategic Priority 2: Ensure water availability and access for socio-economic development and to safeguard water, energy and food securities

Surface water quality is a major problem due to the massive erosion in the basin, along with urbanisation, poor sanitation and waste management, industrialisation, mining and the use of chemical fertilisers and phytosanitary products (which can have a considerable local impact). Agriculture is the principal source of income for 80% of the basin population but other sectors (including drinking water supply, energy production, industry, fisheries, and tourism) are also dependent on water of an appropriate quality.

Key to meeting the varying needs of different water using sectors, is the appropriate management of the available water resources, requiring an improved knowledge of the resources is needed. Improved hydro-meteorological, hydrometric and groundwater monitoring networks and water quality monitoring is essential as is data collection and management by competent national and regional authorities and transfer for management at basin level. Management decisions made on the basis of the available data should strengthen the synergies between food production, energy production and water resources management in the basin to balance different resource user goals and interests while maintaining the integrity of the basin ecosystems.

In addition to measures to improve resource monitoring through data collection and management, this SP also includes direct actions to improve socio-economic development of the basin population. With almost 9 million people in the basin dependent on agriculture, these actions aim for the most part at reinforcing agricultural productivity.

In addition to the planned and ongoing projects in the basin the following is also proposed as activities which ABAKIR could pilot under this SP:

- Improve the basin water monitoring network based on the recommendations of the TDA,
- Support the development of a tourism master plan
- Introduction of conservation / regenerative agriculture and agroforestry to preserve declining soil fertility
- Landscape restoration, repair of terracing, reduction of landslides, flood plain regulation
- Safeguard hydro-electricity production on the Ruzizi / Rusizi River through an improved management of solid waste and circular economy activities,
- Improve rainwater harvesting, and water storage practices
- Build capacity for water use efficiency

Strategic Priority 3: Preserve and protect the environment and ecosystem health

Where SP 2 focuses on improving the conditions for the sustainable and equitable management and use of the basin resources for the benefit of the basin population, SP 3 focuses on preserving a healthy basin environment.
Land use in the basin has changed significantly. In a quarter of a century, the area devoted to agriculture has increased by 29 %, to the detriment of forests and meadows. Major urban settlements are across the basin are growing, from the upper reaches of the Lake Kivu catchment to the Ruzizi Plain. The impact of deforestation, inappropriate land use, soil erosion

and sedimentation, pollution and the degradation of the aquatic environment and the preservation of the unique biodiversity of the basin are all pressing issues which this Strategic Priority aims at addressing. The aim is thus to protect critical habitats and stabilise and restore ecosystems are through conservation measures and sustainable land management practices.
The planned and ongoing activities under this priority include biodiversity conservation, sustainable land management, waste management and circular economy and pollution prevention. Additionally, ABAKIR could support the following activities:

- Urban centres: pilot measures to improve on-site sanitation systems and faecal sludge collection and treatment;
- Sensitization and awareness raising in urban areas on waste production at household level;
- Respect and protection of water protection buffer zones around Lake Kivu (relevant for Rwanda as no regulation currently exists in DRC);
- Solid waste recycling and valorisation (Promoting circular economy);
- Treating process water from coffee washing stations.

Strategic Priority 4: Develop stakeholder capacity for IWRM

Stakeholder participation in the planning and implementation processes is critical to IWRM. It helps avoid mistakes in design and fosters ownership and responsibility. Additionally, effective stakeholder participation can facilitate communication and conflict resolution, and improve stakeholder understanding and engagement. Stakeholder participation in water and land management in the basin is enshrined in the 2014 Convention for the Integrated Management of Water Resources through the principle of subsidiarity, requiring challenges to be addressed at the lowest appropriate level. This SP concentrates on the capacities of stakeholders to engage in IWRM and their role in it and to take appropriate measures to address challenges arising at their level. It thus covers all necessary measures to raise awareness, develop capacities and affect behaviour change to improve water (and land) management practices among stakeholders and consists of a range of Information, Education and Communication (IEC) and capacity development activities. Provincial, district and communal authorities deserve particular attention in this regard because of their responsibility for the development of local development plans.

The IEC and capacity building activities should be planned and coordinated centrally for the basin, by ABAKIR, to ensure a unity in messaging. This establishes a direct link between SP 4 and SP 5, requiring ABAKIR's capacities are first developed for the implementation of its own communication strategy.

Only two planned or ongoing projects currently target this strategic area. In addition it is proposed that ABAKIR could promote the following activities

- Awareness raising and training of farmers and cooperatives on the advantages of regenerative agriculture practices;
- Sensitisation and awareness raising of fishing communities in the whole basin on the importance of compliance with non-fishing periods on the whole of the lake and the application of sustainable fishing practices;
- Capacity development activities aimed at different water and natural resource user groups concerning management questions pertinent to their immediate environment and the broader issue of integrated management at sub-basin and basin level.
- Establishment of catchment and sub-catchment committees and elaboration of catchment and sub-catchments management plans, and micro-catchment action

plans.

Strategic Priority 5: Develop institutional and organisational capacity of the Basin Authority (ABAKIR)

IWRM in Lake Kivu and Ruzizi River Basin, and the development and oversight of the implementation of the SAP requires a capable basin-level transboundary organisation with a clear mandate, vision, mission, and objectives, and appropriate personnel (in profile and number), as well as sufficient material resources and part of the long-term vision is that it is cooperatively managed by the riparian states. ABAKIR was created explicitly for this purpose and this SP aims for ABAKIR to be recognised as a capable coordinating authority for all interventions regarding water and land management and the active management of relevant information and data from across the basin. ABAKIR is currently not widely known across the basin and is not yet fulfilling the engagements made by the basin states in Article 9 of the Convention. Priority key interventions for its organisational development have been identified but are yet to be implemented.

ABAKIR needs incremental development to meet the mandate conferred on it by the Convention and sets an intermediate target on the path to reaching it and addressing the current need for coordination of the implementing actors and stakeholders in the basin.

ABAKIR is receiving support in this regard from the ongoing GIZ implemented project "Support to the integrated management of water resources of Lake Kivu and Ruzizi River", due to end in the final quarter of 2022. The upcoming “Lake Kivu and Rusizi River Basin Water Quality Management Project”, financed by GEF / AfDB, will build upon this project and will support ABAKIR to develop, “adopt, implement and enforce appropriate legal, administrative and technical measures to protect and preserve the Basin’s ecosystems, in particular the natural areas protected either by national regulations or by international conventions”

For the 5 years of the SAP an intermediate Mission Statement for ABAKIR is proposed “to coordinate and facilitate Integrated Water Resources Management in the Lake Kivu and Ruzizi River Basin, in direct consultation and cooperation with stakeholders, for the benefit of the basin population and a healthy environment”. Additionally, a concerted and broad-based capacity needs assessment and development programme is needed and an organisational chart to strengthen the current capacities of ABAKIR is proposed.

Stakeholder Participation in the SAP

An initial analysis of the stakeholders who could actively participate as a partner in the implementation of the SAP is presented, along with an initial estimate of their capacities. The stakeholders are categorised as:

- Regional Cooperation Organisation
- National State Actors (for each of the Member States)
- Academic and Research Institutions
- Non-Governmental Organisations (NGOs)
- International Cooperation Initiatives and
- Private Sector Actors

Facilitating stakeholders from each of the Member States are also presented. This analysis is considered a work in progress and can and should be amended and completed as conditions change with time.

Structures for stakeholder participation in basin development are also proposed at 2 different levels in accordance with the principle of subsidiarity central to IWRM:

- At basin level a Consultation Platform is proposed for the engagement of major implementing stakeholders including ABAKIR, representatives of the Member States, regional organisations, development partners, international, national, and local NGOs, research institutes, civil society and the private sector serves. The Consultation Platform would be convened, organised and facilitated by ABAKIR and would serve to coordinate activities and contribute to accessing and centralising already existing data in the basin, sharing information on ongoing and planned projects, identifying synergies and coordinating interventions of different stakeholders. A concept note for the establishment of the Consultation Platform is presented in Annex B.
- At sub-basin level local dialog fora are proposed for where local stakeholders to identify, discuss and address shared problems, air grievances, and reach consensual resolutions, enabling a joint planning for local (transboundary) water, land and related resources management in line with the overall vision for the basin, and ideally in collaboration with ABAKIR.

SAP Implementation Arrangements

The role of ABAKIR

The proposed core competence and responsibilities of ABAKIR in the implementation of the SAP include:

- The coordination and monitoring of implementation of basin initiatives.
- Producing annual monitoring reports on water quality and quantity in the basin, including trends in behavioural change among the basin population.
- Identifying and disseminating information on trends in water quality and water quantity

Implementation of projects will remain primarily the responsibility of implementing organisations and actors, with the exception for smaller pilot activities which ABAKIR could implement.

ABAKIR's role in the implementation of the SAP is as a central node for all implementing actors and concerned stakeholders. ABAKIR shall:

- Ensure regular communication and exchange with and between project implementing parties (through the Consultation Platform).
- Identify and formulate new actions in consultation with stakeholders (through the Consultation Platform).
- Coordinate monitoring and evaluation of the overall SAP.
- Centralise available data and reports from across the basin within ABAKIR and make available to stakeholders.
- Produce regular, short monitoring reports on progress of projects within the SAP.
- Oversee implementation of any ABAKIR sponsored pilot actions.
- Develop technical, communication and knowledge management capacities.

For the 5 years of the SAP, ABAKIR will be obliged to outsource certain activities to other organisations which have more experience and capacity, for example the monitoring of water resources in the Rwandan part of the basin will be left to REMA and RWB, with ABAKIR coordinating the collected information. The full political support of the Member States is a

precondition for further development of the authority.

The role of implementing organisations and actors

In the SAP the various implementing organisations and actors are responsible for:

- implementation of projects and programmes.
- monitoring and evaluation of the impact of their own implemented actions.
- reporting project progress and monitoring data to ABAKIR.
- developing exchange and synergies with other actors and projects through communication (Consultation Platform).
- identifying further priorities and necessary actions (including up-scaling) with ABAKIR (Consultation Platform).

Risk Management for the implementation of the SAP

A risk analysis for the implementation of the SAP considers the social, technical, financial, managerial and political risks facing each of the Strategic Priorities, with mitigation measures proposed. The analysis was based on the following assumptions:

- Security situation in the Lake Kivu and Ruzizi River Basin allows for implementation of IWRM activities in the whole Basin;
- Political stability in the three member states creates a conducive environment for progress on IWRM in the Basin;
- Relations between the member states allow for free movement in the Basin for project staff and concerned stakeholders;
- Absence of major economic and social crises in the three member states;
- Absence of major natural disasters in the Basin;
- Continuity and responsiveness at decision making level (COM) in the three member states.

The analysis finds that SP 5 : Develop institutional and organisational capacity of the Basin Authority (ABAKIR) faces the highest risks at political, financial and managerial level.

An approach to identify priority geographic areas and thematic scopes of intervention - hot-spot mapping

An approach to improve the targeting of interventions in the basin is proposed using the overlaying of geodata to identify priority geographic and thematic intervention areas. Here the choice of data is essential. Environmental and social issues may overlap geographically, with a combined impact which could be greater than the sum of the parts. A careful selection of data layers can reveal priority area which may otherwise not be visible. Such a centralised geodatabase can also be used to orient new projects towards priority areas if they are currently not receiving attention. For ABAKIR to be able to produce such maps, it will require an up-to-date (geo) data base and a system to collect and organise digitalised data and in-house capacity to manipulate the data and Geographic Information Systems (GIS) will be needed.

While waiting to have this capacity, ABAKIR, after consultations with the Member States, will identify the priority geographical areas according to the needs/priorities of each region.

Analysis of existing national regulations regarding use and protection of water resources

Given the transboundary nature of the basin, a regulatory harmonisation between the member

states in certain areas would facilitate the cooperative management of water, land, and related resources. An initial analysis proposes priority harmonisation with regard to:

- Policies and regulations concerning:
  - environmental management, agricultural development and the use of agrochemicals and pesticides, and water resource conservation
- Regulations related to:
  - sanitation and wastewater management the management of protected areas
- Strengthening IWRM mechanisms

An ongoing study on legal and regulatory harmonisation will make specific concrete proposals for this in 2022.

Disaster preparedness and Disaster Risk Reduction (DRR)

The Lake Kivu and Ruzizi River basin is prone to a range of natural hazards, including landslides, floods, flash floods, droughts, earthquakes, volcanic and limnic eruptions. Over the last decades, the frequency and intensity of natural disasters, particularly floods, landslides, droughts, volcanic eruptions and seismic activity in the region have increased. The basin must therefore invest in disaster preparedness as a part of basin management.

Disaster preparedness for the basin includes:

- Coordinating with national and local authorities and partners to know what specific risks and hazards to prepare for;
- Training and equipping responsible staff at central level, local authorities as well as within communities including their volunteers, as first responders to a wide range of hazards;
- Researching and updating knowledge about new technologies to improve the quality of responses;
- Strong networks within local communities and ability to work with these communities to understand the needs of those most at risk;
- Setting up early warning systems so local communities can take early action before a disaster hits.

The challenges facing the basin in this respect are:

- Limited technical capacities to reduce risks, manage, prepare and respond to disasters;
- Lack of robust and updated vulnerability, risk, and emergency assessments;
- Limited national disaster preparedness capacities;
- Insufficient clear lines of communication between national and regional authorities and the population in case of an emergency or crisis.

Disaster preparedness aims to reduce risks and build resilience to natural disasters by strengthening the technical capacities of institutions on improved disaster risk management both in the long term, and short-term emergency preparedness at all levels, as well as build disaster resilience of the population. To achieve the the following is considered necessary:

1. Institutions at national, district / commune and community level have improved technical capacities to reduce risks, manage and respond to natural disasters and limit gender-differentiated impacts;
2. Population, local authorities, NGOs, and national institutions have increased knowledge and skills of risks from evidence-based disaster risk assessments;
3. Enhanced multi-hazard early warning systems are in place to enable effective

preparedness, response, and recovery;

4. Communities in selected high-risk districts and communes have strengthened their capacity to mitigate, adapt and respond to disaster risks.

District level disaster risk mitigation and management plans should be developed during the implementation of the SAP. ABAKIR should make recommendations to its member states on mechanisms to prevent people from settling in areas at risk. During the implementation of the SAP, and depending on evolving capacity of ABAKIR, it will however have to be carefully assessed what role would be appropriate for ABAKIR to play. ABAKIR, in cooperation with partners and / or actors in the basin, could develop an atlas of risks in all sectors and establish a risk management plan to be shared with the various actors, including NGOs, to harmonize the actions to be taken.

Guidance for Monitoring and Evaluation

Monitoring of progress towards the objectives of SAP will require an initial exercise in developing suitable aggregate indicators and / or identifying appropriate surrogate indicators for each of SP from the monitoring systems of ongoing and planned actions in the basin, before Specific, Measurable, Attainable and action-oriented, Relevant, and Time-bound indicators can be identified (SMART Indicators).

ABAKIR is responsible for overall coordination, monitoring, and evaluation of the implementation of the SAP, with the monitoring data collected by the implementing actors. The Lake Kivu and Ruzizi River Consultation Platform will serve as the focal mechanism for regular updates on the progress of actions with stakeholders.

The updated information on the agreed results-based indicators generated through the monitoring and evaluation process will also serve as an important tool to ensure that emerging issues are identified that need to be taken into account for the periodic updating of the SAP.

Financial Needs, Potential Financing Sources and Financing Mechanisms for the SAP

Securing sufficient financing remains a challenge for many action plans. For this reason, the measures proposed within the SAP have either completely secured financing or are planned with initial financing secured. Current financing is secured through national budgets (e.g. Government of Rwanda for the RWB action plan); bilateral donors (e.g. co-financing of Government of the Netherlands for Sebeya Catchment Management Plan), contributions from stakeholders (Enterprise Partnership Initiative - EPI) and further from non-governmental organisation financing IWRM activities (e.g. IUCN, One Acre Fund).

For additional financing for new projects or for co-financing, financing may be mobilised through a variety of sources, including:

- Funding from National Budgets, through a line ministry;
- Grants and / or Budget Support from bilateral and multilateral donors;
- Concessional loans from International Finance Institutions;
- Blending Grants with Concessional Loans
- Polluter pays – Water User pays for Ecosystem Services

Financial contribution of the planned Lake Kivu and Ruzizi River Basin Water Quality Management Project (GEF/AfDB) to the SAP

The GEF/AfDB Project has a total budget of nearly USD 32 million (with around USD 6 million provided by AfDB as a grant). The additional USD 26 million is considered mobilised from

various other co-financing possibilities (such as the corporate social responsibility (CSR) funds from private companies and the in-kind contributions from member state countries) but may take time before this funding become available. Some of this sourcing (for example the application of the polluter pays principle) may prove difficult to secure in the current institutional landscape

Financing strategies in current IWRM plans and for other River Basin Organisations

As inspiration for additional financing of activities in the SAP, a review of the financing strategies of other plans and programmes in and around the basin was carried out, where information was available. Few plans were found to have a solid financial security and generally have an insufficient overview of which sources could be considered, the probability of accessing them and the timeframe needed.

Timely preparation for securing any additional financing for the SAP is therefore of imminent importance, as is ABAKIR's own capacity to identify and mobilise this financing. The successful implementation of pilot projects suitable for upscaling would be one measure which could be used to leverage additional financial interest donors, public and private investment, and international finance institutions. In addition, studying the financing strategies of other River Basin Organisations could help ABAKIR identify possible sources for additional core funding in addition to national contributions of Member States.

1 Introduction

1.1 The Lake Kivu and Ruzizi River Basin

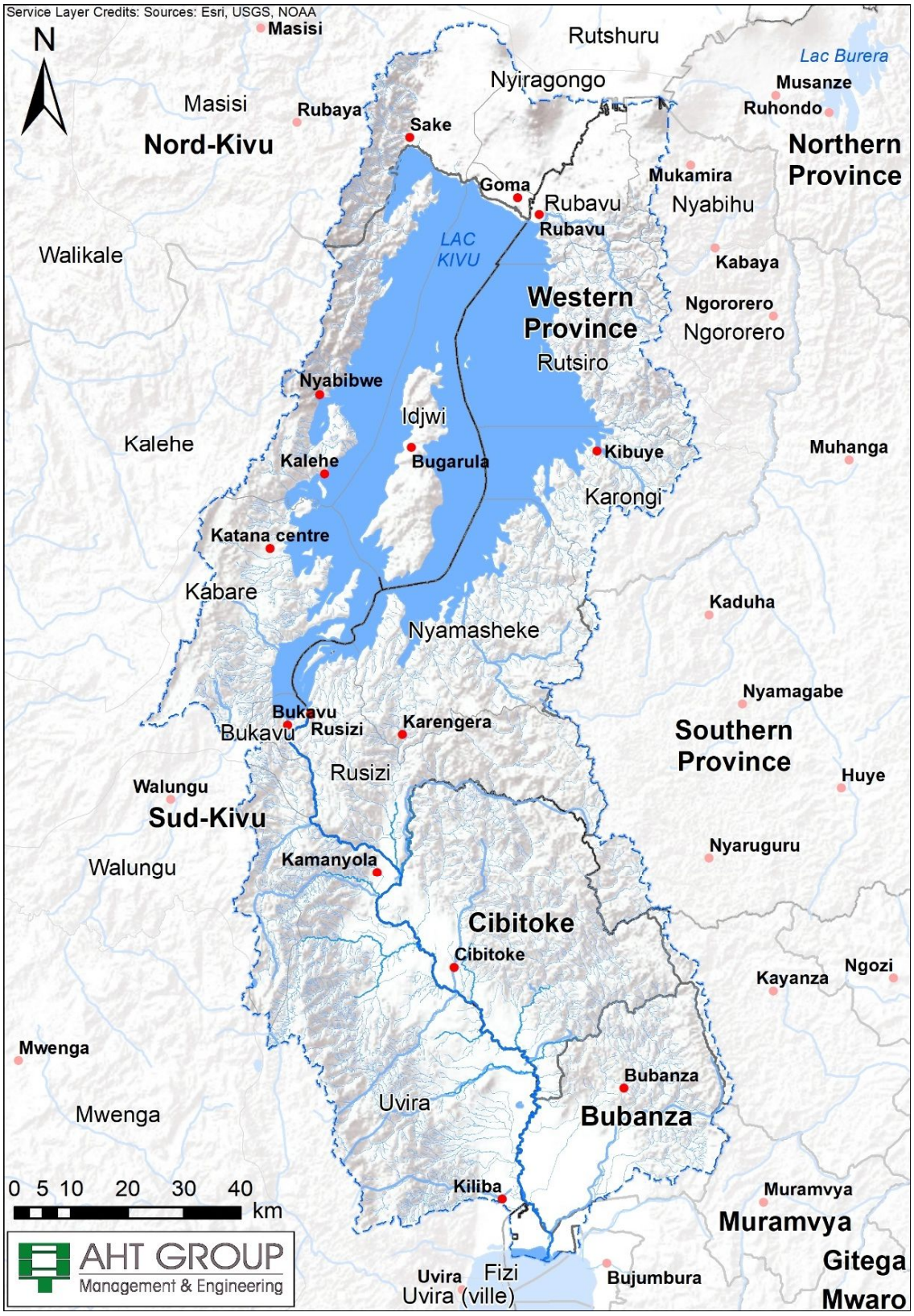

Figure 1: Map of the Lake Kivu and Ruzizi River basin

Physical setting

The Lake Kivu and Ruzizi River Basin covers 13 385 km², straddling the border between the Democratic Republic of Congo, Rwanda and Burundi. The entire western side, almost half of the basin (46.5%), is in the DRC, the north-eastern third (33.3%) is in Rwanda, and the lower south-eastern section, one fifth (20.2%) is in Burundi. The Lake Kivu and Ruzizi River Basin is part of the Lake Tanganyika Basin, which in turn forms part of the Congo River Basin.

The Lake Kivu catchment covers over half (55%) of the basin, with the southern part (45%) forming the Ruzizi River catchment. The Lake Kivu catchment is characterised by steep slopes all around the lake, descending from a maximum altitude of 4 507m (Mount Karisimbi) to 1 462 m at the lake surface, with the lake itself averaging a depth of 240 m and reaching a depth of 485 m at its deepest point, just north of Idjwi island. The lake lies in the central-north portion of the Albertine Rift and is subject to regular volcanic activity. The deeper regions of Lake Kivu (280 m and deeper) contain considerable reserves of methane gas which are beginning to be exploited for electricity generation. Lake Kivu is drained by the Ruzizi River at the outlet in the south, at the border between Bukavu (DRC) and Rusizi (Rwanda).

Over the first 50 km of its 168 km course, the Ruzizi River flows through a steep-sided gorge, falling from 1 460 m elevation to 960 m, forming the border between DRC and Rwanda. This gorge has significant hydropower potential, with two plants already with installed capacities of 29.8 MW (Ruzizi I) and 43.8 MW (Ruzizi II), one plant of 147 MW capacity currently under construction (Ruzizi III) and a future 287 MW plant (Ruzizi IV). The river exits the gorge at Bugarama, Rwanda, and after 6 km forms the border between DRC and Burundi, flowing south through the Ruzizi Plain with its huge, and mainly untapped, potential for irrigated agriculture. The floodplain of the Ruzizi River stretches over the final 35 km forming a delta rich in biodiversity and entering Lake Tanganyika a few kilometres from Bujumbura at an elevation of 773m.

Climate and the impacts of climate change

Temperatures and precipitation are closely linked to topography across the basin, with temperatures decreasing and precipitation increasing with altitude (see Figures 2 and 3). Average annual temperatures range from around 14 °C in the mountains in the north, east and west of the basin, to 25 °C in the Ruzizi Plain. Average annual rainfall ranges from 1 020 mm (Cibitoke in the Ruzizi Plain and Rubavu, Rwanda) to 1 830 mm (in Kalonge, DRC). Rainfall varies with altitude and season and follows a four-cycle pattern.

Table 1: Distribution of seasons across the Lake Kivu and Ruzizi River Basin

	North and South Kivu (DRC)	Burundi - Rwanda
Long dry season	June- July to August	
Short rainy season	September to December	
Short dry season	January	January to February
Long rainy season	February to June	March to May-June

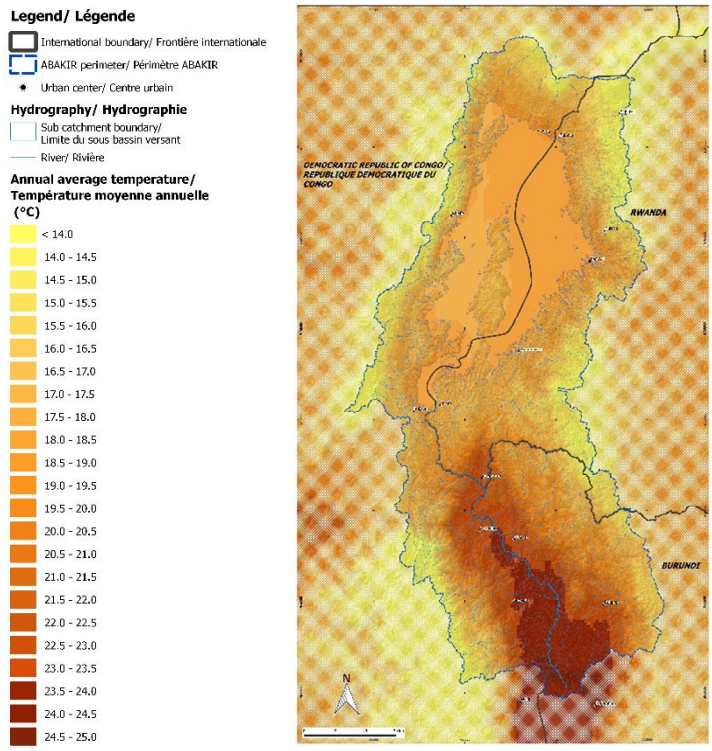

Figure 2: Average annual temperatures across the basin

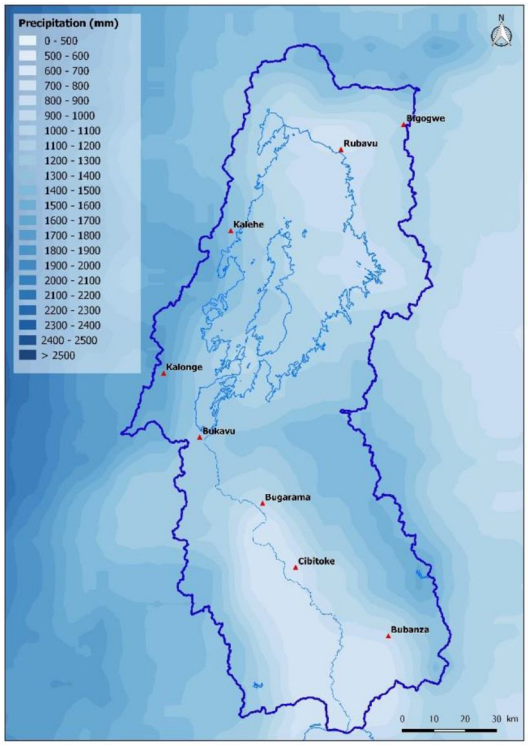

Figure 3: Average annual precipitation over 30 years

Whilst there is no general consensus on the scale, climate change is expected to have an impact on the basin. According to the Community Earth System Model (CESM) used in the Climate Resilient Altitudinal Gradient Intervention Plan (CIP)[1] from 2017, for the single "business as usual" scenario of global emissions (Representative Concentration Pathway (RCP) 8.5) the duration of the wet and dry seasons will remain the same, but the winter rainy season will become much wetter with time. By 2060, the peak monthly runoff may increase by up to 50%, increasing erosion and the risk of flooding, and the temperature will have shifted such that the coolest months of the year will be approaching levels found in the warmest months in the present day. Chronic heat stress may become pervasive and negatively impact biodiversity, livelihoods, and ecological systems. Alternative analyses suggest a more modest impact, with some increase in rainy season rainfall.

The quantity of water in the basin is not expected to become an issue because of climate change, however water quality is expected to further deteriorate as a result of increased temperature and the impact of soil erosion, increased urbanisation and other land use changes.

Biodiversity and ecosystem health

The basin lies in the central-north portion of the Albertine Rift, one of the most species rich regions of Africa, and is part of the Eastern Afromontane Biodiversity Hotspot[2], one of the 200 World Wildlife Fund for Nature Global Ecoregions[3] and an International Endemic Bird Area[4]. The Albertine Rift contains 402 mammals, 1 061 birds, 175 reptiles, 118 amphibians, 400 fish and 5 800 plant species, representing over 50% of birds, 39% of mammals, 23% of amphibians, and 14% each of reptiles

[1] CRAG Intervention Plan (CIP) - Developed by BirdLife International, in collaboration with the Wildlife Conservation Society, the Appalachian State University – USA and stakeholders in the Kivu-Rusizi basins

[2] https://www.cepf.net/our-work/biodiversity-hotspots/eastern-afromontane

[3] https://databasin.org/datasets/a5b34649cc69417ba52ac8e2dce34c3b/

[4] http://datazone.birdlife.org/eba

and plants found in mainland Africa.

Of the species found within the Lake Kivu and Ruzizi River Basin, at least 71 are threatened (Critically Endangered, CR; Endangered, EN; or Vulnerable, VU) according to the IUCN Red List. This number is likely higher as many species have not yet been assessed and as research progresses new species will be discovered[5] and expected to increase with time. In addition to the impacts of rising temperatures, other anthropogenic drivers of environmental change are impacting biodiversity, including changing land use practices (deforestation, urbanisation, increasing agricultural surfaces) and infrastructure developments.

Socioeconomic development

In 2020 an estimated 11 million people were living in the basin in 2020 (63% in DRC, 23% in Rwanda and 15% in Burundi). Over 80% of the urban population of 2.5 million, live on the shore of Lake Kivu in the cities of Bukavu and Goma in the DRC[6]. Recent models[7] suggest that the agglomeration of Goma and Rubavu on the northern shore of the lake will experience particularly increased urbanisation by 2050. The DRC part of the basin has a relatively high proportion of the population living in urban areas (around 30%), due largely to the volatility and inaccessibility of rural areas. In Rwanda only 12% of the basin population live in urban areas, and in Burundi 6%. Urban areas generally secure their water supplies using intake structures either from Lake Kivu or nearby rivers, whilst rural areas depend mainly on spring catchments. The current drinking water demand of 111 million m³ per year is forecast to increase by some 250% by 2050.

Poverty rates[8] prior to the COVID 19 pandemic varied across the basin, peaking in the provinces of South Kivu (84.7%) and North Kivu (72.9%) in DRC and were lowest in the towns of Rubavu (35%) and Ruzizi (33%) in Rwanda. The poverty count is expected to have worsened since. Livelihoods are predominantly agriculture based, employing over 80% of the economically active population in both Rwanda and Burundi and 70% in DRC[9], and agriculture is practiced right across the basin – from the steep slopes of the shore of Lake Kivu to the open Ruzizi Plain, with only the designated protected areas of national parks spared[10]. Agriculture is mainly rain-fed and subsistence. The Ruzizi Plain, between DRC and Burundi, has a vast irrigation potential of some 125 000 ha, of which only around 10% is currently under a functional irrigation regime. Land is under extreme pressure due to population growth, severe soil erosion and degradation, limited agricultural productivity and economic vulnerability. This is exacerbated by climatic hazards resulting from changes in rainfall and socio-political instability and leads to high food insecurity. The DRC part of the basin suffers particularly from this as a result of the civil insecurity linked to the presence of armed groups and transport difficulties which reduces agricultural and livestock productivity, increases unemployment, and reduces access to essential goods and basic services.

The basin has a significant potential for electricity generation. In addition to the 82 MW hydropower already installed (77.6 MW of which comes from the plants Ruzizi I and II) there is potential for a further 599 MW (430 MW coming from Ruzizi III and IV). The predicted increased monthly run-off resulting from wetter rainy seasons induced by climate change will have a beneficial impact on

[5] Birdlife International (2017), “CRAG Intervention Plan (CIP for the Kivu-Rusizi Basins”

[6] Other urban areas are Kalehe, Walungu and Lungutu in the DRC, Cibitoke and Bubanza in Burundi, and Rubavu, Nyabihu, Rutsiro, Karongi, Nyamasheke and Rusizi in Rwanda.

[7] Feuerstein, S., Wang, Z. and Dr. Bachofer, F. (2022), „Assessment and Monitoring of Soil Erosion Parameters in the Transboundary Lake Kivu and Ruzizi River Basin”

[8] The international definition for the poverty rate is the percentage of the population living on less than 1.90 USD / day

[9] Transboundary Diagnostic Analysis of the Lake Kivu and Ruzizi River Basin, 2020

[10] See Maps 018 and 019 of the Transboundary Diagnostic Analysis of the Lake Kivu and Ruzizi River Basin, 2020.

hydropower generation[11]. Additionally, the methane reserves in Lake Kivu are estimated to have the capacity to generate 700 MW of electricity for 55 years, with 25 MW currently exploited and a further 126 MW being installed (at the KivuWatt and Shema power stations).

1.2 Towards a coordinated basin management

The Lake Kivu and Ruzizi River basin faces manifold challenges relating to the unsustainable use of water and related resources and the lack of an integrated management of these resources across sectors. The basin suffers from vulnerability to the impacts of climate change, high environmental degradation, low regulatory compliance, insufficient access to electricity and drinking water supplies, and poverty. Competing and increasing demands for water, land and related resources (for agriculture, drinking water, energy generation, commercial activities, the environment), are increasing pressure on the resources (through pollution, changing land use patterns and a growing population), and subsequently changing their state (with the degradation of water, soil and habitat quality). This impacts public and environmental health, economic development, biodiversity, etc.

Aware of the need for cooperation and coordination in managing the basin, the basin states, Burundi, DRC and Rwanda, signed *the International Convention Relating to the Integrated Water Resources Management of the Lake Kivu and Ruzizi/Rusizi River Basin* on the 4th November 2014[12] and founded the sub-regional "Authority of the Lake Kivu Basin and the Ruzizi /Rusizi River" (ABAKIR). ABAKIR's mandate is "to ensure and represent the common interests of the Member States on subjects relating to the Integrated Water Resources Management in the Basin, in a process of consultation with the various stakeholders in each of the Member States". Pending ratification of the Convention by the Member States, ABAKIR exists as a transitional structure with restricted capacity and resources[13]. Responses to the challenges facing the basin therefore remain uncoordinated, sector specific, not reflective of the interconnectedness of water, land and related resources across the basin, and are being implemented outside of a basin governance structure which would ensure equitable, efficient, sustainable and productive water resources management.

The Strategic Action Plan (SAP) for the Lake Kivu and Ruzizi River Basin seeks to make a step towards improving this situation. In line with the Convention, the SAP is oriented by the process of Integrated Water Resources Management (IWRM), promoting "the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment"[14]. The SAP provides a framework for action in the basin, orienting those actions towards the stakeholder's shared Vision developed at the kick-off workshop of the SAP, that "the Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment". The SAP also adopts a Water-Energy-Food (WEF) Nexus approach, an integrated approach for the joint management of water, energy and food/agriculture resources that attempts to reconcile the

[11] CRAG Intervention Plan (CIP) - Developed by BirdLife International, in collaboration with the Wildlife Conservation Society, the Appalachian State University – USA and stakeholders in the Kivu-Rusizi basins

[12] With the objective to:

- Cooperate in the development of a common strategic vision for the management of the basin and the implementation of the resulting action programs.
- Cooperate in the design and implementation of harmonized rules and standards applying to the management of the water resources of the basin.
- Pay particular attention to current and future riparian communities, so that they benefit from the sustainable use of natural resources and the development of the Basin.

[13] The mission of the transitional body is to :

- facilitate the ratification of the Convention,
- prepare and lead the process for setting up the permanent structure,
- and initiate the studies necessary for the proper start-up of the ABAKIR taking into account the on-going projects.

[14] Global Water Partnership definition of Integrated Water Resources Management (IWRM)

economic, social, ecological and political interests competing for the same resources through addressing the trade-offs while simultaneously building inter-sectoral synergies.

Given the current transitional nature of ABAKIR and acknowledging that even if ratification occurs in the current year (2022) it will take several years before the authority can begin to fulfil its mandate, a priority in the SAP is to provide support to the basin authority to develop institutional and organisational capacity to enable a coordination of interventions in the basin, and to other actors to engage in the process of IWRM. Additionally, the SAP prioritises interventions to mitigate the impact of climate change, to ensure socio-economic development and the safeguarding of water, energy, and food securities and to preserve and protect the environment.

2 Approach for the Development of the Strategic Action Plan

2.1 Summary of the findings of the Baseline Study / Transboundary Diagnostic Analysis for the Lake Kivu and Ruzizi / Rusizi River Basin

In 2020 a Basin Baseline Study / Transboundary Diagnostic Analysis (TDA) for the Lake Kivu and Ruzizi / Rusizi River Basin was carried out, seeking to establish the state of the basin with respect to water, land and related resources, thus providing a basis for basin wide management.

The TDA found that the main issues related to the management and preservation of the basin's water resources are linked more to water quality than to quantity. The control of environmental degradation, particularly soil erosion and the resulting turbidity of tributaries to Lake Kivu, their outlets and the Ruzizi River, is one of the major issues facing the basin. The anthropogenic threats to the quality of Lake Kivu's water stem principally from the uncontrolled development of the urban areas bordering the lake, poor sanitation and solid waste management and industrial development, particularly mining, all requiring coordinated action at the scale of the basin and the most vulnerable sub-basins.

The TDA also highlighted a need to develop preparedness and a measure of control of the natural risks in the basin, which is vulnerable to extreme events such as flooding, landslides, volcanic eruptions and seismic activity.

Faced with these threats, the challenges of sustainable management and preservation of water resources and the associated ecosystems in the basin can be overcome in a coordinated manner between the three countries, through ratification of the Convention and capacitating ABAKIR as a fully functional basin authority. Measures aimed at the sustainable management, preservation and restoration of water resources and associated environments of the basin are necessary through enhanced cooperation between Member States. In this respect the TDA states that a priority should be to provide ABAKIR with the visibility and legitimacy that will enable it to strengthen the support of the authorities, the populations, and the users of the basin's resources.

The TDA proposes an action programme of six measures under the coordination and with the support of ABAKIR. These are: knowledge enhancement measures; resource monitoring measures and data transmission; measures to reduce pressure on the environment; natural risk management measures; institutional support measures for ABAKIR; and measures to develop the legal bases in the basin.

2.2 The SAP Methodology

The analysis of the current situation in the basin in the TDA provides the starting point for the development of the SAP. Drawing on the EU Water Framework Directive (WFD) experience in developing river basin management plans, both the TDA and SAP are essential elements in the basin management cycle (Figure 2).

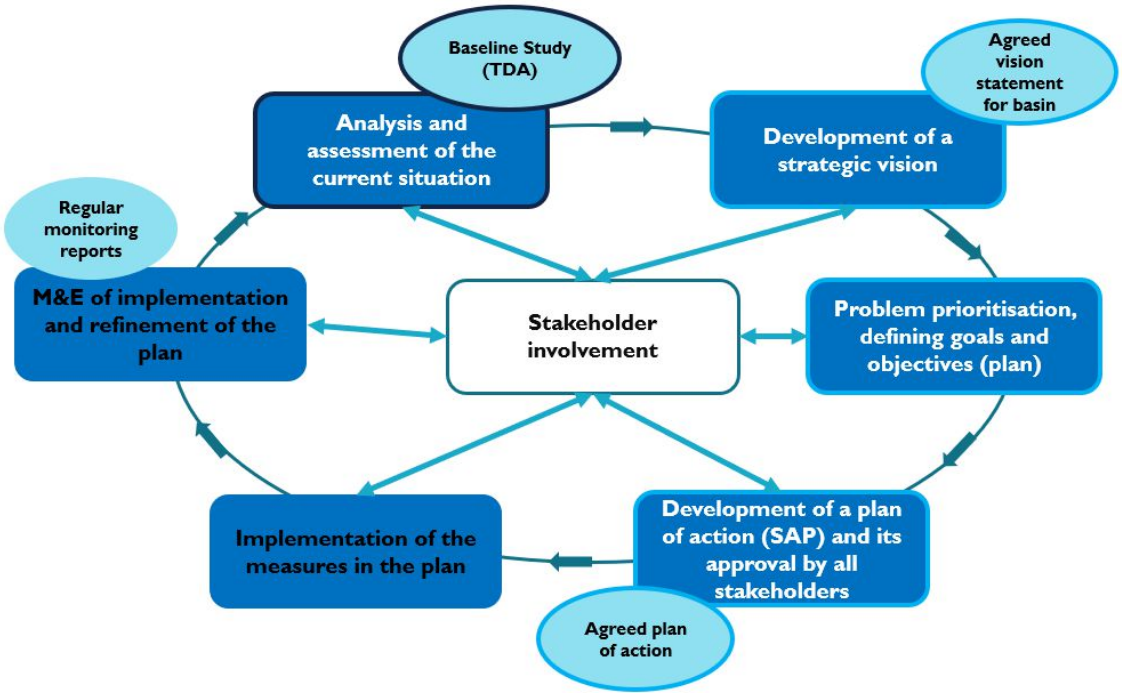

Figure 4: The river basin management cycle

With the TDA completed, the task in developing the SAP began by agreeing on a strategic vision of the future of the basin with stakeholders (see Chapter 3.1). With the TDA as the starting point and the vision representing the future destination of the basin, priority problems and objectives have been identified and used to define the SAP. To complete the cycle, the SAP must be implemented and monitored and adjusted where necessary, before taking stock with a new TDA and beginning a new planning and implementation cycle.

This first SAP for the basin is a response to the need for a coordinated planning and management of water, land and related resources, and is guided by the restrained financial and personnel resources of the basin authority and the findings of the TDA. A regular revision of the SAP because of monitoring and in response to changing circumstances within the basin is strongly advised. Ratification of the Convention would dramatically change the mission of ABAKIR and the nature of the institutional arrangements, meaning the SAP must be considered as an evolving plan to be expanded and adapted as required. The SAP described in this document establishes an agreed upon planning and management process, provides an agreed framework for intervention, and presents an initial programme of interventions based on the current needs, knowledge and activities of the basin actors.

The SAP is developed for a 5-year period (2022-2027). It is intended to be an evolving plan, to be extended and updated as conditions change within the basin and with changes in the status and capacities of ABAKIR over that time. Given the necessary conditions (ratification and capacity development), ABAKIR can prove its added value to all key stakeholders and confirm and reinforce its legitimacy in these 5 years. At the same time, the planning period is short enough for it to remain relevant even in the face of financial challenges to longer term planning.

The SAP has been developed according to international standard practice and using the methodology proposed by Global Environment Fund (GEF) (see Box 1). The GEF proposes a two-phase process for the development of an SAP, starting with a phase of **strategic thinking** leading to a phase of **strategic planning**.

Box 1: Definition of the SAP[15]

The SAP is a negotiated policy document that should be endorsed at the highest level of all relevant sectors. It establishes clear priorities for action (for example, policy, legal, institutional reforms, or investments) to resolve the priority problems identified in the TDA. The preparation of the SAP should be a highly cooperative and collaborative process among the countries of the region. The strategic component of the SAP process has 2 key phases starting with a phase of strategic thinking leading to a phase of strategic planning.

2.2.1 The Strategic Thinking Phase

During this phase the activities and interaction with stakeholders resulted in four essential steps of reflection which provided orientation for the strategic planning process. This process was not linear, and ideas and reflections proceeded in parallel. Details on each of these steps are outlined in the following paragraphs.

2.2.1.1 Defining an accepted vision for the future of the basin

The vision for the future of the basin was developed during the Kick-Off Workshop[16] with invited stakeholders in working groups. This joint development served to highlight the commonalities and joint purpose of the stakeholders, providing a common goal and a broad common framework for their diverse interventions and interests. The aspirational nature of the agreed vision has been deliberately designed to inspire actors to act together to improve the basin. Whilst the formulation varied between the groups, there was broad agreement on the five main components of an agreed vision:

- Transboundary collaboration for basin management,
- Sustainable management,
- Equitable access to and use of resources,
- Socio-economic development; and a
- Healthy environment (including aquatic and terrestrial resources).

The agreed vision for the future of the Lake Kivu and Ruzizi River Basin is presented in Chapter 3.1.

Setting Strategic Priorities (SPs) to achieve the vision

By combining the aspirations defined in the vision with the identification of the key transboundary issues and the action programme from the TDA, exchanges with actors implementing projects in the basin and government authorities, and a review of further plans and studies for the basin, a series of five Strategic Priorities (SPs) to improve the management of water and related resources in the basin were identified:

- SP 1: Adapt to and mitigate the impacts of climate change in the basin
- SP 2: Ensure water availability for socio-economic development and safeguard water, energy and food securities
- SP 3: Preserve and protect the environment and ecosystem health
- SP 4: Develop stakeholder capacity for integrated water resources management
- SP 5: Develop institutional and organisational capacity of the Basin Authority

Brainstorming innovative ideas and opportunities to meet the vision

ABAKIR is currently a transitional body, requiring both ratification and the corresponding resources (human, financial, etc.) to fulfil its mandate. The authority does not yet have the capacity to develop, implement and monitor the SAP, nor does it have the resources to implement significant activities in

[15] GEF IW:Learn, UNDP, UNESCO (2020) "Transboundary Diagnostic Analysis/Strategic Action Programme Manual. TDA-SAP Methodology"

[16] In September 2021

the basin. At the same time, stakeholders in IWRM in the basin (regional, state, private sector, international and civil society), who are currently implementing projects that address priority issues, are calling for the means to create synergies between these interventions. This creates a unique situation for the development of the SAP, with the stakeholder needs creating the demand for a coordinated approach, with ABAKIR currently in transitional form, requiring both ratification and the corresponding resources (human, financial, etc.) to fulfil its coordinating mandate,

The SAP has thus been developed in dialogue with stakeholders regarding their planned and ongoing activities, with ABAKIR having a central role in the dialogue, and all relevant stakeholders invited to review the draft and validating the plan. The 5 SPs form an ordered framework for all relevant on-going and planned projects, serving to direct all interventions towards achieving the accepted vision for the basin. This ordering of ongoing and upcoming projects also serves to highlight critical gaps in activities which will be necessary to move towards the vision over the next 5 years but have not been planned and will require financing and implementation.

In addition to a closer coordination with stakeholders in the basin, the SAP has been developed in coordination with the forthcoming GEF / AfDB project “Lake Kivu and Rusizi River Basin Water Quality Management Project”, to ensure a coherence and continuity in approach for the support to ABAKIR, and IWRM in the basin, and considering the measures of the upcoming LATAWAMA Phase II project, supporting both the Lake Tanganyika Authority (LTA) and ABAKIR (a sub-basin of Lake Tanganyika).

Within this approach to develop and implement the SAP, a clear and important role for ABAKIR emerges. With its current and expected restrained capacity in the short-term, ABAKIR can nevertheless add value to activities in the basin by organising, convening, and facilitating regular meetings of key basin actors and enabling dialogue, exchange and a joint monitoring of progress of the elements of the SAP. Facilitating this coordination is an essential part of the implementation of the SAP and IWRM in the basin. It would raise the profile of ABAKIR and could be carried out with little external support, requiring mainly logistical, moderation and documentation skills for regular stakeholder meetings. This coordination could be formalised as the Lake Kivu and Ruzizi River Consultation Platform, with ABAKIR convening and chairing meetings. The terms of reference, aims and objectives of the platform should be developed and agreed with key project implementing actors in the basin as should fixed meeting intervals and agendas. Annex B presents a Concept Note for this Consultation Platform. Parallel to this, the Convention should be ratified by the three Member States as a matter of urgency, and the proposals from the Organisational Analysis carried out with ABAKIR in 2019, with support from GIZ, should be implemented.

Strategizing new ideas and opportunities
Integrating the views of a broad range of stakeholders as possible into the development of the SAP opened the plan to a broader ownership, carried by consensus by the key stakeholders of the basin in a much more explicit manner than if it had been developed solely with ABAKIR, and thus more accurately reflects the situation in the basin and accounts for the concerns of different actors.

2.2.2 The Strategic Planning Phase

The Strategic Planning Phase defined the overall strategy of the SAP, based on existing and upcoming projects and activities planned across the basin. As ABAKIR’s resources are limited to covering running costs, investments and project activities are to be financed by member states, other regional organisations, international financial and technical cooperation, international and national non-governmental organisations, or private investment. The joint vision agreed for the future of the basin should orient the different interventions, with each intervention serving one or more of the strategic priorities. The key steps in the strategic planning phase were:

- **National and regional consultation processes**

The national and regional consultation processes involved meetings with key stakeholders in each of the three Member States, discussing the current situation and the outputs of the strategic thinking process, particularly the shared vision, their own planned and ongoing activities regarding water and land management in the basin and further potential intervention areas. The situation and role of ABAKIR was also discussed and the feasibility of the different approaches and strategies for the plan from a national perspective and a stakeholder perspective was evaluated. This process was supported by an analysis of the policy frameworks for transboundary water resources management in the Lake Kivu and Ruzizi River Basin.

- **Setting strategies for implementation**

This step involved direct engagement with the national development planning processes to ensure the SAP is coherent with national development plans and vice versa. Additionally, as the Lake Kivu and Ruzizi Basin form part of the larger Lake Tanganyika Basin, the coherence between the SAP and the strategic action plan for Lake Tanganyika was verified.

- **Action planning - Identifying actions, timescales, priorities, and indicators**

This step involved coordinating the ongoing and planned actions in the basin, their timescales, priorities, and indicators, which had been determined outside of the SAP process by different stakeholders as part of their own ongoing activities. These were reconciled with the overarching shared vision for the basin and aligned with the strategic priorities according to the findings of the TDA. Additional actions were identified as “high return, low risk” activities which could be supported by ABAKIR for each of the SPs, which should bring quick wins for the people of the basin and serve to raise the profile of ABAKIR. These are further elaborated under each of the Strategic Priorities in Chapter 3.

- **Drafting the SAP**

The final step was the integration of the various discussions, activities and plans into a single, concise document with clear goals, quantifiable timescales, and unambiguous assignment of responsibilities.

3 The Strategic Action Plan

3.1 Long-term Vision for the Basin

Based on consultations with stakeholders and their wishes for the future, the agreed long-term vision of the basin orienting the SAP for the next 5 years is:

> *"The Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment"*

This agreed vision represents the ideal future state of the basin, based on the priorities and values of the stakeholders in 2022. As the challenges facing the basin and the priorities of the stakeholders can change with time, the joint vision for the basin's future should be revised at the end of the SAP period. This ensures that the vision continuously reflects the key water management issues in the basin and is aimed at addressing them.

3.2 Strategic Priorities for the Basin

By combining the aspirations defined in the vision with the key transboundary issues and action programme from the TDA, exchanges with actors implementing projects in the basin and government authorities, and a review of further plans and studies for the basin, a series of five SPs to improve the management of water and related resources in the basin were identified. Each SP has an objective which serves as a common goal, orienting actions under the priority. The Strategic Priorities and Objectives for the management of the Lake Kivu and Ruzizi River Basin are:

Table 2: Strategic Priorities & Objectives Management of Lake Kivu and Ruzizi River Basin

Strategic Priorities of the SAP	Objectives
SP 1: Adapt to and mitigate the impacts of climate change in the basin	*Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place*
SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy and food securities	*Improved knowledge on the availability and state of the water resources enables competent management approaches that consider the interactions, synergies and trade-offs of water, energy and food for socio-economic development*
SP 3: Preserve and protect the environment and ecosystem health	*Critical habitats are protected, and ecosystems are stabilised and restored through conservation measures and sustainable land management practices*
SP 4: Develop stakeholder capacity for integrated water resources management	*Stakeholders are aware of the importance of water and land management and their role in it and take appropriate measures to address challenges arising at their level*
SP 5: Develop institutional and organisational capacity of the Basin Authority	*ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and the active management of relevant information and data from across the basin*

3.3 Compatibility of the Vision and Strategic Priorities with Ongoing and Planned Initiatives in the Basin

To support synergies and ensure complementarity between the SAP, it's SPs, and their associated actions, they should be compatible with other planned or ongoing programmes and projects in the basin and region. The vision and priorities of the SAP compares as follows to these other key interventions:

Strategic Action Programme (SAP) of the Lake Tanganyika Authority (LTA)

As the Lake Kivu and Ruzizi River Basin is a part of the wider Lake Tanganyika catchment, a high degree of congruence between both is sought. Adopted in 2012, the SAP for the protection of biodiversity and sustainable management of the natural resources in the Lake Tanganyika Basin based on the vision of: "*People of the region prospering from a healthy environment in the Lake Tanganyika Basin that continues to harbour high levels of biodiversity and provide sufficient natural resources to sustain future generations*". The timeframe of the LTA SAP runs until 2025.

The programme has six Strategic Components based on a series Ecosystem Quality Objectives, and the LTA SAP thus concentrates exclusively on the basin ecosystem. The Strategic Components are:

Strategic Component of the LTA SAP	Ecosystem Quality Objectives
A: Adaptation to Climate Change Impacts	*Aquatic and terrestrial ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability*
B: Sustainable Fisheries	*Healthy fish stocks, which are adequately managed to sustain future exploitation*
C: Sustainable Land Management	*Erosion and sedimentation rates are reduced through sustainable land management practices*
D: Protection, Restoration and Management of Critical Habitats	*Critical habitats are protected, restored and managed for conservation of biodiversity and sustainable management*
E: Control and Prevention of Biological Invasions	*Biological invasions are controlled, and future invasions prevented.*

Lake Tanganyika Water Management Project (LATAWAMA), Phases 1 and 2 - LTA/ALT

LATAWAMA is funded under the EU Sub regional Envelope "Cross border Water Resources Management" of the 11th EDF Regional Indicative Program 'RIP' (RIP) for Southern and Eastern Africa and the Indian Ocean, signed in 2015. It responds to the objective of axis 3 of the 11th RIP whose overall objective is to contribute to promoting the equitable utilisation, sharing of benefits and the risks mitigation related to management of cross border water resources in the three main basins: Nile, Okavango and Lake Tanganyika.

The Logical Framework[17] of the programme's first phase defined its global objective as "to promote equitable use, sharing of benefits and mitigation of common risks (pollution prevention) to cross-border waters of Lake Tanganyika and its basin" with the specific objective "to improve sustainably the management and quality control of cross-border waters of the Lake Tanganyika Basin".

[17] LATAWAMA, LTA, page 50

The second phase of the project sees an extension of activities from the Lake Tanganyika basin to also include the Lake Kivu and Ruzizi River basin with the general objective to "contribute to the promotion of equitable use, benefit sharing and mitigation of common risks to the transboundary waters of Lake Tanganyika and its catchment area" and with three specific objectives:

1. Reinforce the interregional (ALT & ABAKIR) and national structures (managers of the quantitative monitoring of the riparian countries) in their missions of integrated water resources management.
2. Improve the quantity and quality of knowledge on the hydrological components of Lake Tanganyika and its catchment area and improve information sharing.
3. Anticipate and adapt to the impacts related to the evolution of the hydrological components of Lake Tanganyika and its watershed in a changing global context.

Rwandan Water Board (RWB) Strategic Plan 2021 – 2030

The theory of change[18] of the RWB strategic has the global objective to ensure sufficient water resources for long-term economic growth and to reduce the impact caused by the flooding, landslides and erosion risks in Rwanda.

The following strategic objectives will have to contribute to this achievement:

1. Preventing, reducing and controlling soil erosion.
2. Strengthening the availability of sufficient, quality water resources and water storage development for the sustainable development of Rwanda.
3. Strengthening resilience to flooding and landslides through improving preparedness, prevention, adaptation, mitigation and response mechanisms.
4. Strengthening governance of water resources.
5. Strengthening RWB capacity and financial sustainability.

"Lake Kivu and Rusizi River Basin Water Quality Management Project" Global Environment Facility (GEF)

The planned project, financed by the African Development Bank, is expected to begin in 2023. The project objective[19], is to improve water quality, environmental and economic services, and practices of lake Kivu through improved transboundary cooperation. The main components are

1. Enhancing regional and national cooperation.
2. Improving water quality management.
3. Providing catalytic investments in the water-food-energy nexus.
4. Monitoring & Evaluation (M&E) and knowledge management.

SDAR - Schéma Directeur d'Aménagement de la plaine de la Ruzizi

The SDAR is developed but has not yet begun implementation and financing for the majority of measures is not yet secured. The overall objective of the SDAR programme[20] is to contribute sustainably to integrated socio-economic development and poverty reduction through land development and the sustainable management of water resources in the Ruzizi plain, as well as by strengthening regional economic integration, peace, and security. This objective is to be achieved through five specific objectives:

1. Developing the irrigable potential.

[18] Rwanda Water Resources Board (RWB)'s Strategic Plan (2021-2030), page 34

[19] GEF, indicative project description summary, page 4

[20] Schéma Directeur d'Aménagement de la plaine de la Ruzizi - SDAR/CEPGL, page 39

2. Ensure the sustainable development of water resources and natural resources.
3. Contribute to the socio-economic development of integrated and inclusive sustainable support.
4. Protect and preserve the environment.
5. Strengthen the institutional capacities of good governance.

Sebeya Catchment Management Plan 2018 – 2024

The Sebeya catchment management plan has the overall objective that all water demands for socio-economic development in terms of quantity and quality are met, with the secondary objective that land productivity is increased.

The intervention is based on the Water for Growth Rwanda programme which had five components and several cross-cutting themes (including climate change adaptation and gender) for enabling the environment for catchment planning:

1. Enhancement of institutional frameworks for IWRM.
2. Capacity strengthening of key organisation and staff at central, catchment, and district level.
3. Demonstration of the value of an IWRM approach with the development and implementation of catchment plans.
4. Support to an IWRM investment Fund.
5. Component on knowledge management, including the development of water resources monitoring, implementation of dedicated studies, surveys, and research, and sustainable embedding of learning processes in the organisations involved in IWRM.

Alongside the enabling environment, one component focuses entirely on the introduction of catchment planning and management in four so-called demonstration catchments. The IWRM Investment Fund as financing component is a basket fund that contains a contribution from the Netherlands of EUR 18 million for the implementation of investment projects in the four demonstration catchments, e.g. Sebeya catchment management plan.

Climate Resilient Altitudinal Gradient Intervention Plan (CIP)

The CRAG Intervention Plan (CIP) was developed for the Lake Kivu and Ruzizi River Basin by Birdlife International with the stakeholder participation, to build on previous work and bring together established conservation strategies and activities. The CRAG framework is nested within and overlaps with a variety of established landscape level planning processes, such as Ecosystem-based Adaptation, Integrated Water Resource Management, Catchment Management, and Land Use Planning. It is best regarded as an additional landscape management tool that borrows elements and practices from all of these approaches; it is not a substitute, rival, or alternative to any of them. The objective[21] of the CRAG approach is to reduce the damage from threats caused by climate change to ecosystem services such as water regulation and soil formation by increasing the resilience of biodiversity and ecosystem services.

The congruence of the vison and priorities of the SAP with other key interventions in summarised in the table below:

[21] CIP - CRAG Climate Resilient Altitudinal Gradient, page 88

Table 3: Comparison of the vision and objectives of the SAP with key interventions in the basin

Programme	Comparison of objectives and priorities
LTA SAP	*The vision of the LTA SAP is compatible with the vision developed for the Lake Kivu and Ruzizi River Basin in both content and scope. The content of LTA SAP is focussed more on ecosystem priorities.*
LATAWAMA	*Similar objective and overlapping intervention area, with also an emphasis on cross border water quality control.*
GEF – AfDB	*Similar, no mention of equitable cross border use of resources, emphasis on improved transboundary cooperation.*
SDAR	*Similar, no mention of equitable use of resources, emphasis on strengthening regional economic integration, peace, and security.*
CRAG Intervention Plan	*Similar, with an emphasis mitigation of threats caused by climate change to ecosystem services.*
RWB Strategic Plan	*Similar, and as this concerns a national programme there is no emphasis on cross border equitable use of resources.*
Sebeya Catchment Management Plan	*Similar, but like the RWB strategic plan no emphasis on cross border equitable use.*

Overall, the objectives of the different programmes in the basin are similar, and often complementary to each other and compatible with the long-term vision and priorities for the basin in the SAP. It is envisaged that complementarity of the interventions can be further enhanced and synergies developed through a structured exchange between stakeholders which could be organised by the Lake Kivu and Ruzizi River Consultation Platform proposed as part of the SAP (see Annex B).

The SPs of the SAP are presented below along with the associated ongoing and planned actions in the basin. Additionally, for each SP a number of high impact / low risk actions have been identified in discussions with stakeholders and are proposed here as initial actions which could be supported or implemented by ABAKIR. These quick win activities would both address immediate concerns in the basin and serve to raise the profile of ABAKIR among stakeholders and the broader population if designed, financed and implemented appropriately.

3.4 SP 1: Adapt to and mitigate the impacts of climate change in the basin

Objective of SP 1: Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change, and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place

Climate Change is a cross-cutting theme, impacting all sectors, interests, and interventions across the basin. Current IPCC climate scenarios for the region indicate temperature increases and changes in the spatial and temporal distribution of precipitation throughout the year. By the mid-to-late century, thermal conditions of the coolest months of the year are likely to approach levels found in the warmest months at present with chronic heat stress becoming pervasive and negatively impacting biodiversity, humanity, and ecological systems across the basin. By 2060, the March, April and May (MAM) and September, October, November and December (SOND) rainy seasons are expected to become wetter, with peak monthly runoff possibly increasing by 50% and occurring one month earlier than at present. A predicted increase in December runoff south of Bukavu, combined with land use changes, may pose dangers of increased soil erosion in this area. This may increase hydropower generation, but also sedimentation and the risk of flooding, impacting agriculture, critical infrastructure and human settlements, particularly in the Ruzizi Plain from Bugarama southwards, and in the Ruzizi Delta[22].

[22] Birdlife International (2017), "CRAG Intervention Plan (CIP for the Kivu-Rusizi Basins"

Strategies, policy frameworks, programmes and projects exist in all three member states[23] aiming to improve adaptation, resilience and preparedness to climate change, with international, regional and national actors currently working on these issues (e.g. IUCN, One Acre Fund, ICRAF, ARCOS etc.). Adaptation measures aim to reduce the vulnerability to the harmful effects of climate change on the environment and the population of the basin, and to make the most of any potential beneficial opportunities that arise.

Given the energy production potential in the basin, including hydropower production along the Ruzizi River and tributaries in the Ruzizi plain, methane extraction for electricity production from Lake Kivu, peat-to-power plants, and potential oil exploitation, the climate mitigation potential (reducing greenhouse gas (GHG) emissions) is considerable. Further development of these energy resources must be accounted for the Vision of the basin, as well as the Member States' own obligations within Nationally Determined Contribution (NDCs), their climate action plans to cut emissions and adapt to climate impacts (see Box 2).

Despite this large electrical production potential, for the vast majority of households in the basin, the main source of energy remains firewood or charcoal for cooking, with little alternative. The removal of wood for cooking energy has a huge impact on the basin, increasing soil erosion and sedimentation, decreasing biodiversity and damaging microclimates. Measures to increase the use of improved stoves can help to reduce the use of firewood and thus minimise the extraction of wood from forests, and reforestation contributes to the conservation of soil and water. Improving access to electricity would also reduce the use of firewood, improve the comfort of the population and protect the natural water reservoirs created by the forests. In addition to the sources listed below in Box 2, there is also considerable potential for the use of photovoltaic panels as part of rural electrifications schemes. As long as the environment is respected in the implementation of these developments, measures to increase access to electricity are to be recommended.

[23] For example, all three member states have developed National Adaptation Action Plans for Climate Change and established clear Nationally Determined Contributions to reduce national emissions and adapt to the impacts of climate change.

Box 2: Considerations for the development of electrical energy sources in the basin

The choice of energy sources for further development is guided by the obligations of the Members States as proposed in their respective NDCs, with all three committed to Greenhouse Gas reductions of between 16% and 30% by 2030. The three main greenhouse gases are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Over a 100-year period, 1 kg of CH_4 released in the atmosphere would warm the earth 25 times more than 1 kg of carbon dioxide. Although burning of CH_4 to produce electricity also emits CO_2, the use of CH_4 from the lake water before it can enter the atmosphere could be a beneficial measure from a climate change perspective. The power sources currently exploited at a notable scale in the basin are given below in ascending order of the GHG production.

Hydropower

In the basin hydropower is generated in run of river schemes, with little or no storage behind dams. Such schemes have very low GHG emissions. The potential for hydroelectricity in the Ruzizi River basin is believed to be in the order of 666 MW, while the Kivu basin could add a further 15 MW, bringing the total potential at 681 MW. Currently hydropower produces 30% of the Rwandan grid demand for electricity. In Burundi, development of hydropower could bring the national electrification rate to 35%.

Methane-to-Power

The methane in Lake Kivu is estimated to have the capacity to generate 700 MW of electricity over a period of 55 years. An agreement between Rwanda and DRC ensures a fair division of the estimated 60 billion m^3 of CH_4. Rwanda has begun exploitation of methane gas for power generation and distribution in the national grid. The KivuWatt project is already operational since 2016 (26 MW capacity) and the Symbion / Shema Power plant is currently under construction (56 MW planned). Methane is a powerful greenhouse gas which, if emitted into the atmosphere as a result of seismic or human activity, would result in a limnic eruption and a human and environmental catastrophe around the lake.

Oil

Given that both the Albert and Tanganyika basin are oil rich, it is thought that the Lake Kivu basin may also be an important source of oil. DRC and Rwanda signed an agreement in 2017 for oil exploration starting in 2018 on the Rwandan side with a series of shallow drillings and geochemical tests. In 2021 the Rwandan parliament granted 1.038 billion Rwf for further exploration through a 2D seismic survey, which was subsequently delayed due to the COVID 19 pandemic. Should the survey prove positive, exploratory drilling may follow.

Peat to Power

Peatlands are critical for preventing and mitigating the effects of climate change, preserving biodiversity, minimising flood risk, and ensuring safe drinking water. They are significant to global efforts to combat climate change and achieve other Sustainable Development Goals. As a carbon sink, their protection and restoration are vital in the transition to a zero-carbon society. In the basin, peatlands are still being exploited for electricity generation in Peat-to-Power plants. Depending on the interpolation method, the average CO_2 emission from opening peatlands has been estimated at 43 tons of CO_2 / ha / a. Added to this is the CO_2 released during the burning of peat. One example in the basin is at Gishoma, in the Ruzizi district in Rwanda - a 15 MW Peat to Power Project, burning a total annual volume of 42 000 tonnes/year and exploiting a peatland of 150 hectares, which estimated to satisfy around 10 years of peat extraction.

Of the four energy sources quoted, peat to power is probably providing most employment: during the dry season from May to August the extraction of peat and the Peat to Power plant employ around 4 000 labourers.

The planned and ongoing projects under SP1 are presented below:

Table 4: Planned and ongoing projects in the basin under SP1

SP 1: Adapt to and mitigate the impacts of climate change in the basin				
Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place				
Action	**Output in the basin**	**Project**	**Implementing and financing institutions**	**Budget and period**
Adaptation and increasing resilience				
Increase the resilience of livelihoods, reduce CO2 emissions, build capacity for integrated spatial planning and increase the extent and integrity of forest ecosystems in the Congo Nile Divide	- Climate Adaptation mainstreamed into Integrated Land Use Planning, - Forest Landscape Management and Restoration	"Building Resilience of Vulnerable Communities to Climate Variability in Rwanda's Congo Nile Divide (CND) Through Forest and Landscape Restoration"	Ministry of Environment (R) Green Climate Fund	USD 36 M 2023 - 2028
Adapt and promote landscape approaches for climate resilient agriculture and safeguard downstream investments for increased climate resilience of the community	- Introduction and promotion of farm-scale improved practices, high value crop value chain development and knowledge generation & management - Promotion of soil and water conservation practices, - Incentives for soil and water conservation	"Climate proofing food production investments in Imbo (Ruzizi Plain) and Moso"	Africa Sustainability Centre (ASCENT), Platform for Food Security and Rural Development of the Imbo/Mosso (PNSADR-IM) (Global Agriculture and Food Security Program)	USD 32 M 2020 - 2025
Improve access to basic services, enhance resilience and strengthen integrated urban planning and management in the City of Kigali and the six secondary cities of Rwanda.	- Support to Secondary Cities: Infrastructure and service delivery, and institutional capacity development in Rusizi and Rubavu - Institutional Capacity Development at National Level	"Rwanda Urban Development Project II"	Rwandan Ministry of Infrastructure REMA World Bank	USD 175 M Total 2020 - 2025
Mitigation and GHG reduction				
Bring meaningful transformations to the electricity sector in Burundi, DRC and Rwanda	- 147 MW renewable energy available - The financial contribution to the hydroelectric developments of Ruzizi III, - Improving the institutional framework and regional trade for the benefit of CEPGL countries	Centrale Hydroelectrique De Ruzizi III (147 MWe)	CEPGL implementing through EGL (further financial contributions by AfDB, WB, EU)	USD 641 M Available from 2024

	- Institutional support for project management			
Contribute to the socio-economic development of the population in the sub-region of the Great Lakes countries (Burundi, DRC, Rwanda) through a greater availability of energy at an affordable cost and to reduce the share of thermal energy in the energy mix of the countries concerned	- 287 MW renewable energy available - The financial contribution to the hydroelectric developments of Ruzizi IV, - Improving the institutional framework and regional trade for the benefit of CEPGL countries - Institutional support for project management	Projet hydroelectrique Ruzizi IV (287 MW)	CEPGL implementing through EGL (further financial contributions by AfDB, WB, EU…)	USD 625 M Planned available from 2023
Contribute to the socio-economic development in the Lake Kivu catchment	56MW of power produced in the Lake Kivu catchment using methane from the lake	Shema Power Lake Kivu Limited (SPLK Ltd) Project, Kivu56		USD 200 M Available from 2022
Contribute to the socio-economic development in the Lake Kivu catchment	- First phase of this project is powering three gensets to produce 26 MW of electricity for the local grid. - Second Phase additional nine gensets at 75 MW to create a total capacity of over 100 MW	KivuWatt / Contour Global		USD 128 M Phase 1 in operation
Improve energy supplies and support the socio-economic development in the Cibitoke province, Burundi	Additional 8 MW production capacity added to the Burundian national grid	KAGU 006 Hydropower Project (8MW)	Ministry Energy & Mines (B) Public Private Partnership with Swedenergy	USD 60 M Planned available from 2023
Improve energy supplies and support the socio-economic development in the Cibitoke province, Burundi	20 MW or renewable energy available	Construction of the Kabu-16 hydroelectric dam in the province of Cibitoke	Ministry Energy & Mines (B)	USD 86 M

In addition to the actions presented in the table, smaller, quick-win priority activities were identified in discussions with stakeholders for SP 1. These activities could be carried out with the support of ABAKIR and if designed, financed and implemented correctly would have a clear visible impact. Quick-win actions for SP 1 include:

- *Development of Disaster Preparedness and Risk Management Plan for the basin*
  Lake Kivu and Ruzizi River basin is prone to natural hazards, including landslides, floods, flash floods, droughts, earthquakes, volcanic eruptions and the threat of a sudden release of methane from Lake Kivu (limnic eruption). Over the last decades, the frequency and intensity of natural hazard induced disasters, particularly floods, landslides, and droughts in the region have increased and will further increase under the influence of climate change. The basin must therefore invest in preparedness, rather than waiting for the next disaster to hit.

  The Disaster Preparedness Plan should consist of a set of measures undertaken by governments, organisations, communities, or individuals to better anticipate, respond and cope with the immediate aftermath of a disaster, whether it be human-made or caused by natural hazards. The objective is to reduce loss of life and livelihoods.

  ABAKIR could develop an Atlas of risks in all sectors, establishing a disaster preparedness and risk management plan to be shared with the various actors, including NGOs, to harmonize the actions to be taken.

- *Introduction of climate smart agriculture in the basin*
  Climate-smart agriculture (CSA) is an integrated approach to managing landscapes-cropland, livestock, forests and fisheries - that address the interlinked challenges of food security and climate change[24] and, where possible, counteract it by reducing greenhouse gas emissions, at the same time taking into account the growing population to ensure food security. The emphasis is thus not simply on sustainable agriculture, but also on increasing agricultural productivity. CSA has three pillars: increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions from agriculture. This approach fits perfectly into both the process of IWRM and the WEF-Nexus proposed for the basin. Initial activities could build upon ongoing initiatives in the Sebeya Catchment, World Bank financed projects in the Ruzizi Plain and the work supported by the One Acre Fund[25].

- *Fostering the development of carbon dioxide neutral energy sources / low CO_2 emitting energy generation in the basin for households and institutions*
  In addition to the larger electricity generation projects, this activity could include studying and proposing energy sources for decentralised infrastructure (health centres, schools, communal buildings) as well as measure to reduce or replace wood as a cooking energy source for households across the basin. This could include further supporting work currently underway to produce Compressed Natural Gas for cooking from the gas reserves in Lake Kivu (by GasMeth Energy) and investigations into geothermal energy production, solar power (for example for pumping) and the introduction of run-of-river micro hydro-power plants.

[24] World Bank, 2021 : https://www.worldbank.org/en/topic/climate-smart-agriculture

[25] https://oneacrefund.org/work-with-us/rwanda/

3.5 SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy, and food securities

Objective of SP 2: Improved knowledge on the availability and state of the water resources enables competent management approaches that consider the interactions, synergies and trade-offs of water, energy and food for socio-economic development

The present population of the basin is approximately 11 million[26], with almost 2/3 of the basin population in DRC. Current estimates for 2050 put the basin population at over 27 million people (again with 2/3 based in DRC[27]). With agriculture the main source of income for over 80% of the basin population, water management is essential to ensure sufficient water of appropriate quality is available to safeguard livelihoods in this sector (as well as in other water dependent sectors such as domestic water supplies, tourism (see Box 3), fisheries etc.), whilst water protection and sanitation and wastewater management is needed to protect both the environment and human health. Water also enables the transport of passengers and goods between DRC and Rwanda on Lake Kivu, opening markets and facilitating regional trade (see Box 4). All these different uses impact on the water quality.

Surface water quality is a major problem due to the massive erosion in the basin, with an average soil loss value of around 100 t/ha/year in the basin, generating high and widespread turbidity in most of the basin's watercourses. The phenomena of sediment transport in the watercourses and sediment accumulation, constitute the major problem facing the basin. In addition to the alteration of surface water quality due to erosion and the massive transport of sediment to the rivers and Lake Kivu, the water resources of the basin are also threatened by various forms of pollution linked to urbanisation and industrialisation, especially in large cities such as Bukavu or Goma. Other threats to the quality of the basin's water resources come mainly from mining and industrial discharges. On the agricultural level, although the use of chemical fertilisers and phytosanitary products is relatively moderate in the basin, their use may be locally more significant (especially in large farms in the Ruzizi plain) and may lead to surface and groundwater pollution in this area[28].

Key to meeting the varying needs of different water using sectors, is being able to manage the available resources appropriately. To improve water management and thus safeguard socio-economic development, an improved knowledge of the resources is needed. The TDA highlighted the poor data availability in the basin making the priority recommendation to improve hydro-meteorological, hydrometric and groundwater monitoring networks and water quality monitoring. 24 new sites for hydrometric stations are proposed in the TDA[29], with two priority stations to be installed on the Petite Ruzizi in Burundi and on the Ruzizi, at the outflow of Lake Kivu, to substantially improve the quality of water balance models. Data transfer and management of the stations is needed, as is analysis and monitoring of the data by competent national and regional authorities who provide key stakeholders with information and enable management decisions. Data sharing across the basin between member states is essential for resource planning and management. The ideal future situation would be a centralised data base maintained by ABAKIR with regular updates and stakeholder access.

Management decisions made based on the available data should seek to strengthen the synergies already present between food production, energy production and water resources management in the basin to balance different resource user goals and interests – while maintaining the integrity of

[26] In 2020 7.5% of the population of DRC, 14.3% of the population of Burundi, and 19.3% of the population of Rwanda lived in the basin

[27] Baseline study of the Lake Kivu and Ruzizi River basin, 2021

[28] The improvement of the water quality and water quality monitoring is the aim of the plan AFdB-GEF financed project “Lake Kivu and Rusizi River Basin Water Quality Management Project” planned to start in 2023.

[29] Baseline study of the Lake Kivu basin and the Ruzizi river basin, 2021. Table 23, Page 79.

the basin ecosystems. A Water-Energy-Food Nexus approach is therefore relevant. This approach focuses on the interdependencies between these three sectors and the need to create synergies and regulate equitable trade-offs between competing uses of resources. It is particularly relevant in the Lake Kivu and Ruzizi River basin, which is characterised on the one hand by significant population growth, which means that the population's need for water is increasing, and on the other hand by economic development based on both agriculture and energy production (hydro-electricity and gas).

In addition to measures to improve data collection and management for improved resource planning for socio-economic development, this SP also includes direct actions to improve the livelihoods of the basin population. With almost 9 million people in the basin dependent on agriculture, these actions aim for the most part at reinforcing agricultural productivity.

Box 3: Tourist potential for socio-economic development

The basin is located in the western branch of the East African rift system, characterised by active and dormant volcanoes with over 70 hot springs on the ridge of the Lake Kivu and in Ruzizi plain, with the potential of developing hot spa resorts. Despite the dense urban settlements and pressure on fish, land, forest and wetland resources the Lake Kivu and the Ruzizi River basin maintains tremendous tourism potential with its breath-taking landscapes and biodiversity, with three forests with the status of UNESCO World Natural Heritage Sites: Virunga National Park and the Kahuzi-Biega National Park in DRC and the Gishwati-Mukura National Park in Rwanda.

The main concentration of tourist infrastructure is in the Northern part of the Lake Kivu basin, in the cities of Goma and Rubavu and in the Eastern part of the basin in the Karongi and Rutsiro districts of Rwanda. With transport infrastructure in place through air and road, considerable hotel capacity and the proximity of the Volcanoes-Virunga-Bwindi Park, the region attracts every year a considerable number of international tourists. The potential direct annual value of gorilla tourism for the Virunga Park alone has been estimated at USD 30 million. The Southern part of the Lake (Bukavu city and Rusizi town) is less developed for tourists. A limited number of recreational facilities for cultural tourism and ecotourism are located on the banks of Lake Kivu. Both Bukavu and Rusizi offer a limited number of hotels of different class

For the (eco)tourism sector the shortage of qualified staff is considered a challenge, specifically staff that is in French, English and Kiswahili.

Box 4: Navigation on Lake Kivu

Transport of goods and people is an essential service on Lake Kivu and is generally well developed on the DRC side of the lake for passengers, with multiple ferry services between Bukavu and Goma. Projects are also planned for a professional water transport service also on the Rwandan side.

Water transport across the lake facilitates market access for goods on either side. The Nyamasheke cross border market on the Rwandan side of the lake is one example of a trading facility, mainly for agricultural produce between DRC and Rwanda. Berthing facilities in places like Kalehe on the DRC side could be further expanded to accommodate increasing inland water transport.

Ports in DRC like Bukavu and Goma are reasonably well developed to accommodate transport of people and goods. The Rwanda Transport Development Agency (RTDA) has identified inland water transport at Lake Kivu as an additional safe and efficient mode of transportation, for which currently four ports are under development in Rubavu, Karongi, Rusizi, and Nkora1. Each of these ports will include, one or two jetties, an immigration post, passenger terminal, (cool) storage facilities and facilities for navigation and security systems. These activities aim to regulate customs, passengers, and cargo handling, and enforce safety standards for (ferry) operators.

These activities contribute to the larger objective of enabling access points for cross-border trade on Lake Kivu between Congolese and the Rwandan port, with a significant increase in small and medium trade between the cities on the lake.

DRC already avails of solid regulation for water transport, including the navigation code1, with minimum qualifications required to captain boats of different capacities. Similar regulation is currently under development for Rwanda, where to date, operating a boat has not required specific training or been subject to regulation. With the shipping of goods and passengers on the lake transport expected to increase, there is need for harmonisation of lake transport regulation, including the certification of seafarers who will work onboard of existing and new boats and ships.

Table 5: Planned and ongoing projects in the basin under SP2

SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy, and food securities				
Improved knowledge on the availability and state of the water resources enables competent management approaches that considers the interactions, synergies and trade-offs of water, energy and food for socio-economic development				
Action	**Output in the basin**	**Project**	**Implementing and financing institutions**	**Budget and period**
Supporting socio-economic development				
Increase agricultural productivity, improve the processing and marketing of rice, maize and milk in the Imbo region and strengthen regional integration	1/ Improved productivity and production of smallholder farmers, 2/ Support for investments in the agro-food sector and the establishment of links with markets, 3/ Institutional integration, knowledge acquisition and dissemination of information at the regional level - Project management and institutional support	Projet Regional de Developpement Agricole Integre dans les Grands Lacs (PRDAIGL) (Regional Project for Integrated Agricultural Development in the Great Lakes)	The Ministry of Environment, Agriculture and Livestock (B) World Bank	USD 75 M 2017 - 2022
Increase agricultural productivity and commercialization in targeted areas and improve agricultural regional integration and to provide immediate and effective response in the event of an eligible crisis or emergency	1/ Increased productivity and production of selected value chains in targeted areas of South Kivu and Tanganyika Provinces 2/ Development of the private agro-industrial sector, 3/ Improved effective regional integration through an enabling environment for regional cooperation and joint natural resource management and a regional agenda for agricultural research for development (R4D)	Regional Great Lakes Integrated Agriculture Development Project (PICADL)	Minister of Agriculture (DRC) World Bank	USD 150 M 2019 - 2022
Enhance Water -Energy-Food-Ecosystems (WEFE) Nexus and Climate Resilience along Koko (Rwanda) and Lwiro (DRC) Rivers of Lake Kivu Basin through Nature-Based Community Enterprises as champions of sustainable change	1/Establish Nature-Based Community Groups and building their capacity in group management and leadership and participatory planning, 2/Enhancing environmental resilience through sustainable water, forestry,	Enhancing Water-Energy-Food-Ecosystems (WEFE) Nexus and Climate Resilience along Koko (Rwanda) and Lwiro (DRC) Rivers of Lake Kivu Basin through Nature-Based Community Enterprises	Albertine Rift Conservation Society (ARCOS) ABAKIR GIZ / EU	EUR 150 T August 2022

	and land management, 3/Support agriculture and fishery value chain production business development and market linkage and 4/Transformation practices and inspiring others for sustainability			
Capacity building for smallholder farmers and implementing appropriate agroforestry and water management options to reduce soil erosion and enhance food, water and energy security the implementation zone and Kalehe district in DRC	1/Soil and water management best practices piloted to stabilize erosion affected landscapes and restore the fertility of degraded farms, 2/Fruit production for improved nutrition and income generation for smallholder farmers. 3/The capacity of smallholder farmers improved to address land degradation, improve farm productivity and generate income from fruit production, 4/Scaling up of success stories	Piloting watershed management in Rutsiro-Rwanda and Kalehe-DRC for the resilience to climate change and improving livelihoods of smallholder farmers in Lake Kivu basin	World Agroforestry (ICRAF) ABAKIR GIZ / EU	EUR 140 T August 2022
Alleviation of insecurity and instability through local economic development and access to markets based on Integrated Water Resources Management and better farming practices, applying a value chain development approach.	Long-term land lease contracts and reduced land-related conflicts; resilient agricultural systems; inclusive and profitable value chains and market systems in 5 territories in North Kivu (Rutshuru, Nyaragongo, Masisi) and South Kivu (Kalehe and Uvira).	Transition for Inclusive Development in Eastern Congo	Consortium of ZOA, Agriterra and VNGI Kingdom of The Netherlands	EUR 30 M 2021 - 2025
To improve water quality, environmental and economic services and practices of lake Kivu through improved transboundary cooperation	Investment and incentive measures that address water security both in terms of quality and quantity/availability promoted	Lake Kivu and Rusizi River Basin Water Quality Management Component 3: Providing catalytic investments in the water-food-energy nexus	ABAKIR AfDB / GEF	USD 12.7 M 2023 - 2027
Resource Monitoring				
To improve water quality, environmental and economic services and practices of lake Kivu through improved transboundary cooperation	Water quality improved and further pollution minimised	Lake Kivu and Rusizi River Basin Water Quality Management Component 2: Improving water quality management	ABAKIR AfDB / GEF	USD 8.6 M 2023 - 2028
Quantitative Monitoring of Lake Tanganyika in the context of climate change	1/ A tool for monitoring the quantity of water in Lake Tanganyika and its watershed is developed and tested 2/ The impacts related to the	LATAWAMA Project Phase 2 Lake Tanganyika Water Management	ENABEL LTA	EUR 27 M 2023 - 2028

	evolution of the hydrological components of Lake Tanganyika and its watershed in the short to long term are anticipated			

In addition to the actions presented in the table, smaller, quick-win priority activities were identified in discussions with stakeholders for SP 2. These activities could be carried out with the support of ABAKIR and if designed, financed and implemented correctly would have a clear visible impact. Quick-win actions for SP 2 include:

- *Improve the basin water monitoring network based on the recommendations of the TDA, beginning with the two priority stations Identified for the Petite Ruzizi in Burundi and on the Ruzizi, at the outflow of Lake Kivu (priority)*
- *Support the development of a tourism master plan, focussing initially on a key area of touristic importance in the basin (e.g. the UNESCO Heritage Sites)*
- *Introduction of conservation / regenerative agriculture and agroforestry to preserve declining soil fertility in the basin building on experience generated through pilot projects with ICRAF and ARCOS, supported by ABAKIR and GIZ*
- *Landscape restoration, repair of terracing, reduction of landslides, flood plain regulation building on experience generated through pilot projects with ICRAF and ARCOS, supported by ABAKIR and GIZ*
- *Safeguard hydro-electricity production on the Ruzizi / Rusizi River through an improved management of solid waste and circular economy activities, particularly in and around Bukavu.*
- *Improve rainwater harvesting, and water storage practices*
- *Build capacity for water use efficiency*

3.6 SP 3: Preserve and protect the environment and ecosystem health

Objective SP3: Critical habitats are protected and ecosystems are stabilised and restored through conservation measures and sustainable land management practices

The protection and preservation of the basin environment is enshrined in Article 9 of the 2014 International Convention for IWRM of the Lake Kivu and Ruzizi Basin, with Member States signing a series of engagements ranging from the development of appropriate legal, administrative, and technical measures to the definition of environmental flows in the Ruzizi and water levels in Lake Kivu. Deforestation of steeps slopes, soil erosion and sedimentation and the degradation of the aquatic environment are all pressing issues which fall under this Strategic Priority.

All parks in the region have a unique and endemic wealth of biodiversity that makes them sites of global importance. As such, three forest massifs have UNESCO World Natural Heritage Site status, namely Virunga National Park, Kahuzi-Biega National Park and Gishwati-Mukura National Park in Rwanda. The Virunga-Volcanoes-Mgahinga National Park complex generates annual revenues estimated at nearly US$9 million per year for the three parks, mainly because of the biodiversity they have (e.g. endangered species such as the Mountain Gorilla).

Aquatic biodiversity is low in Lake Kivu, due to its recent origin, relative isolation, high salinity, and the high tectonic activity, yet it still is the most vital fish production centre in Rwanda, accounting for 44.9% of total national fish production in 2020 (16 194 tonnes out of 36 047 tonnes), as per agriculture ministry data[30]. Members of the Coopérative des Pêcheurs de Isambaza du Lac Kivu (COPILAC) are, however, reporting decreasing stocks in the lake and, in the absence of better information, link this to methane extraction infrastructure. Issues of overfishing and possibly severe and localised water pollution may be more directly responsible. Many commercial centres (markets) and fish farming stations found in the basin contaminate the water resources through uncontrolled

[30] https://www.infonile.org/en/2021/08/rwanda-the-fish-less-country/

discharges of wastewater and poor sanitation. Widespread artisanal small-scale mining activities across the basin are also sources of heavy metal pollution and may contribute to erosion and sediment loads of the rivers. On the Rwandan side of Lake Kivu, an estimated 121 coffee washing stations discharge wastewater into the tributaries of the lake. Additionally, non-respect of the regulations for required environmental buffer zones around the lake and along water courses and wetlands in Rwanda and Burundi results in direct pollution (from urban and agricultural areas), whilst in DRC there is no corresponding legislation for this.

The TDA notes that land use in the basin has changed significantly in recent decades. In a quarter of a century, the area devoted to agriculture has increased by 29 %, to the detriment of forests and meadows. Currently 45 % of the basin is used for agricultural activities, often on steep slopes, except for those in the Ruzizi plain. Small-scale subsistence agriculture in the basin constitutes an important role in meeting the food needs of farm households. However, the type of agricultural production system applied is increasingly characterised by overexploitation of natural resources, exacerbated by population growth and climate change. Overexploitation leads to soil degradation, in turn leading to a decrease in soil productivity, compromising the sustainability of agricultural production systems.

In addition to more localised point sources of pollution (food processing factories, cement factories and pharmaceutical factories), large scale irrigation is practiced over 59 000 ha in Burundi and DRC on the Ruzizi Plain. The use of fertilizers and other agricultural inputs may lead to increased level of nutrients and organic pollutants, with the possibility of eutrophication of downstream water bodies, including Lake Tanganyika.

Major urban settlements are spread across the basin, from the upper reaches of the Lake Kivu catchment to the Ruzizi Plain. Their poor wastewater and solid waste management impacts directly on water quality. Geogenic sources of contamination are also present, including outgassing within the lake and hot springs throughout the basin.

Measures to protect the environment and biodiversity need to be promoted from the point of view of water resource conservation and sustainable management of land resources. Areas of high biodiversity must be maintained in good condition.

Table 6: Planned and ongoing projects in the basin under SP3

SP 3: Preserve and protect the environment and ecosystem health				
Critical habitats are protected and ecosystems are stabilised and restored through conservation measures and sustainable land management practices				
Action	**Output in the basin**	**Project**	**Implementing and financing institutions**	**Budget and period**
Reduce current pollution threats to the littoral zone of Lake Kivu and the Ruzizi River	1/ The protection of the watershed and coastline of Lake Kivu and the Ruzizi River by developing a waste management plan. 2/The restoration of aquatic plants in places where they have been destroyed. 3/ Knowledge of the values or importance of the service and goods provided by Lake Kivu and the Ruzizi River, once well protected against pollution. 4/The training of the local population and local administrative authorities on the management and recycling of waste. 5/ The establishment of a remote sensing and GIS (geographic information system) system which will identify areas sensitive to erosion and the implementation of remedial measures.	Pollution Prevention and Waste Management of Lake Kivu, Bukavu Basin and Ruzizi River	Universite Officielle de Bukavu (UOB) ABAKIR GIZ / EU	USD 95 T August 2022
Enhance transboundary cooperation and LTA-SAP implementation through sustainable fisheries co-management, biodiversity conservation and restoration of degraded landscapes in selected key biodiversity areas of Lake Tanganyika	1/A regional network of community based co-managed fisheries areas is established and operationalized, and demonstrate their efficacy as a viable mechanism for the sustainable conservation, improved livelihoods, and utilization of fishery resources in Lake Tanganyika, 2/ Improved protection and	Biodiversity conservation, sustainable land management and enhanced water security in Lake Tanganyika basin (active in part of the Kivu-Ruzizi Basin)	UNEP / GEF	USD 60.7 M (USD 14.7 M from GEF) 2022 – 2027

	enhanced delivery of ecosystem services from the core conservation zones of three protected areas, 3/The adoption of sustainable natural resource harvesting approaches and sustainable agricultural crop and livestock practices in targeted villages in protected area buffer zones contributes to reducing anthropogenic pressures on the core conservation areas of three protected areas, 4/ Improved coordination and information-sharing among riparian countries, the LTA, donors and other key stakeholders leads to more effective partnerships in the implementation of the SAP and NAPs			
Promote the conservation and enhancement of biodiversity and sustainable and equitable socio-economic development in Burundi.	The ecosystem services of the Rusizi River catchment are protected and enhanced.	DUKINGIRE IBIDUKIKIJE - Conservation and enhancement of natural ecosystems and their biodiversity for green growth of rural communities in Burundi	Burundian Agency for Watr and Sanitation in Rural Areas (AHAMR) EU	EUR 20 M 2022 - 2027
The main objective of the project is to reforest all denuded areas throughout the national territory in order to protect terrestrial ecosystems and forests.	This project not only contributes to the restoration of the landscape, but it has also brought added value in the fight against bush fires which constitute a danger to the environment.	Projet de reboisement national « EWE BURUNDI URAMBAYE »	Ministry of Interior Affairs ,Community Development and Security Public Ministry of National Defense and War Veterans Ministry of Environment, Agriculture and Livestock Ministry of Finance	Financial volume to be established 2018 - 2025
Contribute to the healthiness of the city of Bukavu by transforming plastic waste into cobblestones	Processes to transform and market plastic waste as cobblestones are developed	The gold in our bins: turning plastic waste into job opportunities	KivuTECH PNUD	USD 20 T 2022(4 months)

In addition to the actions presented in the table, smaller, quick-win priority activities were identified and proposed in discussions with stakeholders for SP 3. These activities could be carried out with the support of ABAKIR and if designed, financed and implemented correctly, would have a clear visible impact. Quick-win actions for SP 3 include:

- *Urban centres: pilot measures to improve on-site sanitation systems and faecal sludge collection and treatment for households in Bukavu and Goma*
- *Sensitization and awareness raising in urban areas on waste production at household level;*
- *Respect and protection of water protection buffer zones around Lake Kivu (relevant for Rwanda as no regulation currently exists in DRC);*
- *Solid waste recycling and valorisation (Promoting circular economy);*
- *Treating process water from coffee washing stations:*
  As wastewater from coffee washing generally has a very high BOD and COD it is essential to avoid that effluent from coffee washing stations from directly entering tributaries to the lake and the river. A simple natural water purification system using reed filters may be an attractive solution to this issue, depending on the context of the washing station. Such filter plants can cost up to USD 3 000 per station.

3.7 SP 4: Develop stakeholder capacity for IWRM

Objective of SP 4: Stakeholders are aware of the importance of water and land management and their role in it and take appropriate measures to address challenges arising at their level

One of the aspects that differentiates IWRM from more conventional top-down water management practices is the involvement of stakeholders in the planning and implementation processes. Stakeholder participation is critical to IWRM. Fundamentally, it is ethical; water is necessary for people to live and therefore those that depend on a water resource should have the right to participate in decisions regarding its management. Stakeholder participation in planning helps avoid mistakes in design that would make a project fail due to the local context. As well, involving stakeholders in planning fosters ownership and responsibility. Additionally, effective stakeholder participation can facilitate communication and conflict resolution, and through active participation stakeholders gain understanding and feel agency.

Stakeholder participation in water and land management in the basin is enshrined in the 2014 Convention for the Integrated Management of Water Resources through the principle of subsidiarity, requiring challenges to be addressed at the lowest appropriate level. Stakeholder participation however requires a certain capacity and awareness among stakeholders. Appropriate behaviour and practices of different water users and other key intervening actors in the basin is essential for the sustainable management of the basin resources.

This SP thus covers all necessary measures to raise awareness, develop capacities and affect behaviour change to improve water (and land) management practices among stakeholders. Currently there is no basin wide effort to target users with appropriate information campaigns and / or capacity development measures to improve soil and water management, although most ongoing projects do address this in at some level (for example within IUCN's Catchment Based Village Land Use Action Plans (VLUAP) currently being developed in the Sebeya sub-basin, users directly develop their local plan).

This SP therefore consists of a range of Information, Education and Communication (IEC) and capacity development activities aimed at different water and natural resource user groups concerning management questions pertinent to their immediate environment and the broader issue of integrated management at sub-basin and basin level. Provincial, district and communal authorities deserve particular attention in this regard because of their responsibility for the development of local

development plans and in regulating the use of land, water, and related resources. Their capacities should be developed to empower them to integrate IWRM consideration into their own planning documents.

Currently only two projects are intervening in the basin in these areas, presented in the table below.

Table 7: Planned and ongoing projects in the basin under SP4

SP 4: Developing stakeholder capacity for integrated water resources management				
Stakeholders are aware of the importance of water and land management and their role in it and take appropriate measures to address challenges arising at their level				
Action	**Output in the basin**	**Project**	**Implementing and financing institutions**	**Budget and period**
Increase livelihoods and conservation benefits in Sebeya (and other) catchments from landscape restoration and improved natural resource management	Land, water, and related natural resources are effectively managed and contribute to sustainable socio-economic development and improved livelihoods, taking into consideration environmental flow, downstream water demands and resilience to climate change, and minimise water related disasters	Landscape Restoration and Integrated Water Resources Management in Sebeya and other Catchments	Kingdom of the Netherlands RWB, IUCN, RWB, SNV, APEFARWARRI	EUR 22 M 2019 - 2023
To promote equitable use, sharing of benefits and mitigation of common risks (pollution prevention) to cross-border waters of Lake Tanganyika and its basin	A catchment management plan for the section of the Ruzizi Plain in Rwanda is developed	The Lake Tanganyika Water Management (LATAWAMA) Phase 1	ENABEL LTA	EUR 7 M End September 2013

The IEC and capacity building activities should be planned and coordinated centrally for the basin, by ABAKIR, to ensure a unity in messaging. This establishes a direct link between SP 4 and SP 5. This link would be bridged through the implementation of ABAKIR's existing Strategic Communication Plan (SPC) (2021) but will require that the capacities of ABAKIR are first developed to oversee the implementation of the plan, even if implementation itself is outsourced. The SPC has carried out an initial analysis of the information needs of different stakeholder groups which serves as a solid basis for further capacity needs assessments.

In addition to the messaging outlined in the communication plan, additional elements of an IEC campaign could include:

- *Information campaigns:* The importance of monitoring and data management of data, coordination of information and availability of access for relevant stakeholders, Existing policies, guidelines, plans, regulations in the basin relevant to land and water management etc.
- *Education Campaigns:* Soil protection measures, Regenerative Farming, Local water and wastewater management, Implement IWRM at basin and sub-basin levels, Planning for IWRM etc.
- *Communication Campaign:* State of the basin (soil erosion, water resources, biodiversity etc.), What is IWRM, communication and visibility activities for ABAKIR (mandate, mission, vision), What is the SAP? Etc.

Examples of quick win projects which ABAKIR could support include:

- *Awareness raising and training of farmers and cooperatives on the advantages of regenerative agriculture practices;*
- *Sensitisation and awareness raising of fishing communities in the whole basin on the importance of compliance with non-fishing periods on the whole of the lake and the application of sustainable fishing practices;*
- *Capacity development activities aimed at different water and natural resource user groups concerning management questions pertinent to their immediate environment and the broader issue of integrated management at sub-basin and basin level.*
- *Establishment of catchment and sub-catchment committees and elaboration of catchment and sub-catchments management plans, and micro-catchment action plans.*

3.8 SP 5: Develop institutional and organisational capacity of the Basin Authority (ABAKIR)

Objective SP 5: ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and the active management of relevant information and data from across the basin

IWRM in Lake Kivu and Ruzizi River Basin, and the development and oversight of the implementation of the SAP requires a capable basin-level transboundary organisation with a clear mandate, vision, mission, and objectives, and appropriate personnel (in profile and number), as well as sufficient material resources. The basin authority should be based upon on a harmonised legal and institutional footing. Through the 2014 Convention (Article 10), ABAKIR was created to cooperatively manage the Lake Kivu and Ruzizi River Basin, but non-ratification of the Convention (and the continual transitional nature of the authority) has drained it of any initial momentum.

The authority remains largely unknown to actors across the basin, and in its current transitional form is a long way from fulfilling the engagements made by the basin states in Article 9 of the Convention.

The Organisational Analysis of ABAKIR (2019)[31], proposed priority key interventions for its organisational development including a comprehensive approach to capacity development (with organisational, competence, cooperation and political level capacity development) and a series of priority proposals and processes to be put in place. These have yet to be implemented and should be considered priority.

Given the current transitional nature of ABAKIR, institutional and organisational capacity development, and the provision of sufficient resources, is an absolute priority to carry out its mandate. The objective of this SP acknowledges that ABAKIR will require an incremental development to meet the comprehensive and highly ambitious mandate conferred on it by the Convention, even if ratification should occur in the immediate term. It sets an intermediate target on the path to meeting the objectives of the Convention, addressing the current need for coordination of the implementing actors and stakeholders in the basin. In the medium term, this is clearly a role that ABAKIR could fulfil, whilst also developing and implementing Standard Operating Procedures (e.g. from its internal regulation and procedural manuals from 2021). Neither of these activities is dependent on ratification and should start as soon as possible.

With respect to institutional and organisational development, ABAKIR is currently supported by the "Support to Integrated Management of Water Resources of Lake Kivu and Ruzizi River" project, which is financed by the EU and BMZ and implemented by GIZ, which is due to finish in the third quarter of 2022. Component 1 of the upcoming "Lake Kivu and Rusizi River Basin Water Quality Management Project", financed by GEF / AfDB, will address the barrier of "inadequate basin wide governance mechanisms" and seeks to support ABAKIR to realise its objective to "develop, adopt, implement and enforce appropriate legal, administrative and technical measures to protect and preserve the Basin's ecosystems, in particular the natural areas protected either by national regulations or by international conventions". This component builds on the current GIZ work, particularly the orientation to be provided by the SAP (see table below). The objectives of both the GIZ-implemented project and the upcoming AfDB project depend to a large extent on ABAKIR increasing both its capacity and visibility across the basin.

[31] Carried out for ABAKIR with the support of GIZ

Table 8: Planned and ongoing projects in the basin under SP5

SP 5: Develop institutional and organisational capacity of the Basin Authority				
ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and actively manages relevant information and data from across the basin				
Action	**Output in the basin**	**Project**	**Implementing and financing institutions**	**Budget and period**
Improve the hydrological and operational management of Lake Kivu and the Ruzizi River	1/ Preparation of a strategic action plan for the basin, based on the basin's baseline study 2/ Improving the hydrological and operational management of Lake Kivu and the Ruzizi River	Support to the Integrated Management of Water Resources of Lake Kivu and Ruzizi River	ABAKIR and GIZ EU / BMZ	EUR 2.5 M 2019 - 2022
Improve water quality, environmental and economic services and practices of lake Kivu through improved transboundary cooperation	Strengthened collective management of Lake Kivu and River Rusizi Basin through institutional, policy, and legal reforms	Lake Kivu and Rusizi River Basin Water Quality Management Component 1: Enhancing regional and national cooperation	AfDB / GEF	USD 7.7 M 2023 – 2027
	1/ Assessments conducted to supplement TDA and SAP, and better guide decision-making 2/ Effective M&E, learning and exchange at all levels underpin implementation	Lake Kivu and Rusizi River Basin Water Quality Management Component 4: M&E and Knowledge management	AfDB / GEF	USD 1.7 M 2023 - 2027

Proposed mission statement of ABAKIR for the period of the SAP (2022 – 2027)

Article 11 of the 2014 Convention mandates ABAKIR to coordinate the implementation the Convention with a view to ensuring and representing the common interests of the Member States on subjects related to IWRM in the Basin, in a consultation process with the various stakeholders in each of the Member States. It confers the engagements of Article 9 of the Convention and the resulting necessary measures as the mission of ABAKIR, post ratification (see Box 4).

Box 4: Article 9 of the International Convention relating to the IWRM of the Lake Kivu and Ruzizi/Rusizi River Basin – the missions of ABAKIR

Article 9: Preservation and protection of the Basin environment:

The Member States undertake particularly to:

a) develop, adopt, implement and execute appropriate legal, administrative and technical measures with a view to protecting and preserving the ecosystems of the Basin, taking into account in particular the natural areas protected either by national regulations or by conventions international;

b) avoid or abstain from taking or authorizing any decision likely to cause a degradation of the quality of the water resource and the environment, and take the necessary measures for their protection;

c) take any useful measure for the maintenance and protection of installations, facilities and other works having an impact on the water resources of the Basin;

d) pay particular attention to the management and financing of activities inherent in the maintenance of the beds of the Ruzizi/Ruzizi River and of Lake Kivu as well as their banks;

e) establish common rules concerning the regulation of water resources, ensure their application, the implementation of these rules falling within the competence of each Member State.

f) assess the impact of their non-application and decide on remedial measures.

g) define the flow constraints of the Ruzizi/Rusizi river and the water level of Lake Kivu.

h) establish measures against soil erosion throughout the Basin.

i) take appropriate legal, administrative and technical measures as a matter of priority to prevent any cause of erosion;

j) ensure the implementation of legal, administrative and other measures requiring an assessment of the impacts on water resources of any project envisaged in the Basin;

k) Guarantee the proper execution of all the conditions relating to the permits for the use of the water resource imposed for the purpose of protecting this resource.

To fulfil this mission ABAKIR will need significant capacity development and is entirely dependent on the political will of the Member States to maintain and invest in the authority. The necessary capacities can only be built incrementally, requiring constant targeted efforts.

In the short and medium term (the 5-year period of the SAP), ABAKIR should increase its visibility by actively coordinating efforts and facilitating exchange between the stakeholders, for example by convening and facilitating the Lake Kivu and Ruzizi River Consultation Platform. Through this role, which could already be fulfilled with the limited operational capacity and resources simply by organising coordination and exchange meetings with implementation stakeholders, ABAKIR will have an increasing influence on planning, management and policy making in the basin. ABAKIR should become progressively responsible for coordinating all activities employed in the basin under IWRM programmes responding to needs and interests of water user groups and businesses, with the corresponding capacities developed.

For the crucial next 5 years of the SAP the proposed **Mission Statement** for ABAKIR is **"to coordinate and facilitate Integrated Water Resources Management in the Lake Kivu and Ruzizi River Basin, in direct consultation and cooperation with stakeholders, for the benefit of the basin population and a healthy environment".**

Priority capacity development measures for ABAKIR

Capacity development is a priority intervention for the basin authority under SP 5. Whilst traditionally capacity development is thought of in terms of personal capacity (do staff have sufficient knowledge, skills and confidence to perform as required?), ABAKIR will require a broader support to develop from its transitory state. A detailed capacity needs analysis of ABAKIR is needed in its current state and directly after ratification. This assessment must consider:

- ***Performance capacities*** (are the tools, equipment and necessary financing available for the staff of ABAKIR to perform their roles in the transforming environment from transitory to full structure?)
- ***Personal capacity*** (do the correct staff have sufficient knowledge, skills and confidence to perform as required? Is additional experience, training, motivation needed? What new skills are needed – technical, managerial, interpersonal, role-related?)
- ***Workload capacities*** (Are there enough staff with the required qualifications and skill mix to fulfil the current mission of ABAKIR? Do job descriptions exist and are they appropriate?)
- ***Supervisory capacities*** (Are existing monitoring and reporting systems for staff sufficient? Are the lines of accountability clear? Are there enforceable incentives and sanctions?)
- ***Facility capacities*** (Is there enough office, meeting and workshop space? Is the digital infrastructure and communication sufficient for the authority's needs?)
- ***Support service capacities*** (are the required external services present? E.g. water quality testing labs, training services, administrative staff, research facilities etc.)
- ***Systems capacities*** (Does the flow of information, finances and decisions function in a timely and effective manner? Can services be obtained without lengthy delays for authorization? Are proper filing and information systems in use? Can private sector services be contracted as required? Is there good communication with other stakeholders? Are there sufficient links with Civil Society Organisations and NGOs?)
- ***Structural capacities*** (Are there decision-making fora where inter-sectoral and multi-stakeholder discussions regarding IWRM can take place and decisions made?)
- ***Role capacities*** (This applies to individuals, to teams and to structure such as the associated technical committees and management / co-directors. Have individuals, teams, committees and other structures been given the authority and responsibility to make the decisions essential to effective performance, whether regarding schedules, money (including leveraging and securing financing), staff appointments, etc?).

Capacities should be developed around concrete tasks of ABAKIR, derived from its mandate and its role in the implementation of the SAP. ABAKIR's tasks and products it offers stakeholders will be derived from the mandate granted to it.

For the transitional structure for example this involves activities such as lobbying for ratification, preparing, and implementing a process for establishing a permanent structure, identifying cooperation potentials and formalizing them with stakeholders, establishing dialogue fora at sub-basin level or the Consultation Platform for stakeholder exchange etc. where necessary capacity development measures should be carried out by national/regional consultants.

Proposed interim organisational chart for ABAKIR for the SAP

As the role and mandate of ABAKIR as described in the 2014 Convention is vast and will require

several years and considerable political will to achieve, there will be an intermediate period between the current transitional structure and the full structure being established. The following section proposes an organisational chart for this intermediate period. This chart is not proposed as an alternative to the structure foreseen in the convention, but rather as a reinforcing step on the way to achieving it. The formal governance structure of ABAKIR foreseen for the pre-ratification period (see Figure 5) is composed of:

1. The Summit of Heads of States ("The Summit")
2. The Council of Ministers ("The Council")
3. The Executive Secretariat (the three Co-Directors and their staff in Gisenyi/Rubavu, most of whom are)
4. The Consultative Technical Committee ("TAC", currently assuming the role of the Budgetary Control Committee as well)
5. The Technical Committees
6. The Budgetary Control Committee

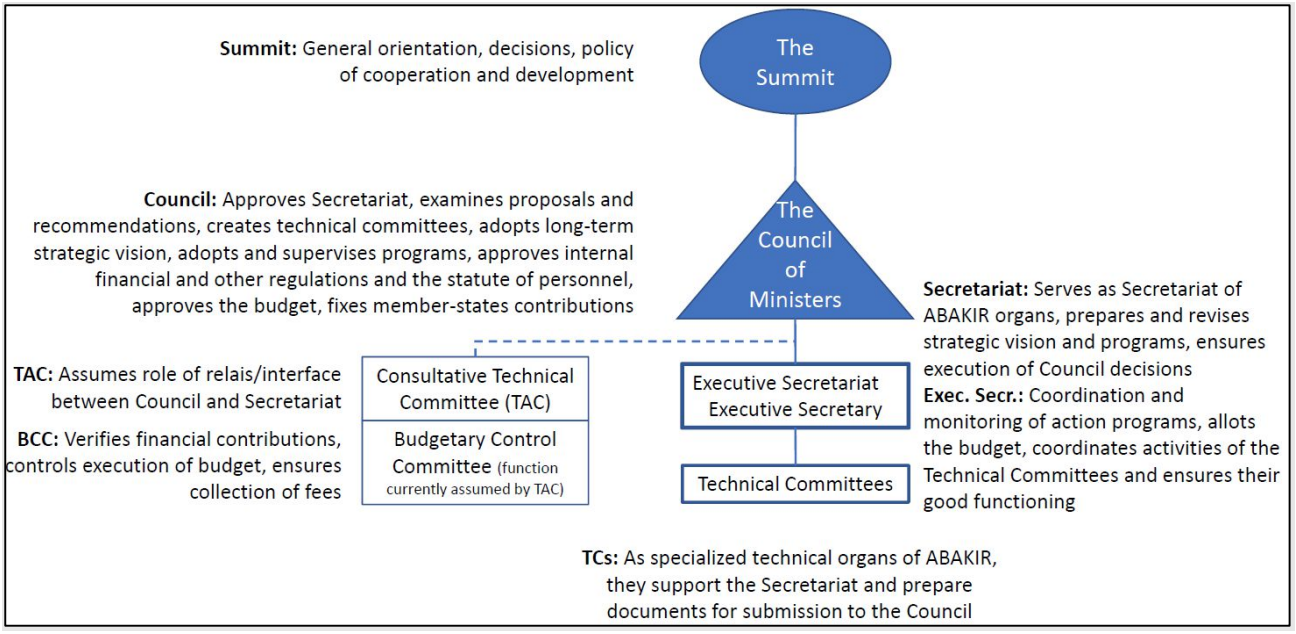

Figure 5: Current organisational chart of ABAKIR for the transitional structure [32]

This formal structure has yet to be fully put in place. As the Technical Committees and the Budget Control Committee have yet to be founded, the Consultative Technical Committee (TAC) assumes both these functions. This reduces substantially both the operational capacity of:

- The executive secretariat of ABAKIR, which as a result lacks technical expertise for IWRM, and;
- The effectiveness of the role of the TAC, as each of the three TAC members have full time positions in the ministries of their respective Member States.

Any change in the operational structure of ABAKIR is only possible through the political intervention of the Member States and the Council of Ministers and, to ensure that changes are not just cosmetic, the necessary resources must be made available. **Should ratification of the Convention not be forthcoming**, it is not expected that the Member States will move to create the missing committees.

[32] Organizational Analysis for Key Partners of the Regional Project: "Support to the Integrated Management of Water Resources of Lake Kivu and Rusizi River", ABAKIR and GIZ, 2019

In this case, ABAKIR will continue in its current form with the ongoing transitional mission to:

- facilitate the ratification of this Convention,
- prepare and lead the process for setting up the permanent structure,
- and initiate the studies necessary for the proper start-up of the ABAKIR considering ongoing projects

This will severely limit the role ABAKIR can play in IWRM but does not exclude the authority from the role of facilitating exchange between stakeholders and project implementers in the basin in the form of regular meetings or a Consultation Platform. A central coordination and facilitated communication between stakeholders would be a boost in managing the basin and could be achieved in part through regular Consultation Platform meetings with all implementing stakeholders.

In this case, ABAKIR should increase efforts in carrying out its transitional mission, preparing the ground for post-ratification activities and accounting for ongoing projects. This involves both raising the credibility of the transitional structure and the confidence of the parties that a permanent organisation ABAKIR can effectively fulfil its mandate, which is unanimously seen as pertinent. Lobbying for ratification should be supported by substance. Substance can be created in ABAKIR by having its potential products clear and through engagement in facilitating cooperation and exchange between stakeholders.

Should ratification of the Convention occur in the very short term, the proposed interim operational structure should be put in place as quickly as possible. The Executive Secretariat should be provided with technical capacity, employed directly and full time by ABAKIR and located in the offices in Rubavu. The structure proposed below is in effect an expanded version of the current transitional structure with expanded and reinforced capacities. The transitional structure of ABAKIR will be extended and supported, with the planned "Technical Committees" becoming a "Technical Department". This will be created and approved by the TAC to make it more operational. In addition to the required and ongoing administrative, financial, and logistical support, the first workload and personal capacities needed by ABAKIR would include as a minimum:

- *Corporate Communications and Knowledge Management* – to engage stakeholders and facilitate exchange and coordination between them and to raise the visibility of ABAKIR through targeted action and interaction with the relevant ministries in the member states ;
- *Information and database / Knowledge management* – to collect and manage monitoring data from across the basin ;
- *(Transboundary) Water and environmental law expertise* – to provide policy advice and support legal and policy harmonisation between the member states.
- *IWRM expertise* – to support project planning, the development of water and land resources management, to accompany ongoing projects and ensure the monitoring of impacts.

This would free the TAC to fulfil their foreseen mandate in an advisory role and as a functioning interface between the secretariat and the Council of Ministers and enable ABAKIR to engage with actors across the basin in a more qualified way. This would allow the development of a range of products within ABAKIR aimed at serving the needs of various stakeholders (e.g. annual monitoring reports, coordination of activities and interventions in the basin, coordination of priorities for intervention for future projects, etc.).

In providing the appropriate number of qualified staff with the required infrastructure and organisational support, the organisational chart for ABAKIR could look as shown in Figure 6.

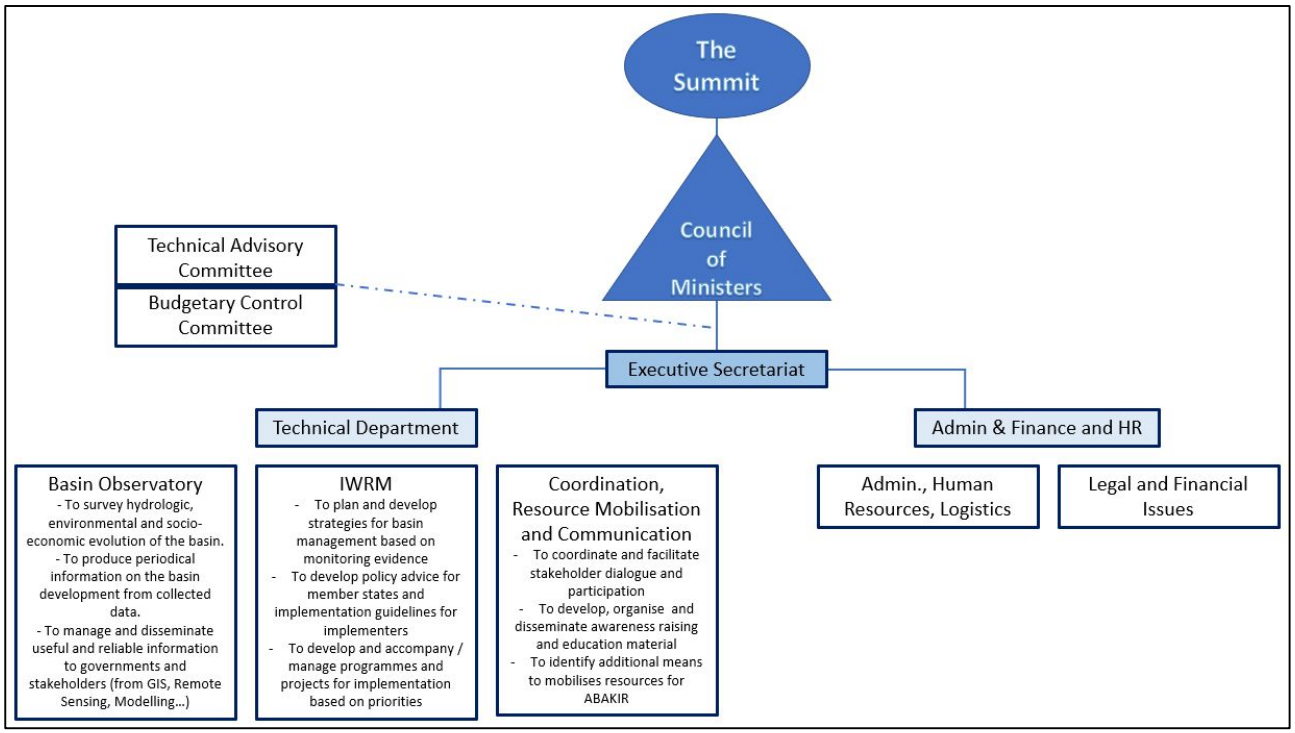

Figure 6: Proposal of an organisational chart to strengthen the current capacities of ABAKIR

The functionalities of the three proposed branches of the technical department are presented in the table below.

In addition to a clear operational structure ABAKIR requires clear job and task descriptions for every member of staff derived from the overall mission of the authority to ensure that the required capacities are available.

Table 9: Functions of the proposed branches of the technical department of ABAKIR during the SAP

	Project level	Basin level	National level	Regional level
Basin Observatory	- Analysis of project-based data acquisition on hydrologic, environmental and socio-economic evolution of the basin	- Transboundary coordination - Harmonization of (national) frameworks (legal and regulatory) - Production of periodical information on the basin development from collected data	- Management and dissemination of useful and reliable information to governments and stakeholders (from GIS, Remote Sensing, modelling, monitoring, etc.)	- Representation of basin monitoring in conferences
IWRM	- Development and accompaniment / management of programmes and projects for implementation based on priorities	- Planning and development of strategies for basin management based on monitoring evidence	- Development of policy advice for member states and implementation guidelines for implementers	- Facilitating the flow of knowledge into the organizational body (capacity building…)
Coordination, Resource Mobilisation and Communication	- Elaboration and updating of project landscape - Development of awareness raising material on projects implemented by ABAKIR	- Development and dissemination of awareness raising and education material - Organisation and coordination of the Coordination Platform - Research and identification of possible project partners for ABAKIR	- Coordination and facilitation of stakeholder dialogue and participation - Research and identification of possible project partners and financing sources for ABAKIR	- Creation of material for interregional and international representation of the basin - Relations to other RBOs, academic insitutions and to international stakeholders - Research and identification of possible project partners and financing sources for ABAKIR

3.9 Stakeholder Participation in the SAP

3.9.1 The Stakeholder Landscape

This table below shows the actor's landscape for stakeholders who could actively participate as a partner in the implementation of the SAP, along with an initial estimate of their capacities. Stakeholders which play merely a facilitating role are separately listed at end of the table. Roles can however change, depending on developments. This table is therefore a working document and can be updated whenever required.

Table 10: Stakeholders and their possible participation in the SAP

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
Regional Cooperation Organisations							
ABAKIR (Autorité de Bassin du Lac Kivu et de la Rivière Ruzizi / Lake Kivu and Ruzizi River Basin Authority)	Tasked to implement cooperation for sustainable and equitable management of water resources and for improved socio-economic integration between three nations in the basin	**Burundi, DRC and Rwanda**	Insufficient capacity as a transitional structure to ensure regional cooperation between member states and for protection of water resources in the basin	Coordination of IWRM activities and interventions by stakeholders in the basin; coordinate data management, data sharing and data processing for reporting on basin developments; facilitation of stakeholder dialogues and coordination workshops	Readiness very limited as Convention has not been ratified by its member states and its technical, operational, and financial capacity has not been reinforced	Severely understaffed, while the technical, operational, and financial capacity is to be reinforced for fulfilling its intended role	https://uploads.water-energy-food.org/legacy/rev_english_giz_factsheets_lake_kivu_project.pdf
CEPGL (Communauté Economique des Pays des Grands Lacs)	Serving as a regional body for the promotion of political stability, regional development, and economic integration of the three member	**Burundi, DRC and Rwanda**	CEPGL has four specialised institutions active in the three countries: EGL, SINELAC, BDEGL and IRAZ	Coordinating the role of its specialised institutions (see next)	See its specialised institutions.	See its specialised institutions.	https://www.minafet.gov.rw/eac-2-1 (Also information on its 4 specialised institutions)

[33] In addition to meetings held with the stakeholder and site visits paid to the project area, these sources provide additional information on the stakeholder and / or project.

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
	states						
SINELAC (Société Internationale d'Electricité des pays des Grands Lacs)	Electricity generation from RUZIZI II hydroelectric plant; market energy to REGIDESO (Burundi), SNEL (DRC) and REG (Rwanda)	**Ruzizi River area**	SINELAC is foremost tasked to produce electricity and is not in charge of management of natural resources	If any, it would be sensitising communities on IWRM / importance of ecosystem services / water of decent quality and enough quantity	Concept of payment for ecosystems services needs to be adopted by the Board of SINELAC before partnership can be considered	Depending on whether CEPGL considers management of natural resources part of its responsibility	http://www.sinelac.org
EGL (Énergie des Grands Lacs)	Energy cooperation for socio-economic development of sub-region	**Burundi, DRC and Rwanda**	Regional planning of energy sector; energy projects; training to strengthening national capacities	If any, sensitising communities on IWRM / importance of ecosystem services	See SINELAC, concept of payment for ecosystem services to be adopted first	See above.	https://www.minafet.gov.rw/eac-2-1
IRAZ (Agronomic and Zootechnical Research Institute)	Institute for Agronomic and Zootechnical Research, promoting agro-zootechnical research with a view to food security in the region	**Burundi, DRC and Rwanda**	According to media sources the capacity is weak, and facilities underutilised. To be determined further	Sensitising communities on IWRM / importance of ecosystem services	See above	See above	https://rtnb.bi/fr/art.php?idapi=5/2/125
LTA – ALT (Lake Tanganyika Authority)	Burundi, Tanzania, Zambia, and DRC signed in 2007 Agreement on Sustainable Management of Lake Tanganyika	Strategic Action Plan for Lake Tanganyika Basin developed in 2000, renewed in 2012	LTA is fully equipped to implement its programmes, among these is LATAWAMA for the equitable utilisation, sharing of benefits & risks mitigation of transboundary waters in the Lake Tanganyika Basin	Giving the interdependency of Lake Kivu and Lake Tanganyika LTA is a natural partner for ABAKIR. Support to regional harmonisation of regulation in the sectors	Fully ready, awaiting also signature of the MoU between LTA and ABAKIR	N/A	http://lta-alt.org/
National State Actors							

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
Rwanda							
Rwanda Water Resources Board (RWB)	National agency tasked to ensure availability of enough and well managed water resources for sustainable development	Water quality & quantity monitoring, flood management & water storage, erosion control, water permits, modelling and forecasting for water supply in Rwanda	New institution, replacing national agencies dealing with IWRM in Rwanda. Developing catchment management plans in Kivu Basin; adequately staffed	RWB is chairing the TAC of ABAKIR. RWB could facilitate water observatory and collection of IWRM data	Fully up to date	N/A	https://www.rwb.rw/
Rwanda Environmental Monitoring Authority (REMA) - Lake Kivu Monitoring	National agency in charge of implementation of environmental policies in Rwanda, strategies and laws and promotion of sustainable management of natural resources	Water quality monitoring and inspection of gas methane extraction on the lake	REMA has permanent staff, equipment and laboratory dedicated to the inspection and monitoring of the stability of Lake Kivu waters	REMA has a division in charge of environmental analytics and monitoring of Lake Kivu, including a water quality laboratory. It has a database on Lake Kivu	Already involved in most of the activities taking place on the Lake and has shared some monitoring data on methane gas extraction	N/A	https://www.rema.gov.rw/
Burundi and DRC							
REGIDESO (Régie de Distribution d'Eau)	Public company in charge of potable water supply in urban and rural areas of Kivu Sud and in urban areas in Burundi	**Bukavu and Kivu Sud**	Supplies water to population. Company in Bukavu claims a value for non-revenue water (NRW) of 35 %, high compared to other African cities.	Sensitisation of communities on relation between waste & hygiene practices and ecosystem services	Not ready for additional tasks, therefore careful assessment is to be made for each SAP activity where involvement of REGIDESO is requested	Already charged to its full capacity, reinforcement would be necessary for additional tasks under the SAP	En vue d'éviter la pénurie d'eau à Bukavu/Sud-Kivu: la REGIDESO trouve un compromis avec la société civile - Journal la Prospérité (laprosperiteonline.net)
Burundi							
Office Burundais pour la Protection de	Environment, water, forestry, biodiversity, climate change:	**Burundi plain** of the basin	Implementation of projects in the field of environment,	Sensitising communities on importance of	Staff shortage is limiting factor, readiness to be	To be further determined.	http://www.obpe.bi/index.php/fr-fr/

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
l'Environnement (OBPE)	ensuring compliance with Water Code, Forestry Code, Environmental Code for protection of the Environment;		biodiversity, climate change. Might be understaffed for its responsibilities.	environment and biodiversity, ecosystem services. Awareness raising on climate change adaptation	further assessed.		
DRC							
Mairie de Bukavu	Administrative Head of City of Bukavu	Urban planning, amongst others for improved resource management and improved sanitation in the city of **Bukavu**	Heavily understaffed and underequipped viz-a-viz the enormous tasks on hand	Sensitisation of communities on relation between waste & hygiene practices and ecosystem services. Support to mayor's sanitation and health project	Not ready, careful assessment is to be made for each SAP activity where involvement of Mayor's office is requested	Major capacity reinforcement necessary to reverse fact that urban planning is following settlement, instead of the other way around	La Mairie de Bukavu dotée de divers équipements de lutte contre les incendies, grâce à la MONUSCO | MONUSCO (unmissions.org) https://jambordc.info/
SNEL Kivu Sud	National society for production, supply and distribution and sale of electricity in South Kivu	Operation and maintenance of **Ruzizi I** hydroelectric power plant	Power supply without interruption is a major challenge	Sensitising communities on IWRM / importance of ecosystem services / water of decent quality and enough quantity	Concept of payment for ecosystems services needs to be adopted before partnership can be considered	Depending on whether SNEL considers management of natural resources part of its responsibility	https://www.africmemoire.com/part.5-chap-ii-presentation-de-la-snel-sud-kivu-104.html
Coordination Provinciale de l'Environnement et Développement Durable (CPEDD)	Environmental management and natural resources in North Kuvu	**Bukavu, Goma**	To be determined	Awareness raising of local population on need of sustainable management of basin resources	To be assessed	To be determined	https://medd.gouv.cd/nord-kivu-la-cpedd-au-bord-du-deguerpissement/
Institut Congolais pour la	Management of Parks and Protected Areas in	DRC side of the Basin	To be determined	Awareness raising of local population on	To be assessed	To be determined	https://www.iccnrdc.org/

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
Conservation de la Nature (ICCN)	DRC			sustainable use of resources in parks and protected areas			
Comités Provinciaux d'Action de l'Eau et de l'Assainissement (CPAEA)	Provincial Water and Sanitation Action Committees	**Bukavu, Goma**	To be determined	Awareness raising of local population on sustainable use of water resources	To be assessed	To be determined	https://www.pseau.org/outils/ouvrages/ps_eau_fiche_pays_congo_rd_2015.pdf
Academic and Research Institutions							
UOB (Université Officielle de Bukavu)	Teaching, sensitisation, community approaches	Pilot project on pollution prevention and waste management in Basin[34] – **Bukavu area**	Capacity to implement current project on sensitisation, rubbish collection and restauration works	Sensitisation of city population; development of community approaches on solid waste	If successful, the current pilot project can be upscaled to other parts of the basin	For upscaling of projects the capacity needs to be reinforced	https://www.univofbukavu.org
University Rwanda (UR)	High learning and teaching and research institution in Rwanda	Conducting research on water quantity and quality and aquaculture and fishponds	Knowledge transfer, capacity building, sensitisation, possess water assessment laboratory	UR could be an important source of data on water quality and fishery and aquaculture	Ready within its current capability	to be further determined	https://ur.ac.rw
Institute of Applied Sciences of Ruhengeri (INES)	Teaching and research on the lake	Hydrology and water quality monitoring of the tributaries of **Lake Kivu**	Knowledge transfer and capacity building, sensitisation, possess water assessment laboratory	INES is an important source of data on water quality and quantity of the major tributaries of Lake Kivu on Rwanda side	Ready within its current capability	to be further determined	https://ines.ac.rw
Volcanic Observatory Goma	In charge of monitoring Nyamuragira and Nyiragongo volcanoes and study of the impact of eruptive activities	**Lake Kivu Basin** (DRC), **Bukavu** and **Goma** areas	Monitoring of seismic activity	Data sharing and knowledge transfer and implementation of emergency plans	Ready with its current capability	Has financial limitations and is understaffed	https://www.virunga-volcanoes.org/contacts/goma-volcano-observatory

[34] EU – BMZ funded pilot project initiated by GIZ and ABAKIR.

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
UERHA-ISP (Institute Supérieure Pédagogique)	Monitoring environmental parameters, biological aspects, studies on fish in Lake Kivu and Ruzizi River, macroinvertebrates as bio-indicator of water pollution	Research and monitoring on water quality and biodiversity from **Bukavu to Goma**	Laboratory functions to the best extent possible, and is in need of more up-to-date equipment and research facilities	ISP could be an important source of information on water quality and water quantity and is therefore an important potential partner	Ready within its current capability	Needs capacitating for playing its potential in research and monitoring of water quality in the basin	http://www.uerhaispbkv.org/
Non-Governmental Organisations (NGOs)							
AVEDEC (Association Villageoise d'entraide et de Développement communautaire)	Sanitation, climate change, natural resources management. Ample experience in Burundi working with donors, government, and international partners	**Burundi**, NGO worked with LATAWAMA and the international NGO Solidaridad in the **Ruzizi Plain**	AVEDEC consists of a permanent team and hires temporary staff whenever needed, advocates solidarity and transparent management	Working with grassroot level and local government structures; supports coordination platform; implementation of IWRM activities	Known by ECHO as partner, therefore familiar with development projects and cooperation	Giving field of expertise and experience gap as operational partner will be limited	https://avedec.org/ https://avedec.wordpress.com/
SOCIERUCO (Société Civile Environnementale et Agro Rurale du Congo-DRC)	Wetlands, forestry, and biodiversity. Legislation and research on water and sanitation, solid waste processing	**South Kivu** in DRC, based in **Bukavu**	Reasonably well-equipped NGO (office, staff) for its core activities	Community mobilisation on enforcement of (local) legislation, sensibilisation communities on potential of tourism and on consequences of solid waste	Difficult to exactly assess but tentatively considered good	Additional assessment needed to determine gap, if any, to become fully operational partner	No website or internet information
CBCS - Congo Basin Conservation Society (related through CEO to SOCIERUCO)	Management of natural resources and biodiversity in the Congo Basin	Congo basin	To be determined	Awareness raising of local population on sustainable management of natural resources	To be assessed	To be determined	http://www.cbcscongobasin.org/ https://www.programmeppi.org/en/interview-of-josue-aruna-cbcs
CRSM (Comité de Réhabilitation du	Goma based NGO	Disaster preparedness based	Further assessment needed	Sensitisation of population on	To be assessed	To be determined	

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
Sinistre dans son Milieu)		in **Goma**		relation between waste, hygiene practices and land use practices and ecosystem services			*Most of the NGOs in Goma have an emphasis in their activities on human rights, gender, protection of minorities, environment, and peace*
SOCEARUCO (Société civile Environnemental e et Agro rurale du Congo)	NGO active in environment and agriculture	**Goma area**	Further assessment needed	Awareness raising of local population on sustainable management of natural resources	To be assessed	To be determined	
CAFCO (Cadre permanent de concertation de la femme Congolaise)	Advocacy and community mobilisation	**Goma and Bukavu**	Further assessment needed	Awareness raising of local population on sustainable management of natural resources	To be assessed	To be determined	
HCS society	NGO supporting communities living near Virunga National Park in tourism and natural resources	**Goma**	Further assessment needed	Sensitisation of population on relation between waste, hygiene practices and land use practices and ecosystem services	To be assessed	To be determined	
LOFEPACO (Ligue des Organisations des Femmes Paysannes du Congo)	Goma based NGO with objective to defend the interests of rural women	Provinces of **North Kivu and South Kivu in DRC**	Further assessment needed	Sensitisation of rural population on relation between waste, hygiene practices and land use practices and ecosystem services.	To be assessed	To be determined	

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
COMEN asbl (Congo Men's Networks)	Goma based NGO with objective on peacebuilding and attitudinal change of men engaged in violence	Kivu Nord	Further assessment needed	Sensitisation of members on relation between waste, hygiene practices and land use practices and ecosystem services	To be assessed	To be determined	
ARCOS (Albertine Rift Conservation Society)	Drinking water, irrigation; sustainable agriculture; energy; climate change. NGO with reputable track record.	**Lake Kivu** and Ruzizi Basin, currently pilot project on water-energy-food nexus and climate resilience along **Koko (Rwanda) and Lwiro (DRC) rivers**	ARCOS has permanent team and hires temporary staff whenever needed; ARCOS has 630 community groups in Rwanda, each having on average thirty families as members	Community development through Nature-Based Community Enterprises, community approach and resilience building among communities	If successful, the current pilot project can be upscaled to other parts of the basin	For upscaling of projects the capacity might need to be reinforced	http://www.arcosnetwork.org/en WEFE Nexus project
ICRAF (World Agroforestry)	Building resilience to climate change and improving the livelihoods of smallholder farmers in Lake Kivu Basin. NGO with reputable track record.	Pilot project on watershed management in **Rutsiro (Rwanda) and Kalehe (DRC)** in the **Lake Kivu** catchment. Introduction of new crops among smallholders.	ICRAF has permanent team and hires temporary staff whenever needed; advocates community approach and resilience for sustainable development	Livelihood, capacity building and landscape restauration (construction and restauration of terracing etc.)	If successful, the current pilot project can be upscaled to other parts of the basin	For upscaling of projects the capacity might need to be reinforced	https://www.worldagroforestry.org Country – Rwanda https://www.eeas.europa.eu/delegations/rwanda/eu-supports-sustainable-management-lake-kivu-and-ruzizi-river-basin_en
Global Green Growth Institute (GGGI)	Green Growth & Climate Resilience, strengthening the technical capacity of national and local government in urban planning and green infrastructure	10 years of experience in **Rwanda**, GGGI is planning to extend its activities to Burundi	GGGI seconds TA to local authorities in Rwanda for urban strategies and masterplans on flood resilience, waste management, transport,	Climate resilience of secondary cities (i.e. Rusizi, Rubavu etc). waste to resources: improving Municipal Solid Waste (MSW) and hazardous waste management	Has technical capacity and access to financial resources from member countries, bilateral donors, AfDB, GEF and G7	as potential partner readily operational	https://gggi.org/

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
	development		entrepreneurship of youth, and greening construction				
IUCN (International Union for Conservation of Nature)	Active in IWRM in the Lake Kivu and Ruzizi River basin. Organisation with reputable track record	**Sebeya Catchment** in the **Lake Kivu Catchment**. Developed the Catchment Management Plan including the village land use action plans (around 200)	Current capacity suited to the implementation of the Sebeya Catchment Management Plan	Rolling out IUCN's Catchment Based Village Land Use Action Plans (VLUAP) basin wide, with users directly developing their local plan	Experience and expertise in IWRM available for upscaling whenever needed	Additional staff would be needed in case of upscaling	https://www.iucn.org/ see also: Government of Rwanda and IUCN sign Host Country Agreement | IUCN
One Acre Fund	Regenerative agriculture, minimum tillage – conservation agriculture, agroforestry, carbon credits to farmers	Important farmer input supply and information hub for famers in the **Rwandan part of the Kivu basin**	Support centre for up to 700.000 farmers in the region	Improved seeds (e.g. for maize and beans), seedlings for reforestation, fertiliser to farmers; training and extension services on minimum tillage – conservation agriculture	Readily available for improving agriculture and agroforestry in the basin	Additional staff needed to in house experience and expertise	https://oneacrefund.org/ Countries Rwanda, Burundi
International Cooperation Initiatives							
LATAWAMA (Lake Tanganyika Water Management)	IWRM project in the Lake Tanganyika Basin, supporting LTA and its partners, the development of water resource monitoring tools and information sharing and best practices.	IWRM activities in **Ruzizi plain** - Lake Tanganyika Basin. Refurbishment of laboratories and abattoirs. Works with 2 regional water quality labs at OBPE in Burundi and Centre de Recherche en Hydrobiologie in Uvira	Role of financer during LATAWAMA I for the IWRM activities executed by RWB in Rwandan part of Ruzizi plain	Support RWB – SAP ABAKIR on studies on water and erosion protection works in the Rwandan part of Ruzizi plain	Ready whereas role during LATAWAMA II will develop as a result of MoU: solid waste, environmental protection, studies on water balance, quality and quantity, and capacity	Depending on LATAWAMA II further assessment might be needed	LATAWAMA – Lake Tanganyika Water Management

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
					development		
PICAGL (Regional Great Lakes Integrated Agriculture Development Project)	Agricultural productivity and commercialisation, regional integration	**DRC, South Kivu** as part of the larger Great Lakes Integrated Agriculture Development Project for Africa	To be assessed	See component 3 hereunder.	To be assessed	To be determined	https://projects.worldbank.org/en/projects-operations/project-detail/P143307
PRDAIGL (Project Régional de Développement Agricole dans les Grands Lacs)	Increase of agricultural production and commercialisation, value chain of agricultural products, regional integration, knowledge transfer and data and information dissemination	**Burundi - Bubanza, Cibitoke** as one of the five zones where the project is active in Burundi. Livestock vaccination, rice culture varieties and sustainable increase of maize production.	Provincial office of Ministry of Environment, Agriculture and Livestock in Cibitoke needs reinforcement to fulfil its role as a champion in this project	Component 3 of this project -on institutional integration, data collection and exchange- works together with the DRC side. Community mobilisation and sensitisation	To be further assessed	Provincial office requires capacity support to fulfil its role on e.g. data exchange and implementation approaches	https://www.prdaigl.bi/
Private Sector Actors							
KivuWatt / ContourGlobal	Extracting methane gas from Lake Kivu with capacity of 26 MW, electricity is delivered to the national grid of Rwanda	**Karongi** in Rwanda	Sensitising fishing communities on obeying no-fishing zones around barges and pipelines, on fishing best practices and water quality monitoring	Payment for ecosystem services, corporate responsibility and sharing of water quality data	Company is aware of corporate responsibility and ready for partnership	N/A	https://www.contourglobal.com/innovative-technologies
SPLK (Shema Power Lake Kivu)	Construction of barges, pipelines, powerplant for methane gas extraction with capacity of 56 MW to be connected to the national grid of Rwanda	**Rubavu District** in Rwanda	Already conducting water quality monitoring	Payment of ecosystem services, corporate responsibility and sharing of water quality data	Company is aware of corporate responsibility and ready for partnership	N/A	https://www.splk.co.rw/history

Stakeholder	Field of Expertise / Experience	Area of Intervention (in Basin)	Current Capacity	Possible Role in SAP	Degree of Readiness	Capacity Gap	Sources[33]
Tunisian Company EPA **شركة التجهيز لقطع السيارات**	CH_4 extraction planned in DRC part of Lake Kivu, no activities yet. Use of membrane technology might cause additional risks	**DRC** part of Lake Kivu	No information	Payment for ecosystem services, corporate responsibility and sharing of water quality data	Unknown and to be assessed	Unknown and to be determined	https://opencorporates.com/companies/tn/B123572003
Breweries (BRALIRWA and BRALIMA)	Production of soft drinks and beer	**Rubavu** in Rwanda and **Bukavu** in DRC	Both breweries have water treatment plants for treatment of process water	Payment for ecosystem services, corporate responsibility, sharing data on effluent water	Concept of payment for ecosystems services needs to be adopted before partnership can be considered	Depending on whether Brewery considers management of natural resources part of its responsibility	https://bralirwa.co.rw https://bralima.net
Cement Factories Burundi Cement Company (BUCECO, Burundi) CIMERWA Rwanda	Mining of raw materials for cement manufacturing and sale of cement in the region	**Bugarama** in Rusizi district in Rwanda, **Cibitoke** in Burundi	BUCECO produces 100,000 tons of cement/year while CIMERWA produces 600,000 tons/year	Protection of water resources and landscape restoration	Concept of payment for ecosystems services needs to be adopted before partnership can be considered	Depending on whether company considers management of natural resources part of its responsibility	https://cimerwa.rw/our-company
Gishoma Peat to Power Project (Previous REG plant sold to private sector)	Extraction of peat and production of electricity (15 MW), delivered to the national grid of Rwanda	**Gishoma** in Rwanda (Ruzizi basin)	Employing up to 4 000 casual labourers during the production period (dry season May to August)	Water resources protection, biodiversity / ecosystem conservation	Concept of payment for ecosystems services needs to be adopted before partnership can be considered	Depending on whether company considers management of natural resources part of its responsibility	Project Details (reg.rw)

3.9.2 Facilitating organisations and bodies for the SAP

While the stakeholders in above table could actively participate in the implementation of the SAP the role of the following stakeholders will be on facilitating the implementation of the SAP in the form of monitoring, supervision and/or creating an enabling environment through legal, regulatory and policy framework:

Stakeholder	Field of Expertise / Experience / Responsibility in IWRM
Burundi	
Ministry of Environment, Agriculture and Livestock	Development of policy and strategies in sectors of Environment, Agriculture and Livestock; implementation of sector strategies, monitoring, and supervision of sector developments in IWRM
Ministry of Hydraulics, Energy and Mining	Development of policy and strategies in sectors of Hydraulics, Energy and Mining; implementation of sector strategies, monitoring, and supervision of sector developments in IWRM
Provinces of Cibitoke, Bubanza and Bujumbura	Local authorities responsible for local regulation on conservation and protection of natural resources
Agency for Hydraulics and Sanitation in Rural Areas (AHAMR)	Responsible for rural water and sanitation services
Geographical Institute of Burundi (IGEBU)	Collection of meteorological and hydrological data. Rehabilitation of observation networks, groundwater research
DRC	
Ministry of Environment, Nature Conservation and Tourism	Development of policy and strategies in sectors of Environment, Nature Conservation and Tourism; implementation of sector strategies, monitoring, and supervision of sector developments in IWRM
Ministry of Agriculture and Rural Development	Development of policy and strategies in sectors of Agriculture and Rural Development; implementation of sector strategies, monitoring, and supervision of sector developments in IWRM
Ministry of Energy and Water Resources	Development of policy and strategies in sectors of Energy and Water Resources; implementation of sector strategies, monitoring, and supervision of sector developments in IWRM
Provinces of North Kivu and South Kivu	Local authorities responsible for provincial regulation on conservation and protection of natural resources
Nyiragongo, Kalehe, Kabare and Uvira Territories	Local authorities responsible for local regulation on conservation and protection of natural resources
National Satellite Meteorology Agency (METTELSAT)	Collection of hydrological and meteorological data on weather and climate
Rwanda	
Ministry of Environment	Development of policy and strategies in Environment; implementation of sector strategies, monitoring, and supervision of sector developments
Ministry of Agriculture and Animal Resources	Development of policy and strategies in Agriculture and Animal Resources; implementation of sector strategies, monitoring, and supervision of sector developments
Water and Sanitation Corporation (WASAC)	Development and operation of water and sanitation infrastructure and deliver related services
Rwanda Energy Group (REG)	Expansion, maintenance and operation of the energy infrastructure
Meteo Rwanda (Rwanda Meteorological Agency)	Collection of hydrological and meteorological data on weather and climate
Rwanda Transport Development Agency (RTDA)	Implement Government policy on roads and waterways transport infrastructure, responsible for road and water infrastructure maintenance

3.9.3 Structures for stakeholder participation in basin development

Stakeholder engagement for the management of the basin and implementation of the SAP should take place at two levels, in accordance with the principle of subsidiarity central to IWRM:

- At basin level where the engagement of major implementing stakeholders including ABAKIR, representatives of the Member States, regional organisations, development partners, international, national and local NGOs, research institutes, civil society and the private sector serves to coordinate activities, develop synergies, share information and develop strategies. Actors at basin level have clearly expressed their desire for such a consultation platform.
- At sub-basin level where local stakeholders engage to identify, discuss and address shared problems, air grievances, and reach consensual resolutions, enabling a joint planning for local (transboundary) water, land and related resources management in line with the overall vision for the basin, and ideally in collaboration with ABAKIR.

At basin level a Lake Kivu and Ruzizi River Consultation Platform organised, convened, coordinated and facilitated by ABAKIR and involving all key stakeholders would offer an important voluntary forum for participation. The Platform would bring implementing actors, responsible decentralised authorities, and other key stakeholders together to discuss and exchange on issues affecting the management of water, land, and related resources in the basin. The Platform would serve to coordinate activities and contribute to accessing and centralising already existing data in the basin at ABAKIR, sharing information on ongoing and planned projects, identifying synergies and coordinating interventions of different stakeholders. A concept note for the establishment of the Consultation Platform is presented in Annex B.

The mission of the Consultation Platform would be to:

- facilitate communication and the exchange of information between stakeholders and enhance dialogue and collective responsibilities amongst all stakeholders active in the basin;
- facilitate a coordinated and integrated approach between actors, resulting in IWRM developments in the basin ensuring that the Lake Kivu and Ruzizi basin is “sustainably managed between the riparian states, guaranteeing an equitable use of its resources for the benefit of the population and a healthy environment”;
- contribute to the development and harmonisation of relevant national and regional policies, plans and strategies in the Lake Kivu and Ruzizi River basin by creating a coordination body for the basin.

Based on the above the objectives for the Consultation Platform would be:

- To enhance coordination between actors of land, energy and water resources management in the basin and provide a platform for exchange between them;
- To discuss and agree upon intervention priorities in the basin;
- To promote water resources information management and dissemination across the basin;
- To enhance complementarity of ongoing IWRM interventions in the basin;
- To promote an equitable approach for access to ecosystem services in the basin;
- To provide inputs on the quantitative and qualitative status of water resources through the sharing of monitoring data and experience from the field;.
- To advise the Members States upon request in emergency planning, mitigation and preparedness strategies for drought and flooding, as well as other natural hazards;
- To provide inputs on the formulation, review and implementation of the water sector legal framework, including technical guidelines and standards;
- To report through ABAKIR on relevant developments in the basin to the respective national, regional and local authorities responsible for the management of water resources in the three Members States.

With ABAKIR not yet operating at its full mandate, the Lake Kivu and Ruzizi River the Consultation Platform can also support ABAKIR in exercising the mandate set by the Convention and :

- To take decisions regarding Basin coordination issues;
- To remind and reprimand key stakeholders who do not contribute with information and work plans through attendance at Platform meetings;
- To refer proposals on policy and sensitive issues through ABAKIR to the CoM for decision-taking.

Annex B presents a Concept Note for the Lake Kivu and Ruzizi River Consultation Platform.

At sub-basin level, stakeholder engagement could be channelled through sub-basin dialog fora within which actors at the sub-basin level could identify, discuss and address (shared) problems, address disputes and reach consensual resolutions, planning for local, transboundary water resources management consistent with both the vision for the basin and the principle of subsidiarity. The development of such sub basin fora could follow the process outlines in Figure 7. The accompaniment and facilitation of the sub-basin dialog forum could be carried out under the activities of ABAKIR, either outsourcing to an external facilitator or mobilising internal communications and moderation capacities.

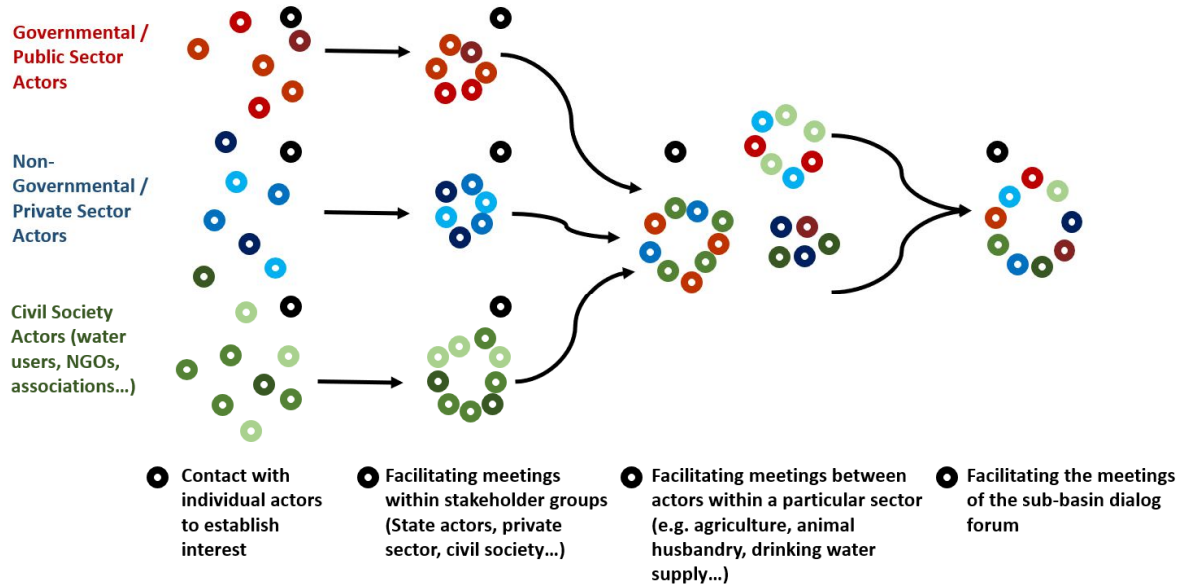

Figure 7: Schematic representation of the process of establishing a sub-basin dialog forum

4 SAP Implementation Arrangements

4.1 The role of ABAKIR

The core competence and responsibility of ABAKIR in the implementation of the SAP is the coordination and monitoring of implementation of basin initiatives rather than the actual implementation of basin activities themselves (except for some smaller pilot activities). Identifying and disseminating information on trends in water quality and water quantity and producing annual monitoring reports on water quality and quantity in the basin, including trends in behavioural change among the basin population towards more sustainable catchment management practices should be a core responsibility of ABAKIR. Implementation will remain primarily the responsibility of implementing organisations and actors. These are actors (governmental and non-governmental) who carry out projects in the Basin or who may have an influence on the Basin. They are identified and approached by ABAKIR for strategic cooperation.

ABAKIR's role in the implementation of the SAP is as a central node for all implementing actors and concerned stakeholders. ABAKIR shall:

- Ensure a regular communication and exchange with and between project implementing parties (through the Consultation Platform).
- Identify and formulate new actions in consultation with stakeholders (through the Consultation Platform).
- Coordinate monitoring and evaluation of the overall SAP.
- Centralise available data and reports from across the basin within ABAKIR and make available to stakeholders.
- Produce regular, short monitoring reports on progress of projects within the SAP.
- Oversee implementation of ABAKIR sponsored pilot actions.
- Increase its own technical, communication and knowledge management capacities.

ABAKIR needs capacity development to coordinate ongoing and planned activities in the basin. Of imminent importance will be to minimise turnover of valuable human resources within the organisation during the forthcoming implementation of the SAP, consolidating the existing staff and expanding appropriately according to the state of ratification of the Convention by the Member States.

For the 5 years of the SAP, ABAKIR will be obliged to outsource certain activities to other organisations which have more experience and capacity, for example the monitoring of water resources in the Rwandan part of the basin will be left to REMA and RWB, with ABAKIR coordinating the collected information. This may prove a more efficient approach even when ABAKIR becomes fully operational. The "quick-win" projects proposed for each Strategic Priority to be carried out by ABAKIR may also require outsourcing with ABAKIR overseeing implementation.

Successful implementation of the SAP will depend on several general approaches and conditions. The ecosystem approach promoted by the joint vision[35], should be institutionalised in ABAKIR to sustainably integrate management interventions focusing on water, land as well as human aspects. The full political support of the Member States is a precondition for further development of the authority.

Conditions that will need to be met to enhance the efficacy of SAP implementation include:

- Environmental education at all levels of the basin population at large
- Socioeconomic development and appropriate governance
- Capacity building and institutional reform
- Effective information management

[35] Fostering an integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way

The Consultation Platform, convened and facilitated by ABAKIR, plays a key role in harmonising implementation approaches across the basin. Facilitating this platform is an essential part of the implementation of the SAP and of introducing IWRM in the basin[36].

Strong partnerships need to be built and extended by ABAKIR with a range of international and national organisations, while the governments of the three partner countries are expected to generate their part of the funding for the future SAP implementation (see Chapter 6: Financial Needs, Potential Financing Sources and Mechanisms).

4.2 The role of implementing organisations and actors

In the SAP the various implementing organisations and actors (see 3.9 Stakeholder Participation) are responsible for:

- implementation of projects and programmes.
- monitoring and evaluation of the impact of their own implemented actions.
- reporting project progress and monitoring data to ABAKIR.
- developing exchange and synergies with other actors and projects through communication (Consultation Platform).
- identifying further priorities and necessary actions (including up-scaling) with ABAKIR (Consultation Platform).

4.3 Risk Management for the implementation of the SAP

This table on risk management for the SAP identifies the risks for achieving the objectives of the Strategic Priorities of the SAP (see section 3.2). Mitigation measures have therefore been proposed that address these risks. The table builds also upon the risks identified in the GEF / AfDB Lake Kivu and Ruzizi River Basin Water Quality Management Project, following the same structure. In this manner the table can be used for monitoring purposes and can be updated during the implementation of the GEF / AfDB project for any phase thereafter.

The assumptions to hold through for the SAP are the following:

- Security situation in the Lake Kivu and Ruzizi River Basin allows for implementation of IWRM activities in the whole Basin;
- Political stability in the three member states creates conducive environment for progress on IWRM in the Basin;
- Relations between the member states allow for free movement in the Basin for project staff and concerned stakeholders;
- Absence of major economic and social crises in the three member states;
- Absence of major natural disasters in the Basin;
- Continuity and responsiveness at decision making level (COM) in the three member states.

The following risks have been identified:

[36] Reference is made to Annex B which presents a Concept Note for this Coordination Platform.

Table 10: Risk Management

Type of Risk	Description of Risk	Risk Level	Mitigation Measures
SP 1: Adapt to and mitigate the impacts of climate change in the basin			
Objective: Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place			
Social	Communities are hesitant to apply climate smart agriculture and/or comply with urban climate change adaptation planning as part of sustainable land and water management practices in the Basin.	Medium	Organise peer to peer project visits for local communities so that they can learn from each other's activities, successful pilots and best practices; Sensitise communities on the need for climate change adaptation through communication strategies.
Technical	Member states lack overview and / or commitment applying energy generation in the Basin with low GHG emissions.	Low to Medium	Apply latest insights from research institutions concerning measures to reduce GHG emissions in energy production (hydropower vs peat to energy; improved wood stoves for mitigation at household level etc.)
SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy and food securities			
Objective: Improved knowledge on the availability and state of the water resources enables competent management approaches that consider the interactions, synergies and trade-offs of water, energy and food for socio-economic development			
Social	Different pace in implementation of activities and progress in IWRM achievements is eroding commitments of weaker / more vulnerable local communities in the Basin.	Medium	Organise peer to peer project visits for local communities so that they can learn from each other's activities and best practices; Make IWRM implementation modalities tailor made to local circumstances.
Social / Financial	Insufficient willingness emerging among water users to contribute to ecosystem services.	Medium	Awareness raising on importance of stakeholders to contribute to / finance ecosystem services produced by the Basin; Provide incentives for businesses to incorporate water quality objectives in their operations; Disseminate information on water quality and quantity in the Basin through regular reporting.

Type of Risk	Description of Risk	Risk Level	Mitigation Measures
Technical	Shortage of stations for monitoring water quality in the basin persists, affecting overview on the state of the water resources in the basin	Medium	Negotiate with LATAWAMA II and / or other programmes for the construction of additional stations for water quality and water quantity monitoring in the Basin.
SP 3: Preserve and protect the environment and ecosystem health			
Objective: Critical habitats are protected and ecosystems are stabilised and restored through conservation measures and sustainable land management practices			
Social	Different pace of implementation of and progress in conservation measures and sustainable land management activities is eroding commitments of weaker / more vulnerable local communities in the Basin.	Medium	Organise peer to peer project visits for local communities so that they can learn from each other's activities, successful pilots and best practices; Make IWRM implementation modalities tailor made to local circumstances.
Social / Financial	Insufficient willingness emerging among water users to contribute to ecosystem services.	Medium	Awareness raising on importance of stakeholders to contribute to / finance ecosystem services produced by the Basin; Provide incentives for businesses to incorporate water quality objectives in their operations; Disseminate information on water quality and quantity in the Basin through regular reporting.
Managerial	Conflicting implementation modalities (e.g. community labour versus cash for work) for similar IWRM challenges erode commitments of local communities to take ownership of restauration works etc.	Medium	Apply similar modalities in sub-basins for the same IWRM challenge; Reinforce coordination and cooperation between projects so that projects become (more) complementary to each other; Apply equal regulations on payment of ecosystem services across the Basin, regardless of the type of water user.
Financial	Private sector is not forthcoming with requisite funding to support environmental monitoring	Medium	Strengthened regional standards and regulations compelling water users to take responsibility for pollution by applying the polluter-pays principle; Awareness raising on importance of private sector to contribute to environmental monitoring.

Type of Risk	Description of Risk	Risk Level	Mitigation Measures
Social	Local population gives higher priority to short-term livelihoods activities than to support for water quality monitoring efforts / sustainable land management practices	Medium	Provide incentives for local communities to incorporate water quality objectives into livelihood activities; Disseminate information on water quality and water quantity in the Basin through regular reporting; Disseminate information on the benefits of sustainable land management practices / regenerative agriculture on household level.
SP 4: Develop stakeholder capacity for integrated water resources management			
Objective: Stakeholders are aware of the importance of water and land management and their role in it and take appropriate measures to address challenges arising at their level			
Political	Lack of sustained political commitment to collaboration and joint water quality monitoring programme.	Medium	ABAKIR to work through existing national institutions to spread benefits, costs, and basin wide responsibilities; Joint water quality monitoring programme is recurrent agenda item for the Consultation Platform.
Political	Insufficient political buy-in and pro-active leadership in IWRM from regional, national and local authorities.	Medium	Sensitisation of authorities and representatives of water user groups on the importance of sustainable use of natural resources; Monitor behavioural change towards improved land and catchment management practices in the basin among stakeholder groups; Disseminate information on water quality / quantity and behavioural change in the Basin through regular reporting;
Political	Politicians have difficulty to remain committed to IWRM / basin population has difficulty to keep their political representatives accountable.	Medium	Implement IWRM activities identified as low-hanging fruit which could easily be supported by ABAKIR while raising its profile; Concentrate on activities with high potential for being quick wins e.g. activities investing in local watershed activities benefitting local water users, requiring low capacity and little finance and which are easy to communicate; Use success stories in information dissemination at workshops and in communication campaigns.
Technical	Deficient technical and institutional capacity for sustainable water quality	Medium	Finance priority capacity-building activities at all levels; Sensitise leadership on regional, national and local level on the importance of

Type of Risk	Description of Risk	Risk Level	Mitigation Measures
	monitoring and management.		technical and institutional capacity in IWRM.
Managerial	Ineffective collaboration between the stakeholders and institutions involved in the implementation of IWRM activities in the Basin.	Medium	Convene regular meetings of the Consultation Platform involving all stakeholders, plan extra-ordinary meetings whenever necessary; Motivate stakeholders to make information on their IWRM projects and activities in the Basin available and / or accessible to each other; ABAKIR to regularly inform stakeholders in the Basin through reporting.
SP 5: Develop institutional and organisational capacity of the Basin Authority			
Objective: ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and the active management of relevant information and data from across the basin			
Political	The political decision-making level in the three countries remain hesitant to support ABAKIR	High	Co-directors and TAC members report regularly to the responsible decision-making level on progress with IWRM activities and on the role of ABAKIR therein.
Financial	The riparian states and ABAKIR have little to no resources to implement project activities	High	Apply grant funding at the start of project; Research possibilities of additional financing sources during the project lifetime (see chapter 6); Establish a fund for private sector and donor contributions for water quality monitoring; Sensitise water users on the polluter pays principle for maintaining ecosystem services; Sensitise member states to make regular annual financial contributions for the functioning of ABAKIR.
Managerial	Pending the ratification of the Convention ABAKIR remains in a transitional state limiting its capacity to effectively execute the SAP	High	Co-directors and TAC members of ABAKIR inform their hierarchies on current situation, including progress on the SAP; ABAKIR's co-directors visit the 3 member states with a copy of the SAP; Co-directors and TAC members discuss with the responsible for ratification the importance and urgency of ratification.
Managerial	Professional capacity of ABAKIR is inadequate for effective utilisation of the	High	Incentives applied in employment contracts for attracting qualified skills; Cooperation with universities and training institutions for improving capacity;

Type of Risk	Description of Risk	Risk Level	Mitigation Measures
	SAP-related financing		Contract a Project Implementation Unit within ABAKIR to be fully integrated and handed over at the end of project.
Managerial	Despite progress in coordination of IWRM interventions in the basin ABAKIR is not sufficiently recognised as a capable coordinating Authority	Medium	Communicate quick wins in IWRM to the basin population (Communication Strategy); Use success stories in information dissemination at workshops and in communication campaigns.

4.4 An approach to identify priority geographic areas and thematic scopes of intervention - hot-spot mapping

Identifying challenges in the basin is a difficult task requiring an in-depth assessment of the current situation and analysis of a wide range of data. Geographically locating the areas posing particular challenges can take even more effort, often requiring georeferenced data in the basin and the compounding effects of different aspects. For example, water quality information alone provides no indication on the urgency to act, but combined with data on population density, wastewater treatment and drinking water sources it could signal an area where priority action is needed. Overlaying geodata to identify priority geographic and thematic intervention areas can lead to the production of Hot-spot Maps for the basin.

As a first step to producing such maps, it is necessary to set boundaries to the geographical location, where the available data will be analysed – in this case the basin of Lake Kivu and Ruzizi River,

A review of the existing data can lead to a variety of thematic maps which can be superimposed to identify hot spots requiring urgent intervention. Environmental and social issues may overlap geographically, with a combined impact which could be greater than the sum of the parts. Each stakeholder group has its own perspective on which issues should be given priority and integrating these perspectives into a basin wide strategy is the work of ABAKIR.

The aspects within a basin that need be analysed to identify hot spots could include:

- Land use (Agricultural areas, Urban areas)
- Population densities
- Water resources (including flood and drought prone areas)
- Water quality (e.g. fluoride, E. coli)
- Soil erosion
- Industrial areas (e.g. cement, coffee washing places, breweries)
- Energy (hydropower plants, methane power plants, peat-to-power plants)
- Fisheries
- Livestock and grazing areas
- Resource extraction (e.g mines)
- Tourism
- Protected areas (UNESCO Heritage Sites, biodiversity hotspots)

Overlaying all this data on a single map produces an overwhelming image, from which it can be difficult to extrapolate useful information. A careful selection of data layers however can reveal priority area which may otherwise not be visible. Such a centralised geodatabase can also be used to orient new projects towards priority areas if they are currently not receiving attention.

For ABAKIR to be able to produce such maps, it will require an up-to-date (geo) data base and a system to collect and organise digitalised data that is collected by projects and/or official bodies within the basin, as well as the in-house capacity to manipulate the data and Geographic Information Systems (GIS) to produce the corresponding maps, with these capacities kept up-to-date. ABAKIR, after consultations with the Member States, will identify the priority geographical areas according to the needs/priorities of each region.

4.5 Analysis of existing national regulations regarding use and protection of water resources

As the Lake Kivu and the Ruzizi River is a transboundary catchment basin, there is a range of regulations between the three riparian states which if harmonised, would facilitate the integrated management of water, land, and related resources at basin level. An ongoing study on legal and regulatory harmonisation will make specific concrete proposals for this in 2022. The following is a summary of particular thematic policy areas where harmonisation would be required as a priority according to the TDA:

Table 11: Regulatory analysis

Thematic policy area	Proposal for harmonisation
Policies and regulations concerning environmental management	*- Harmonise approaches regulating environmental assessment and supervision of mitigation in the three countries and* *- Strengthen decentralised entities' mandates and capacities for supervision of pollution risks and use of water resources.*
Policies and regulations concerning agricultural development and the use of agrochemicals and pesticides	*- Agreement on the type and maximum amount of fertilizer to be used per sub-basin, depending on land cover and soil degradation, on the policies to support irrigation and on watershed protection.* *- Agreement on authorised phytosanitary products and promotion of biological control methods strengthened.*
Policies and regulations concerning water resource conservation	*- Standardise regulations on withdrawals and discharges based on agreed physicochemical standards and available data for all stakeholders in the basin.* *- Harmonise legislation for buffer zones around the rivers and the lake* *- Standardise enforcement measures for the protection of fish spawning areas including the conservation of natural vegetation on the Ruzizi River or on the shores of Lake Kivu.*
Regulations concerning sanitation and wastewater management	*- Standardise emission guidelines and the use of on-site wastewater treatment facilities for tourist and industrial infrastructure* *- Harmonise wastewater treatment and sanitation standards for all urban and rural areas in the basin*
Regulations related to the management of protected areas	*- Harmonisation and consolidation of regulations on international collaboration for the management of protected areas*
Strengthening IWRM mechanisms	*- Harmonise of decentralisation and the mandate and capacities of decentralised entities and local organisations for watershed management* *- Transfer IWRM responsibilities and technical and financial capacities to decentralised entities for the supervision water pollution sources*

4.6 Disaster preparedness and Disaster Risk Reduction (DRR)

Section 4.3 Risk Management for the implementation of the SAP refers to assumptions that must hold for the SAP to be successful. Among the identified assumptions are several types of crises. A crisis or emergency is defined as an event that has caused or is likely to imminently cause a major adverse economic and/or social impact associated with natural or man-made crises or disasters.

The TDA also highlighted the need to develop preparedness and a measure of control of the natural risks in the basin.

Lake Kivu and Ruzizi River basin is prone to natural hazards, including landslides, floods, flash floods, droughts, earthquakes, volcanic eruptions[37] and the threat of a sudden release of methane from Lake Kivu[38] or a sudden release of carbon dioxide in the Gulf of Kabuno (limnic eruption). Over the last decades, the frequency and intensity of natural hazard induced disasters, particularly floods, landslides, droughts, volcanic eruptions and seismic activity in the region have increased. Together with an eruption of Mount Nyiragongo in May 2021 these disasters have raised the toll of human casualties as well as economic and environmental losses. The basin must therefore invest in preparedness, rather than waiting for the next disaster to hit.

Disaster preparedness for the basin, primarily the responsibility of national and local authorities, includes:

- Coordinating with national and local authorities and partners to know what specific risks and hazards to prepare for;
- Training and equipping responsible staff at central level, local authorities as well as within communities including their volunteers, as first responders to a wide range of hazards;
- Researching and updating knowledge about new technologies to improve the quality of responses;
- Strong networks within local communities and ability to work with these communities to understand the needs of those most at risk;
- Setting up early warning systems so local communities can take early action before a disaster hits.

While Rwanda has made noticeable progress in the field of disaster risk reduction through its Ministry in Charge of Emergency Management, the progress in the other two countries is less pronounced, although the subject is receiving increasingly attention.

Challenges in all three countries and therefore also the basin are:

- Limited technical capacities among the central and local authorities as well as communities to reduce risks, manage, prepare and respond to disasters;
- Lack of robust and updated vulnerability, risk, and emergency assessments as well as limited understanding of risks;
- Limited National disaster preparedness capacities and effective national multi-hazard early warning system in place for efficient response and recovery;
- Insufficient clear lines of communication between National and regional authorities and the population in case of an emergency or crisis.

Disaster preparedness aims to reduce risks and build the resilience of the population to climate change and natural disasters by strengthening the technical capacities of institutions on improved disaster risk management both in the long term, and short-term emergency preparedness at all levels, as well as build disaster resilience of the population.

For this outcome to be achieved the following four outputs are considered necessary[39]:

[37] Villagers in eastern DRC fear volcano eruption | Africanews

[38] The African lake with explosive power - BBC Future

[39] Adapted from 'Strengthening National and Local Disaster Risk Management (DRM) Capacity, Resilience and Enhancing Preparedness and Early Warning System (EWS) in Rwanda', Ministry in Charge of Emergency Management (MINEMA)

1. Output 1: Institutions at national, district / commune and community level have improved technical capacities to reduce risks, manage and respond to natural disasters and limit gender-differentiated impacts;
2. Output 2: Population, local authorities, NGOs, and national institutions have increased knowledge and skills of risks from evidence-based disaster risk assessments;
3. Output 3: Enhanced multi-hazard early warning systems are in place to enable effective preparedness, response, and recovery;
4. Output 4: Communities in selected high-risk districts and communes have strengthened their capacity to mitigate, adapt and respond to disaster risks.

Section 1.1 on Lake Kivu and Ruzizi River Basin pointed at the fact that the deeper regions of Lake Kivu contain considerable reserves of methane gas which are beginning to be exploited for electricity generation. Scientists[40] studying Lake Kivu have warned that tampering with the lake's gases also carries a risk of triggering a disaster. Although private sector projects on methane extraction to generate electricity have stringent safety procedures to avoid disaster, it is yet unknown to what extent their disaster preparedness has been integrated in existing government plans and vice versa in the basin. The GEF / AfDB proposal[41] anticipates that district level disaster risk mitigation and management plans must be developed during the implementation of the SAP, considering the threats posed by methane explosion and landslides due to excessive rainfall. The TDA proposes ABAKIR to make recommendations to its member states on mechanisms to prevent people from settling in areas at risk[42]. Both recommendations are valid as part of disaster preparedness and disaster risk reduction. During the implementation of the SAP, and depending on evolving capacity of ABAKIR, it will however have to be carefully assessed what role would be appropriate for ABAKIR to play. ABAKIR could develop an atlas of risks in all sectors, and establish a risk management plan to be shared with the various actors, including NGOs, to harmonize the actions to be taken.

Complementary to the lead role which local and national authorities will have during disasters, detailed assessments could be made by NGO's on what role they can play in disaster preparedness in the basin. While the NGO network in Goma for example has considerable capacity and are key liaisons with the local communities, there is no joint disaster preparedness plan of Goma NGO's for this complementary role. Such a plan for Goma should focus on crisis in case there would be a volcanic eruption[43], civil unrest or a disaster on Lake Kivu. It could follow upon the recommendations of the first international conference on the management of Virunga volcanoes held in March 2022 under the leadership of the Minister of Scientific Research and Technological Innovations in DRC on the "monitoring and management of volcanic risks in the Virunga region: solutions and perspectives"[44]. The Goma Volcano Observatory[45], which is a scientific institution set up by the Government of the Democratic Republic of Congo, is a good example of an institution that manages natural disasters, such as the eruption of its volcanoes, seismic activities, etc They have the equipment, data and communication capabilities that can serve as a basis for ABAKIR

The following table[46] presents an example of a list of goods that will be required for an emergency recovery effort, as well as essential services, works and operational costs.

[40] The African lake with explosive power - BBC Future

[41] Output 3.1.2: On-the-ground investments for watershed management, page 38.

[42] 22.1.4. Natural risk management measures page 131

[43] Villagers in eastern DRC fear volcano eruption | Africanews

[44] Des recommandations pertinentes à l'issue de la première conférence internationale sur la gestion des volcans des Virunga - Province du Nord-Kivu (provincenordkivu.cd)

[45] https://www.virunga-volcanoes.org/contacts/goma-volcano-observatory/

[46] Table from Project Operations Manual of the World Bank for emergency recovery efforts, adjusted for Lake Kivu & Ruzizi River basin

Box 5: List of goods, services and works required in case of disaster

Item
Goods
• Medical equipment and supplies like first aid kits • Non-perishable foods, canned food and can opener, bottled water, and unbreakable containers • Tents for advanced medical posts, temporary housing, and classroom/daycare substitution • Equipment and supplies for temporary housing/living (gas stoves, utensils, tents, beds, sleeping bags, mattresses, blankets, hammocks, mosquito nets, kit of personal and family hygiene, etc.) • Special items for infants, elderly, or disabled family members • Gasoline and diesel (for air, land, and sea transport) and engine lubricants • Spare parts, equipment and supplies for engines, transport, construction vehicles • Vehicles (Vans, trucks, and SUVs) • Equipment, tools, materials and supplies for search and rescue (including light motorboats and engines for transport and rescue) • Tools and construction supplies (roofing, cement, iron, stone, blocks, etc.) • Equipment and supplies for communications and broadcasting (radios, antennas, batteries) • Water pumps and tanks for water storage • Equipment, materials, and supplies for disinfection of drinking water and repair/rehabilitate of black water collection systems. • Equipment, tools, and supplies for agricultural, forestry, and fisheries • Feed and veterinary inputs (vaccines, vitamin tablets, etc.)
Services
• Consulting services including, but not limited to urgent studies necessary to determine the impact of the disaster and to serve as a baseline for the recovery and reconstruction process • Non-consultant services including, but not limited to drilling, aerial photographs, satellite images, maps and other similar operations, information, and awareness campaigns
Works
• Repair of damaged infrastructure including, but not limited to water supply systems, dams, reservoirs, canals, transportation systems, energy and power supply, telecommunication • Repair of damaged public buildings, including schools, hospitals, and administrative buildings
Emergency Operating Costs
• Incremental expenses by the Government for a defined period related to early recovery efforts arising because of the impact of an emergency. This includes, but is not limited to costs of staff attending emergency response, operational costs, and rental of equipment

5 Guidance for Monitoring and Evaluation

Monitoring of progress towards the objectives of SAP will require an initial exercise in developing suitable aggregate indicators and / or identifying appropriate surrogate indicators for each of SP. For this, a detailed analysis of the monitoring systems of ongoing and planned actions in the basin, before Specific, Measurable, Attainable and action-oriented, Relevant, and Time-bound indicators can be identified (SMART Indicators).

The aggregate indicators should be derived from the indicators of the main implementation programmes in each SP. An initial review of these monitoring systems and indicators should be performed by ABAKIR (if necessary, with external support), with attention paid to issues of harmonisation and compatibility between the different monitoring systems of implementing actors (e.g. Are the same definitions being used for terms? Are data collection and analysis methods compatible?). From these individual indicators an aggregate should be developed that suitably reflects progress towards the objective of the SP.

Each SP may also be tracked by identifying suitable surrogate indicators if aggregate indicators cannot be identified. Surrogate indicators can be used, for example to try and capture the essence of change where a direct measurement may be difficult or unobservable. A surrogate is a proxy measure for an attribute of true interest that is too difficult or costly to measure directly. For example, when measuring resilience (SP1)[47] or assessing “competent management” (SP2).

The ABAKIR secretariat is responsible for overall coordination, monitoring, and evaluation of the implementation of the SAP, with the monitoring data collected by the implementing actors, transmitted to ABAKIR once the initial work of identifying suitable aggregate or surrogate indicators has been carried out. For this, ABAKIR will require external support, ideally from the GEF “Lake Kivu and Rusizi River Basin Water Quality Management Project, Components 1 and 4[48].

The Lake Kivu and Ruzizi River Consultation Platform will serve as the focal mechanism for regular updates on the progress of actions with stakeholders. Following the bi-annual Platform meetings, ABAKIR will prepare progress reports that are formally submitted to the TAC for transmission to the Council of Ministers. Furthermore, official reporting of the SAP implementation progress is done by the ABAKIR Secretariat during the annual meeting of the Council of Ministers.

The updated information on the agreed results-based indicators generated through the monitoring and evaluation process will also serve as an important tool to ensure that emerging issues are identified that need to be taken into account for the periodic updating of the SAP.

[47] One example of a surrogate indicators for ecosystem resilience would be population density of a key indicator species as a measure of biodiversity.

[48] Component 1: Enhancing regional and national cooperation and Component 4: M&E and Knowledge Management

6 Financial Needs, Potential Financing Sources and Financing Mechanisms for the SAP

Securing sufficient financing has proven challenging for previous ambitious plans developed in the basin. The Schéma Directeur d'Aménagement de la Plaine de la Ruzizi of CEPGL 2019 – 2040 (SDAR) being the most obvious case in point, which, despite international donor round tables to attract financing, failed to raise sufficient interest.

With this in mind, and given the nascent, transitional form of ABAKIR, most of the measures and activities proposed within the framework of the SAP are either already financed by the responsible implementing agency or planned with initial financing secured. However, for additional financing for new projects or where co-financing is required but not yet secured, financing may be mobilised through a variety of sources, including:

- Funding from National Budgets, through a line ministry;
- Grants and / or Budget Support from bilateral and multilateral donors;
- Concessional loans from International Finance Institutions;
- Blending Grants with Concessional Loans
- Polluter pays – Water User pays for Ecosystem Services

Current financing for projects relevant to the management of the basin is secured through national budgets (e.g. Government of Rwanda for the RWB action plan); bilateral donors (e.g. co-financing of Government of the Netherlands for Sebeya Catchment Management Plan), contributions from stakeholders (Enterprise Partnership Initiative - EPI) and further from non-governmental organisation financing IWRM activities (e.g. IUCN, One Acre Fund).

A key feature of water resources management in the Lake Kivu and Ruzizi River basin is that investment in the water sector has received significant support from development partners and NGOs[49], linking the viability of initiatives to the funding cycle of donor projects. The Lake Kivu Monitoring Programme is one such project which made impressive progress when external funding was available. This funding ended in 2019 and the programme has been integrated into the portfolio of Rwanda Environment Management Authority (REMA) as Lake Kivu Monitoring.

[49] See also the ongoing and planned projects summarised for each Strategic Priority.

6.1 Financial contribution of the Lake Kivu and Ruzizi River Basin Water Quality Management Project (GEF/AfDB) to the SAP

The Lake Kivu and Ruzizi River Basin Water Quality Management Project estimates that total financial resources for a 5-year project will require nearly USD 32 million, of which USD 5.74 million are provided through an AfDB grant (see table 14). The project has identified as a financial risk the fact that the riparian states and ABAKIR have no resources to implement project activities. It proposes therefore to request for grant financing. The project will help ABAKIR to establish a fund for water quality monitoring to which the private sector and other donors are proposed to contribute. Applying the polluter pays / user pays principle as enshrined in the Convention may also help augment financial resources. The project will therefore strengthen regional standards and regulations that compel companies to take responsibility for pollution by applying the polluter-pays principle. This means the SAP, through the Lake Kivu and Ruzizi River Basin Water Quality Management Project, will in principle have access to additional funding of some USD 26 million from grants and private sector, making up for the USD 32 million, see Table 12 where this financing has been partitioned among the 5 strategic priorities of the SAP.

Table 12: Financial contributions of the Lake Kivu and Ruzizi River Basin Water Quality Management Project (GEF/AfDB) to the SAP

Strategic Priority in the Basin		Budget required (USD million)	Budget Covered[50] (USD million)	Additional Budget Sources*	Comments
1	Adaptation and Mitigation Impacts of Climate Change	PM	PM	PM	Crosscutting
2	Water for Socio-Economic Development	12,67	2,47	10.20	Grants / CSR
3	Preservation and Protection of the Environment	8.60	1.30	7.30	Grants / CSR
4	Capacity Development for Water Resources Management	1.69	0.49	1.20	Grants / in kind
5	Institutional & Organisational Development Basin Authority	7.70	1.20	6.50	Grants / in kind
	Unforeseen / GET	1.22	0.27	0.95	Grants
TOTAL		**31.88**	**5.73**	**26.15**	

Although the Lake Kivu and Ruzizi River Basin Water Quality Management Project qualifies the additional budget sources* in Table 12 as mobilised, this co-financing may take time to fully secure, (such as the corporate social responsibility (CSR) funds from private companies and the in-kind contributions from member state countries). It is unrealistic to assume that most of the additional budget sources[51] will already (have to) be available at start of the project. The likelihood of adopting the polluter pays principle remains also low given the enforcement challenges and there is no clear fiscal structure yet to direct such financial resources to ABAKIR (see also section 6.3). Given also that it will certainly take time before ABAKIR will become operational, the maximum budget calculated as required in the GEF/AfDB project, i.e. USD 31.88 million, might not be feasible for the implementation of the SAP.

[50] RWB

[51] Mainly grants from the AfDB, see also page 7 of the PIF Lake Kivu and Ruzizi River Basin Water Quality Management Project

6.2 Financing strategies in current IWRM plans

For further financing of the SAP, inspiration can be drawn from strategies adopted by other plans and programmes in and around the basin. These, along with an indication of their success, are presented in Table 14 below. Funding from these plans could also be solicited for IWRM interventions in the Lake Kivu & Ruzizi River basin, as is the case already with Sebeya Catchment Management Plan and LATAWAMA I:

Table 13: Plans and programmes in and around the basin and their financing strategies

Programme	Budget	Potential Sources Identified	Finance Secured	Financing Strategy
Strategic Plan of Rwanda Water Resources Board	RwF 797 billion (USD 800 million)	Government, Green financing, including private sector; Foreign Direct Investments; Payment for Ecosystem Services	2021/2022 ? 2022/2023 ? 2023/2024 ? (No forward rolling budget allocations yet available)	Strengthen internal capacity in resource mobilisation; high quality proposals; building networks with donors and new investors; diversify funding sources; donors' round tables; water users contribute to restoration; water users paying water permits; leverage from carbon markets etc.
LATAWAMA I	EUR 7 million	EU financing	Yes	Applied for EU financing
LATAWAMA II	EUR 7 million	EU financing	Not yet	Applied for EU financing, decision awaited
SDAR	USD 1.6 billion	Private and public sector, international donors, innovative financing mechanisms	Null	Good public governance; public aid to development; new donors; NGOs and community associations; water user-pays and polluter-pays principle; private financing; innovative financing mechanisms.
Water for Growth Rwanda - Sebeya Catchment Management Plan	RwF 4.2 billion to RwF 8.2 billion per demonstration catchment (4), total RwF 25 billion; EUR 14 million for TA	Green, climate & development finance from multi-lateral institutions and donors; blending; private investments	EUR 18 million from the Netherlands for investment projects	IWRM Investment Fund for basket funding of investment projects in selected catchments
Lake Kivu and Ruzizi River Basin Water Quality Management Project	USD 32 million	AfDB; ongoing/ and/or planned initiatives contributing to water quality of Lake Kivu (GIZ, CSR, AfDB, African Water Facility, African Development Fund)	USD 5.73 million	Co-financing sources have been identified for over USD 26 million. Several potential sources are not yet secured, while some might take more time to conclude before start of the Lake Kivu and Ruzizi River Basin Water Quality Management Project.

While all plans summarise the potential sources of finance, be it from donors, international finance institutions (e.g. World Bank, EIB, AfDB, AFD, KfW etc), private sector, national budget, users of ecosystem system services (water user-pays and polluter-pays principles) and advocate for

furthering capacity in resource mobilisation and promoting good public governance, few plans have a solid strategy to achieve such financial security. There is an insufficient overview in the plans on the accessibility of financing sources (i.e. which source could be considered), the conditionality thereto (i.e. probability of accessing a specific source) and the timeframe needed for accessing a funding source.

Timely preparation for securing additional financing for the SAP, including for interventions yet to be identified and facilitated under the guidance of ABAKIR as part of the SAP implementation, will therefore be of imminent importance.

To foster willingness to consider co-financing, this SAP advocates implementing, accompanying and guiding pilot projects which, once successful, can be upscaled for implementation on a (sub)-basin level, while creating leverage for interests from donors, public and private investment, and international finance institutions. Three projects funded in 2021 under the GIZ project "Support to the Integrated Management of Water Resources of Lake Kivu and Ruzizi River" are examples of such pilot projects: i.e. Watershed Management in Rutsiro (Rwanda) and Kalehe (DRC) by ICRAF; Enhancing Water-Energy-Food-Ecosystems (WEFE) Nexus and Climate Resilience along Koko (Rwanda) and Lwiro (DRC) Rivers by ARCOS and Pollution Prevention and Waste Management in Lake Kivu, Bukavu sub-basin and on the Ruzizi River by the Université Officielle de Bukavu.

6.3 Financing opportunities for basin management in the Lake Kivu and Ruzizi River Basin

Future financing strategies for the SAP can draw on a number of sources with the following financing windows available in principle.

- **National Budgets**

  For example, the Government of Rwanda intends to partially finance its RWB strategic plan (total budget for 5 years of around USD 800 million) through annual budget planning. All three countries have the opportunity to allocate finance from their National budget to line ministries to support the implementation of the SAP.

- **Grants and / or Budget Support**

  International donors are involved in the water sectors of the three riparian states, providing the bulk of the aid. The riparian states have received varying amounts of aid from Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States, and the European Commission. Emphasis in the initial years of the SAP should be on grants from development partners, like bilateral and international donors, and on budget support from donors if available. Grants are often used to demonstrate that IWRM can work, like the grant funding for the 4 demonstration catchments under Water for Growth Rwanda and the grants for the 3 pilot projects funded through GIZ. Budget support to a sector can have the same function. To benefit from budget support[52], partner countries must have relevant and credible national or sector strategies, policies, and/or reforms; stability-focused economic policies; a relevant and credible plan to improve public financial management and domestic revenue mobilisation and budget oversight and publicly available budget information. For budget support to a sector like agriculture in the form of a sector reform contract[53] it is critical

[52] https://ec.europa.eu/international-partnerships/budget-support_en

[53] Rwanda recently acquired a sector reform contract agriculture and climate adaptation financed by the EU for technical assistance to support involved ministries and related agencies in the policy design, monitoring, implementation and coordination in agriculture and climate adaptation.

that the targets in the sector as set for the release of budget tranches are achieved before so-called variable tranches can be released by donors. So far Rwanda and Burundi have experience with Budget Support from multilateral donors like European Union and World Bank.

- **Concessional Loans from IFI's**

When returns on investments in IWRM measures prove positive, this creates an important condition for the next phase of financing that goes beyond grants from donors in the form of a lending portfolio (e.g. concessional loans from Internal Financing Institutions such as African Development Bank, World Bank, European Investment Bank). Loans are often applied for financing infrastructure projects like hydropower, roads, railways, harbours and airports. A government will have to service such loan over several years, i.e. repay the loan including interest, to be paid from the positive return of building such infrastructure. Financing an IWRM programme -with often many smaller activities- might have more risk for a government on returns. Combining a limited amount of grant money from a donor with public or private financing is an instrument called blending[54] applied to make lending more attractive for the borrowing country.

- **Blending Grants with Concessional Loans**

Blending is the strategic use of a limited amount of grants for mobilising financing for development projects. Blending can make development projects with a high economic and social return possible. The donor grant can be in the form of a direct investment grant to reduce total investment cost and thereby increase the financial rate of return, but also in the form of an interest rate subsidy grant to reduce the interest burden on debt servicing.

With positive rates of return emerging on IWRM measures during the first years of the SAP, blended finance could be considered the next phase of the SAP. Collecting data thereto from the start of the SAP on possibilities for upscaling promising pilot initiatives will then be essential. While International Financing Institutions like AfDB and EIB expect to leverage through blending loans which are up to 10-fold the amount of the grant, a ratio of grants to loans of at least 1 : 4 has shown in countries in the region to be sufficient to attract concessional loans from the AfDB, World Bank, AFD, KfW and the EIB[55].

With blending one can attain "more with less", through blending targeted donor grants with non-grant funding. Financing basin programmes through blending will likely only be a longer-term perspective for the Lake Kivu and Ruzizi River basin, given that IWRM will first have to prove its economic value in the basin. Critical for such blending is that the three member states have a sound lending capability to borrow money. The IMF produces thereto regular assessments on the debt sustainability of Low-Income Countries[56]

- **Polluter pays – Water User pays for Ecosystem Services**

Payment for ecosystems services and the application of the polluter pays principle is a recurrent issue in discussions on how to co-finance IWRM in the basin. One can identify approaches on how to potentially operationalise such a payment system:

1. Through a system of fiscal decentralisation agreed by the three member states with ABAKIR having legal power for charging levies in return for maintaining ecosystems

[54] https://ec.europa.eu/international-partnerships/guarantees-and-blending_en

[55] See operational report European Fund for Sustainable Development on blending in Eastern and Southern Africa, page 35 – 45: efds-report_en.pdf (europa.eu)

[56] https://www.imf.org/en/publications/dsa

services. This option is still a faraway option for ABAKIR given current legislation on decentralisation; in addition to the limited capacity, including that of ABAKIR;

2. A system whereby the member states collect such levies, which would require ring-fencing of such money in the respective National Budgets to guarantee the levied money is reinvested in IWRM actions in the basin;
3. Direct investment in IWRM by stakeholders in the basin. This latter approach is currently already piloted in Rwanda through the Enterprise Partnership Initiative (EPI)[57]. ABAKIR will have to closely follow the developments on this initiative[58].

How much of the overall financing of the basin's SAP could eventually be covered by contributions from polluters and users in the basin is currently unclear.

6.4 Financial sources for Lake and River Basin Organisations - LRBOs

To assess which sources of future finance ABAKIR should pursue during the implementation of its first 5-year SAP, this section considers the financing of other LRBOs in Africa. There is a great variety in terms of organisational structure and financing mechanisms between African LRBOs. It is important to make a distinction between the funding of the operating budget of an LRBO (recurrent budget) and the financing of infrastructure / project investments.

The bulk of financing for ABAKIR during 2014 – 2017 came from EU, and from 2018 until now from EU and BMZ. Since 2014, ABAKIR has also received financing from its Member States to cover recurrent operational costs, but has not received any financing from its member states for actions, projects, additional staff, or other measures.

By asking, "how do other LRBOs finance their budgets?", potential examples of financial sources can be identified for ABAKIR.

NBI - Nile Basin Initiative

The recurrent costs for NBI are financed by the Nile basin member states through annual dues and grant contributions from its development partners. NBI benefits from the Cooperation in International Waters in Africa (CIWA) Trust Fund, receiving 32 % of its overall funding. NBI runs two investment programmes, mainly for infrastructure development: the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) and the Eastern Nile Subsidiary Action Programme (ENSAP). Both programmes promote investments in hydropower development, river basin and watershed management, agricultural production and trade, and fisheries. NBI assisted its member states in preparing more than thirty investment projects of over USD 6 billion in total. The value of NBI, as a developer of infrastructure projects, is in lower preparation cost as compared to unilateral projects, and in leveraging a ratio of 1 : 10 (i.e. the total investment with main contributions from International Financing Institutions is worth ten times the member state contributions).

NBA - Niger Basin Authority

NBA financial resources are mainly derived from annual contributions from member states and resources from development partners. Member states' contributions finance the operational costs of the institution, amounting to about USD 1 million annually. Investment costs are entirely covered by donor loans or grants. NBA only signs for grants, while loans and payment agreements are signed by states. In the current budget of about USD 22 million per year, investments represent 95 percent

[57] Applicant_Briefing_Note.pdf (rwb.rw)

[58] Rwanda Water Resources Board (RWB): Third round request for project concept notes for grant support through the 'Enterprise Partnership Initiative' window of the 'Integrated Water Resources Management Fund' – IMVAHONSHYA

with only 5 percent for the operational budget.

CICOS - Commission Internationale du Bassin Congo-Oubangui-Sangha

CICOS has an annual operating budget of around USD 2 million, mainly to cover the costs of staff and overhead for its operations. Sustainable financing remains a challenge, with direct contributions from its member states unreliable and TCI (Community Integration Tax) funding from CEMAC the primary source of funding. Arrears from members have led to positions not being filled.

ORASECOM

ORASECOM[59] receives financing through annual contributions from its member states and funding in the form of technical assistance and grants from several donors, among others the EU, GIZ, French Global Environment Fund (FEGF), DG for International Cooperation in the Netherlands (DGIS), Institut de Recherche pour le Développement (IRD), and the Department for International development (UKAID).

Lesotho Highlands Water Project - LHWP

The LHWP is probably the most advanced form of transboundary water cooperation between African countries. The LHWP, established by treaty in 1986, is a multi-phased project to provide water to the Gauteng region of South Africa and to generate hydroelectricity, mainly for Lesotho. The Lesotho Highlands Development Authority[60] (LHDA) is responsible for construction, operation and management of infrastructure within Lesotho, while the Trans-Caledon Tunnel Authority (TCTA)[61] is a state-owned South African entity charged with construction, operation and management of LHWP infrastructure within South Africa, as well as financing bulk raw water infrastructure projects within Lesotho like the LHWP Phase I and II. The LHWP is a multi-billion USD investment project and critical for the economy of the Gauteng province in South Africa, while also generating royalties for Lesotho. The royalties in 2021 amounted to USD 88.3 million, paid by South Africa to Lesotho. Electricity sales by LHDA from the hydropower station in the water system to both Lesotho and South Africa amounted to USD 4.2 million in 2021.

6.5 Conclusion

Capacity development of ABAKIR will a priority intervention under SP 5 in the forthcoming years. ABAKIR will therefore require broad support to develop from its transitory state, based on a detailed capacity needs analysis in its current state and directly after ratification. The reinforcement of ABAKIR will be financed from e.g. annual member state contributions and donor grants, as foreseen under the Lake Kivu and Ruzizi River Basin Water Quality Management Project of AfDB. There is a secured budget of USD 5.73 million through the AFDB project for the SAP. Additional budget sources, up to a maximum of USD 26.15 million but likely less, may become available in the course of the implementation of the SAP. This finance would likely be sufficient for ABAKIR to establish itself as the coordinating entity in the basin, while raising its visibility and legitimacy. Box 6 has highlighted the many financing needs in the basin. Financing options, as reflected in table 15 under ‘Financing Strategy’ for financing complementary works in the basin, are also in principle quite varied. To guarantee robust financing of any follow up programme ABAKIR should work during the implementation of the SAP on choices of financing, conditionalities and timeframes for accessing financing sources. If not, financing options might prove more limited than thought, and expectations should be managed accordingly.

[59] https://orasecom.org/

[60] http://www.lhda.org.ls/lhdaweb

[61] https://www.tcta.co.za/

It remains however a rather academic wish to have a River Basin Organisation eventually becoming exclusively self-sustaining. Basin organisations can more reasonably be considered as public entities, which, when functional, can provide valuable clear benefits to the basin which cannot be automatically translated into finance-raising services. For example, the cooperation between member states in transboundary water management serves to diffuse potential conflicts regarding access to resources and creates a forum where these issues can be resolved amicably, or the promotion of improved agricultural and land use practice to subsistence farmers does not translate directly into a source of financing for the River Basin Organisation but does serve to secure the livelihoods of farming families. Even in the Netherlands, a country with one of the most advanced water management systems in the world, Water Boards have a long history of difficulties regarding self-financing and are not always able to meet ends.[62] These water boards' main activities include flood defence, water management (safeguarding the correct water levels for agriculture, nature, residents) and ensuring water quality (water treatment). Some water boards also manage roads and waterways. They regularly must explain why water levies are relatively high for its inhabitants (households and businesses), to cover water infrastructure investments and recurrent costs. Despite having annual budgets of up to several hundred million Euros[63] there is sometimes still considerable government finance necessary to top-up for major infrastructure works – like for climate change adaptation- works which in principle fall under responsibility of the water boards.

[62] Home - Dutch Water Authorities

[63] Revenues water board levies; budget and actual: https://www.cbs.nl/nl-nl/cijfers/detail/83520ENG

7 General Conclusion

The development of the first Strategic Action Plan (SAP) for the Lake Kivu and the Ruzizi River Basin is part of the project "Support to the integrated management of water resources of Lake Kivu and Ruzizi River", financed by the European Union (EU Delegation to Rwanda) and the German Federal Ministry for Economic Cooperation and Development (BMZ), and implemented under a delegation agreement by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The project aims at improving the hydrological and operational management of the Lake Kivu and the Ruzizi River Basin.

Challenges facing the Lake Kivu and the Ruzizi River Basin

The Lake Kivu and the Ruzizi River Basin faces manifold challenges related to the unsustainable use of water, land and related resources. The basin suffers from high environmental degradation, extreme soil erosion, low regulatory compliance, insufficient access to electricity and drinking water supplies for a rapidly growing population, high poverty rates and vulnerability to the impacts of climate change. Competing and increasing demands for resources (for agriculture, drinking water, energy generation, commercial activities, the environment), are increasing pressure on the resources (through pollution, changing land use patterns and a growing population), and subsequently changing their state (with the degradation of water, soil and habitat quality). This impacts public and environmental health, economic development, biodiversity, etc.

The Strategic Action Plan as a tool to improve basin management

The Strategic Action Plan (SAP) for the Lake Kivu and Ruzizi River Basin seeks to make a step towards improving this situation, promoting the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (Integrated Water Resources Management). The SAP also supports the sub-regional “Authority of the Lake Kivu Basin and the Ruzizi /Rusizi River” (ABAKIR) in its mandate “to ensure and represent the common interests of the Member States on subjects relating to the Integrated Water Resources Management in the Basin, in a process of consultation with the various stakeholders in each of the Member States”.

The SAP uses the stakeholder’s vision for the future of the basin that *“the Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment”* and the key transboundary issues and the action programme from the 2020 Transboundary Diagnostic Analysis / Basin Baseline Study to develop a series of 5 Strategic Priorities and objectives for the basin. These are:

Strategic Priorities of the SAP	Objectives
SP 1: Adapt to and mitigate the impacts of climate change in the basin	*Ecosystems and human societies are sufficiently resilient to adapt to the impacts of climate change and variability and mitigation measures to reduce GHG emissions in energy and other production systems are identified and put in place*
SP 2: Ensure water availability and access for socio-economic development and to safeguard water, energy and food securities	*Improved knowledge on the availability and state of the water resources enables competent management approaches that consider the interactions, synergies and trade-offs of water, energy and food for socio-economic development*
SP 3: Preserve and protect the environment and ecosystem health	*Critical habitats are protected, and ecosystems are stabilised and restored through conservation measures and sustainable land management practices*
SP 4: Develop stakeholder	*Stakeholders are aware of the importance of water and land*

capacity for integrated water resources management	*management and their role in it and take appropriate measures to address challenges arising at their level*
SP 5: Develop institutional and organisational capacity of the Basin Authority	*ABAKIR is recognised as a capable coordinating authority for all interventions regarding water and land management in the Lake Kivu and Ruzizi River Basin and the active management of relevant information and data from across the basin*

For each Strategic Priority planned and financed or ongoing projects in the basin from different implementing actors have been identified that contribute to the objective of the priority. This is to ensure that activities are already financed for the plan and to avoid delays related to lack of financing.

The SAP is an evolving, dynamic plan, to be extended and updated as conditions change within the basin and with changes in the status and capacities of ABAKIR over that time. It should be a key element in the cycle of water, land, and related resources in the basin.

The need to build capacity for ABAKIR

Crucial to achieving the vision of a basin cooperatively managed between the riparian states is the capacity of ABAKIR to carry out its mission. SP 5 looks at what is needed in the medium term for ABAKIR to move from its current transitional state to a more performant basin organisation. To fulfil this mission ABAKIR will need significant capacity development and is entirely dependent on the political will of the Member States to maintain and invest in the authority. The necessary capacities can only be built incrementally, requiring constant targeted efforts.

The importance of stakeholder participation

Stakeholder participation is critical to IWRM. It helps avoid planning mistakes, ensuring representation of diverse perspectives and fosters ownership, responsibility, and engagement for action. Additionally, effective stakeholder participation can facilitate communication and conflict resolution. There are a multitude of stakeholders in the basin who will be involved in the implementation of the SAP, categorised as follows:

- Regional Cooperation Organisation
- National State Actors (for each of the Member States)
- Academic and Research Institutions
- Non-Governmental Organisations (NGOs)
- International Cooperation Initiatives and
- Private Sector Actors

Structures for multi-stakeholder involvement are proposed at basin level (with the Lake Kivu and Ruzizi River Consultation Platform) and at sub-basin level (with dialog for a) are proposed.

SAP implementation arrangements

The roles of the different parties for the implementation of the SAP are proposed as follows:

- ABAKIR:
    - Ensure a regular communication and exchange with and between project implementing parties (through the Consultation Platform).
    - Identify and formulate new actions in consultation with stakeholders (through the Consultation Platform).

- Coordinate monitoring and evaluation of the overall SAP.
- Centralise available data and reports from across the basin within ABAKIR and make available to stakeholders.
- Produce regular, short monitoring reports on progress of projects within the SAP.
- Oversee implementation of ABAKIR sponsored pilot actions.
- Increase its own technical, communication and knowledge management capacities.

- Project implementing organisations and actors:
  - implementation of projects and programmes.
  - monitoring and evaluation of the impact of their own implemented actions.
  - reporting project progress and monitoring data to ABAKIR.
  - developing exchange and synergies with other actors and projects through communication (Consultation Platform).
  - identifying further priorities and necessary actions (including up-scaling) with ABAKIR (Consultation Platform).

Financing the SAP

Securing sufficient financing remains a challenge for many action plans. For this reason, the measures proposed within the SAP have either completely secured financing or are planned with initial financing secured.

The GEF/AfDB Project has a total budget of nearly USD 32 million (with around USD 6 million provided by AfDB as a grant). The additional USD 26 million is considered mobilised from various other co-financing possibilities (such as the corporate social responsibility (CSR) funds from private companies and the in-kind contributions from member state countries) but may take time before this funding become available.

For additional financing for new projects or for co-financing, financing may be mobilised through a variety of sources, including:

- Funding from National Budgets, through a line ministry;
- Grants and / or Budget Support from bilateral and multilateral donors;
- Concessional loans from International Finance Institutions;
- Blending Grants with Concessional Loans
- Polluter pays – Water User pays for Ecosystem Services

In addition, studying the financing strategies of other River Basin Organisations could help ABAKIR identify possible sources for additional core funding in addition to national contributions of Member States.

Annexes:

Annex A: Mapping of relevant planned or ongoing projects relevant to IWRM in the Lake Kivu and Ruzizi River basin

Annex B:

Draft Concept Note: *Consultation Platform for Integrated Water Resources Management for the Lake Kivu and Ruzizi River Basin*

1) Background

a. Description of the Lake Kivu and Ruzizi River Basin

Lake Kivu is one of the four great lakes of the western branch of the East African Rift and lies on the border between the Democratic Republic of the Congo and Rwanda. Volcanic activity has shaped the basin, accounting for Lake Kivu's great depth (240 meters average and maximum depth of 485 meters), high levels of dissolved carbon dioxide and methane in its deep, cool waters, and its susceptibility to limnic eruptions. To the north, the active Virunga volcanic chain towers over the basin, soaring to heights of over 4,000m. To the south, Lake Kivu empties into the Ruzizi River, a 117 kilometres long river that connects Lake Kivu to Lake Tanganyika, the second largest freshwater lake by volume in the world.

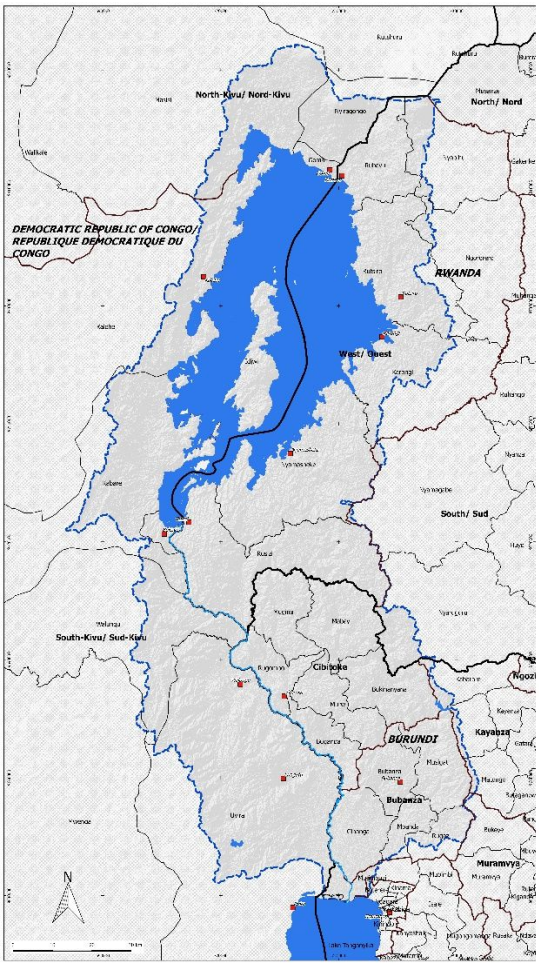

Figure 1: Lake Kivu and the Ruzizi River Basin

The Ruzizi River runs through a deep gorge that opens into the Ruzizi plain. Along its 117 km course, its elevation drops from 1,460 meters to 775 meters. Nearly 40 kilometres of the Ruzizi River forms the border between DRC and Rwanda before entering Burundi. This stretch of the river forms a steep gorge with high hydropower potential. The Lake Kivu and Ruzizi River basin is a sub-basin of Lake Tanganyika, which in itself is a sub-basin of the Congo River Basin, which covers over 12% of

the African continent and is home to the 2nd largest rainforest in the world.

The water resources of the basin are fundamental to the health of the natural environment and population centres of the basin. There are multiple uses for the water, including domestic uses, agricultural uses, industrial uses, fishing and fish farming, mining, methane and carbon gas extraction, craft industry uses, power generation, leisure, health, transport, and tourism, among others.

b. ABAKIR Convention

With the signature of the International Convention for the Integrated Management of the Water Resources of the Basin of Lake Kivu and the Ruzizi River (the Convention) in November 2014, the authorities of Burundi, the Democratic Republic of Congo and Rwanda created the Lake Kivu and Ruzizi River Authority (ABAKIR) to implement cooperation for the sustainable and equitable management of water resources and for an improved socio-economic integration between the three nations in the basin. While the Convention is yet to be ratified (mid-2022), ABAKIR exists as a transitional structure of three co-directors (one from each Member State (MS)) to steer the Convention towards ratification, preparing the way for a permanent structure for the Authority and undertake initial studies to launch ABAKIR's activities.

ABAKIR lacks the capacities and resources to fully carry out its mandate, and faces challenges resulting from a long transitional period, including questions of recognition, visibility and financial and human resources. Despite these significant challenges, the transitional structure has endured and recently made advances in regional cooperation for water resources management by preparing for a series of memoranda of understanding with key actors (including the Hydrobiology Research Centre Uvira in DRC, the Economic Community of the Great Lakes Countries (ECGLC), the Lake Kivu Monitoring Programme (LKMP, in 2020 absorbed by REMA) and the Lake Tanganyika Authority (ALT/LTA).

The ratification of the Convention by the signatory states is hoped to be imminent (in the course of 2022), and ABAKIR can then move from a transitional structure to the fully established legal entity as defined in the Convention, enabling an acceleration in the production of outputs and thus fulfilment of its obligations under the Convention..

c. IWRM Monitoring and Coordination

The behaviour and practices of different water users in the basin is essential to the sustainable management of the resources. The principle of subsidiarity is enshrined in the Convention for the Integrated Management of Water Resources (IWRM) in the Basin. For the different users to both realise and accept their responsibilities, there is a need for clear and enforceable legislation, but more importantly, particularly in a context where enforcement authorities may lack resources, there is a need for users to realise the impact of their behaviour and the importance of joint management of the resource. This will require strengthening the capacities of various groups to change their current practices to protect or improve water resources. There is a need for communication and awareness raising on the importance of water resources management and how it is the responsibility of all who depend on the basin. Action to support such coordination and dialogue between user groups to avoid conflict, and communication on ABAKIR as the management authority in the basin need to be pursued in the short and medium term.

The current status and development regarding IWRM in the basin differs considerably across the basin. While Rwanda is at an advanced stage of already implementing IWRM programmes in the basin, the situation in the Burundian and DRC parts of the basin is at best characterised as being in (the initial stages of) the planning phase. There is therefore a need to exchange among key

stakeholders on promising and proven IWRM approaches in the basin, to learn from each other's initiatives in water resources management and to avoid reinventing the wheel.

There is currently a lack of coordination for such information sharing and data storage in the basin, although a number of joint research projects or national programmes have worked on Lake Kivu. While most of these projects had different foci, there is certainly an overlap in the data collected with regards to, for example, water quality data. However, there is no basin repository of such datasets. There is a need to harmonise and coordinate research studies conducted in the basin on water resources management and establishing a policy framework for data collection and transboundary sharing.

ABAKIR as an enabler[64] should become progressively responsible for coordinating all activities employed in the basin under IWRM programmes which are responding to needs and interests of water user groups and businesses. It should support data collection and management, recording and analysis of essential trends in water quality and water quantity analyses in the basin. Through this role it will increasingly inform policy making in the basin and contribute to harmonisation of management approaches in the basin, ensuring coordination with key actors, ministries, authorities, research institutions, etc. in all three basin states.

The kick-off meeting for the formulation of the Strategic Action Plan for the basin in September 2021 concluded that coordination of IWRM and the activities thereto in the basin is felt by many stakeholders as long overdue and a subject which needs urgent attention. The establishment of the proposed Consultation Platform in this Concept Note under the secretariat of ABAKIR and involving all key stakeholders is considered an important condition. This Concept Note proposes how ABAKIR could organize and coordinate the activities of the Consultation Platform. This Concept Note also clarifies the membership, objectives, mandate, roles and responsibilities and structure of the meetings of the Consultation Platform.
The Platform could contribute to further accessing already existing data in the basin, sharing information on ongoing and planned projects and coordinating interventions of different stakeholders. The TDA reviews a large volume of available data, however other data, particularly data on the Congolese side of the basin, has not been published online. Other original work not (yet) published or is published only in local non-online journals. The Platform would offer the opportunity to share all this information.

d. Strategic Action Plan for the Lake Kivu and Ruzizi River Basin

ABAKIR has recently completed its Strategic Action Plan for 2022 – 2027 for the Lake Kivu and Ruzizi River Basin. The Strategic Action Plan (SAP) is based on the Transboundary Diagnostic Analysis (TDA) from December 2020 and has been developed jointly with ABAKIR and the relevant stakeholders at basin, regional and national levels. The SAP is of fundamental importance for ABAKIR, fulfilling two purposes:

- It provides for a clear vision and broadly agreed plan of activities to address the major challenges facing the basin as identified in the TDA and
- It proposes a solid institutional and legal footing and organisational and operational procedures for ABAKIR in the short and medium term.

2) Mandate of the Consultation Platform

The foundation for the mandate of the Consultation Platform is laid out in Article 2 of the Convention, which establishes ABAKIR's objective to ensure the protection and conservation of water resources in the watershed of Lake Kivu and the Ruzizi River through integrated and sustainable management.

[64] An enabler in IWRM contributes to enabling environment through knowledge basis and data collection.

For this to be achieved there is a need for:

- Transboundary cooperation for the development of a common strategic vision for the management of the basin and the implementation of the resulting action programmes;
- Transboundary cooperation for the design and implementation of harmonised rules and standards for water resources management in the basin;
- Particular attention to be paid to current and future basin communities so that they benefit from the sustainable use of natural resources and basin management.

During the formalisation of the SAP, the vision of ABAKIR was defined as “the Lake Kivu and Ruzizi Basin is cooperatively managed by the riparian states for sustainable and equitable use of its resources, for the benefit of the basin population and a healthy environment”.

3) The ABAKIR Convention and National Plans on Consultation in the Basin

The Convention defines the mission of ABAKIR as promoting the cooperation between the member states and assuring the sustainability of water resources for a harmonious socio-economic development of the region (Article 11) with a list of engagements to preserve and protect the environment within the basin (Article 9).

The necessity of cooperation and coordination in the management of water resources in basins is already reflected in relevant planning of the three Members States. While Rwanda has developed a specific plan for the management of its water resources (see 3 c), the subject of management of water resources in DRC and Burundi is more part of National plans (see 3a and 3 b).

The operationalisation of coordination in the management of water resources in the Lake Kivu and Ruzizi River basin through a Consultation Platform are based on outlines for coordination in the management of water resources in the relevant plans of the three Members States.

a) Burundi

The Government of Burundi adopted in 2018 the National Development Plan 2018-2027 (PND 2018-2027). Among the priorities and commitments is the strengthening of the coordination and leadership mechanisms in the water sector, while involving by 2025 all relevant stakeholders in the chain of planning, budget framework and monitoring-evaluation, in partnership with the Ministry of Finance, Budget and Privatisation.

Burundi has experienced an accelerated degradation of the environment which is reflected in the deterioration of the living environment and the decline in production capacities, in particular in the agricultural sector. The degradation of land, water and biodiversity in Burundi is also linked to the lack of an institutional framework for coordination and the harmonisation of actions undertaken by different stakeholders. Regarding the coordination in the management of water resources, the specific objectives of the National Water Policy aim among others to set up cooperation frameworks under regional sustainable management for transboundary water management, to promote mutually beneficial cooperative programmes and to build adequate human resources capacity for the management and use of water resources. The Government will continue to establish coordination and collaboration structures also at the level of watersheds, as defined in the National Water Policy and in the National Water Strategy.

The Government therefore advocates for the management of natural resources aimed at safeguarding environmental ecosystems, while reconciling the needs of present and future

generations[65]. Balanced land use planning, protection of the environment and establishment of a coherent institutional framework in a coordinated manner are cornerstones therein. This capacity building is also operationalised in the Vision Burundi 2025, which propagates coordination between Burundi and its bilateral and multilateral development partners, civil society organisations, NGOs, the private sector and religious groups. These actions form part of the basis for the aim and objectives of the Consultation Platform.

b) DRC

The sectors of environment and water resources in DRC are integrated in the second "Programme National Environnement, Forêts, Eaux et Biodiversité" (PNEFEB-2)[66]. The PNEFEB-2 is a ten-year National programme on the environment, forests, water and biodiversity, covering the period of 2014 - 2023. The programme has identified multiple challenges and constraints for the Congolese public administration to properly fulfil its missions. Among the most notable, it highlights the inadequacy of planning and monitoring and the absence of a steering and coordination system for projects and programmes, as well as the lack of a database and a management system thereto. It calls therefore for better coordination of the activities of different directorates and different sectors of natural resources in the DRC.

The global objective of the PNEFEB is to ensure the protection of the environment and sustainable management of natural resources in order to perpetuate their ecological, economic, social and cultural functions. The specific objective of the programme is improved income of the Congolese State, the well-being of the populations and an ecological balance. Five strategic interventions have been defined for achieving this:

1) A healthy environment for the well-being of populations is ensured in a sustainable manner;
2) Forest resources are managed and developed sustainably;
3) Water resources are managed sustainably;
4) Biological diversity is conserved;
5) Stakeholders mandated for the management of natural resources are strengthened.

While the PNEFEB-2 proposes a system for coordination at National level, it is foreseen that for practical reasons the liaison for the Consultation Platform on strategic intervention 3) on water resources will take place with the project Steering Committees, as set up by the relevant regional authorities at provincial and local level. These actions form part of the basis for the aim and objectives of the Platform.

c) Rwanda

The Strategic Plan (2021-2030) of the Rwanda Water Resources Board (RWB) has been formulated in 2021 to provide guidance on effective coordination for optimal use of water resources to manage competing priorities and interests over water resources use across sectors. The Strategic Plan notes that Rwanda's waters are all trans-boundary and that there is an agreement in the management of the Lake Kivu and Ruzizi River basin but that the ABAKIR convention has not yet been ratified.

The Rwanda Water Resources Board (RWB) is mandated to ensure the availability of enough and well managed water resources for sustainable development, reduce soil erosion and the impact caused by flooding and landslide risks. To realise its mandate, RWB, through a broad-based consultative process, designed a Strategic Plan (2021-2030) which is arranged in 5 strategic

[65] Cadre Stratégique de Croissance et de Lutte contre la Pauvreté CSLP II, 2012

[66] https://medd.gouv.cd/programme-nationalenvironnement-forets-eaux-et-biodiversite-pnefeb/

objectives, 11 strategic outcomes and 128 strategic actions. The Strategic Plan of the RWB in Rwanda contains among its Strategic Actions for Objective 4 the following actions, specifically on data exchange, monitoring and coordination:

- Development and implementation of basin-wide hydrological monitoring system (action 4);
- Cooperation, collaboration and partnerships through exchange of information, monitoring and evaluation, negotiations, agreements, joint ventures with other regional and international institutions with a similar mission (action 6);
- Coordination with neighbouring countries and international organisations for implementation of transboundary water related agreements for wise use of shared water resources (action 7);
- Water diplomacy and ensure permanent consultations and engagements with countries in the region to deal with emerging issues in the management of the shared water resources (action 8).

These actions form part of the basis for the aim and objectives of the Consultation Platform.

4) Critical Areas of Coordination

The following critical areas for coordination which can be addressed in the Platform discussions for the Lake Kivu and Ruzizi River basin can already be identified:

- Data storage and information sharing in the basin, including on data not yet available online;
- Harmonisation of legislation in the basin and enforcement of compliance with legislation;
- Harmonisation and broadening of monitoring activities (e.g water quality, water quantity, hydrometeorological data, soil erosion, land use practices, biodiversity etc.) with full coverage of the whole basin;
- Annual reporting with comprehensive overview on water quality and quantity in the basin and trends in behavioural change among the basin population towards more sustainable basin management practices (Annual Monitoring Report);
- Mechanisms for the mediation of (potential) conflicts on (transboundary) resource utilisation;
- The establishment of an annual “ABAKIR IWRM Award” to those basin communities or businesses with an outstanding achievement in sustainable water and land management.

5) Aim

The aim of the Consultation Platform is defined as to

- Facilitate communication and the exchange of information between stakeholders and enhance dialogue and collective responsibilities amongst all stakeholders active in the basin;
- Facilitate a coordinated and integrated approach between actors, resulting in IWRM developments in the basin which are ensuring that the Lake Kivu and Ruzizi basin is sustainably managed between the riparian states, guaranteeing an equitable use of its resources for the benefit of the population and a healthy environment;
- Contribute to the development and harmonisation of relevant national and regional policies, plans and strategies in the Lake Kivu and Ruzizi River basin by creating a consultation body for the basin

6) Objectives of Consultation Platform

Based on above the following objectives are formulated for the Consultation Platform:

- To enhance coordination between actors of land and water resources management in the basin;
- To promote water resources information management and dissemination;

- To enhance complementarity of ongoing IWRM interventions in the basin;
- To promote an equitable approach for access to ecosystem services in the basin, whereby cost recovery is linked to affordability supported by a system protecting vulnerable individuals within societies;
- To provide inputs on the quantitative and qualitative status of water resources;
- To advise the Member States upon request in emergency planning, mitigation and preparedness strategies for drought and flooding, as well as other natural hazards;
- To provide inputs on the formulation, review and implementation of the water sector legal framework, including technical guidelines and standards;
- To report through ABAKIR on relevant developments in the basin to the respective national, regional and local authorities responsible for the management of water resources in the three Members States.

The Lake Kivu and Ruzizi River Consultation Platform shall support ABAKIR in exercising the powers that are intrinsically set by the Convention:

- To take decisions regarding Basin coordination issues;
- To remind and reprimand key stakeholders who do not contribute with information and work plans through attendance at Platform meetings;
- To refer proposals on policy and sensitive issues through ABAKIR to the COM for decision-taking.

7) Platform Membership

Membership of the Consultation Platform should be mandatory for key Government stakeholders in the three Members States. For others the membership is open, by invitation, to organisations that are actively involved in water and land management activities in the basin. Members will therefore include, but are not restricted to:

- Ministries and Government Institutions of the three Members States:
    - Burundi:
        - Ministère de l'Environnement, de l'Agriculture et de l'Elevage; Ministère de l'Energie et Mines; Ministère des Finances; Ministère des ressources en eaux et des forêts (National Government)
        - Province de Bubanza; Province de Bujumbura rural; Province de Cibitoke (Local Government)
    - DRC:
        - Ministère de l'Environnement, Conservation de la Nature et Tourisme (National Government) ;
        - Province Nord Kivu; Province Sud Kivu; Ville de Bukavu; Ville de Goma (Local Government)
    - Rwanda:
        - Ministry of Environment; Ministry of Agriculture and Animal Resources (MINAGRI); Ministry of Finance and Economic Planning; Ministry of Infrastructure (MININFRA); Ministry of Emergency Management (MINEMA); (National Government)
        - REMA; Rwanda Agriculture Board (RAB); Rwanda Forestry Authority; Rwanda Mines, Petroleum and Gas Board (RMB); Rwanda Mining Association; Rwanda Water Resources Board (RWB); FONERWA (National Government) selection is to be made, Rwanda Energy Group (RDB),

  - Nyamasheke District; Karongi district; Rubavu District; Rusizi District Rutsiro District; Western Province (Local Government)

- Regional Organisations:
  - CEPGL and associated institutions (EGL, BDEGL, SINELAC, IRAZ)
  - LTA

- Development Partners:
  - EU
  - UN
  - AfDB
  - GIZ
  - World Bank
  - EIB
  - Enabel

- International, National and Local Organisations / NGOs working in the basin:
  - Comité de Réhabilitation du Sinistre Dans Son Milieu (CRSM – RDC)
  - SOCEARUCO - Société Civile Environnementale et Agro-Rurale du Congo
  - IUCN
  - ICRAF
  - ARCOS
  - Wildlife Conservation Society (WCS)
  - One Acre Fund
  - GGGI

- Research Institutions:
  - Institut Supérieur Pédagogique de Bukavu (ISP/Bukavu)
  - Hydrobiology Research Centre Uvira
  - Université Officielle de Bukavu
  - University of Rwanda
  - Institut Géographique du Burundi (IGEBU)

- Civil Society:
  - AVEDEC - Association des Villageois d'Entraide et de Developpement Communautaires (Burundi)
  - SOCIERUCO - Société Civile Environnementale et Agro Rurale du Congo (DRC)

- Private Sector:
  - Brasseries et Limonaderies du Rwanda (Bralirwa) Rubavu
  - Bralima Bukavu
  - Contour Global/Kivu Watt project
  - Shema Power Lake Kivu Ltd
  - GasMeth Energy Limited
  - Rwanda Cement Factory (CIMERWA)
  - Lake Kivu Aquaculture Company Ltd

8) Roles and Responsibilities of Stakeholders – Members

Each member shall assign one permanent representative and a deputy on the level of Director/Deputy Director or similar to the Consultation Platform meetings.

With several actors already active in the management of water resources in the basin it is important that members know what other actors are doing and that they can contribute to the fulfilment of

ABAKIR's vision. Exchanges on the approaches will help avoid duplication and overlaps and bridge information gaps and fundamental differences and will foster the optimal use of human and financial resources and support equal opportunities for future development. New ideas and plans on IWRM should be discussed in the Consultation Platform on their feasibility and complementarity with ongoing initiatives.

All members of the Platform are expected to present once a year a review of their activities in the basin and their annual work plans for the coming year; to support the preparation and analysis of annual reporting on the basin; to contribute to increased institutional capacity in the basin; to ensure the implementation of socially, economically, environmentally and technically sound basin programmes contributing to ABAKIR's vision; to assist in developing and updating relevant policies and strategies; to assist the Members States and ABAKIR to improve regulations, norms and standards, monitor and analyse results to determine levels of performance; and to provide inputs for the periodic monitoring, analysis and updating of the SAP of ABAKIR as part of the review process.

9) Chair and Secretariat

ABAKIR provides the secretariat for the Consultation Platform and organises regular meetings. The chair will be furnished on a rotating basis by the Member State where the meeting takes place. The chairing member state will:

- Chair the meetings;
- Approve meeting dates, time and location;
- Lead and facilitate discussions and ensure order when meeting is in progress;
- Publish information of the meetings to the various media in the Member State of concern and, where applicable to the two other Member States (using ABAKIR's communication strategic plan "Water for today and the future").

The duties of the Secretariat by ABAKIR are:

- To invite members to the meeting after consultation with the chair;
- To prepare the agenda, record meeting deliberations and produce minutes and reports;
- To maintain the database of the Consultation Platform activities;
- Initiate, develop and compile material for consideration and decisions by the Platform;
- To disseminate Platform information;
- To report all Platform activities to the TAC and COM
- To supervise and fund the secretariat and prepare documentation for the meeting as required;
- To finance operational activities of the Platform.

10) Rules and Procedures for Meetings

The Consultation Platform should take place 2 to 3 times per year (to be determined at the first meeting) with the following meeting being scheduled by participants at the end of the meeting and the dates being disseminated by ABAKIR. The venue of the platform meetings will be rotating between the three Members States with Bujumbura as the preferred venue for Burundi; Bukavu or Goma for DRC and Rubavu or Rusizi for Rwanda. Invitations will be sent by ABAKIR to each member, or his/her replacement, by email at latest 14 days ahead of the meeting together with the agenda and previous meeting minutes, and all other documents participants might be requested to read beforehand.

The minutes of each meeting will be taken by the Secretariat and distributed in draft and thereafter final format one week after the meetings for comments by the participants.

A system of procedures will be developed so that decision-making can be made by reaching

consensus.

Where necessary a Code of Conduct will also be developed particularly for key stakeholders. The Chair may identify the need for ad-hoc meetings when requested to do so and if deemed necessary to deliberate on urgent issues.

Annexes *(to be prepared by ABAKIR in consultation with the Consultation Platform)*

1. Relation with other decision-taking structures in the basin
2. Generic agenda
3. Mailing list of all platform members

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