Cooperation in International Waters in Africa

20 Annual 24 Report

Facilitating sustainable, inclusive and impactful water management in Africa's transboundary waters

CIWA

HOSTED BY WORLD BANK GROUP Water

Credit list

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CIWA Annual Report 2024

Abbreviations

CICOS	International Commission of the Congo-Oubangui-Sangha Basin
CIWA	Cooperation in International Waters in Africa
CORB	Cubango-Okavango River Basin
CSO	Civil Society Organization
CUVECOM	Cuvelia Watercourse Commission
DAS	Data Analytics Services
DRC	Democratic Republic of the Congo
DREVE	Development, Resilience, and Valorization of Water in West Africa
DSS	Decision Support System
EAC	Eastern African Community
ENTRO	Eastern Nile Technical Regional Office
FCV	Fragility, Conflict, and Violence
FY	Fiscal Year
GEMS	Geo-enabling Initiative for Monitoring and Supervision
GBV	Gender-based Violence
GESI	Gender Equality and Social Inclusion
GHG	Greenhouse Gas
GW4R	Groundwater for Resilience
HoA	Horn of Africa
IDA	International Development Association
IGAD	Intergovernmental Authority on Development
INMACOM	Incomati and Maputo Watercourse Commission
KDRP	Kariba Dam Rehabilitation Project
LIMCOM	Limpopo Watercourse Commission
LVBC	Lake Victoria Basin Commission
MCWE	Male Champions for Women's Empowerment
MoU	Memorandum of Understanding
MSIOA	Multi-Sector Investment Opportunity Analysis
MTR	Mid-Term Review
MWRI	Ministry of Water Resources and Irrigation
NBD	Nile Basin Discourse
NBDF	Nile Basin Discourse Forum
NB-FFEWS	Nile Basin-Flash Flood Early-Warning System
NBS	Nature-based Solutions
NBI	Nile Basin Initiative
Nile-SEC	Nile Basin Initiative Secretariat
NCCR	Nile Cooperation for Climate Resilience
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Program Coordination Unit
NFG	National Focal Group
Nile DEWS	Nile Drought Early-Warning System
OKACOM	Permanent Okavango River Basin Water Commission
OMVG	Organisation pour la Mise en Valeur du Fleuve Gambie
OMVS	Organisation pour la Mise en Valeur du Fleuve Sénégal
ORASECOM	Orange-Senqu Commission
PDO	Program Development Objective
RBO	River Basin Organization
RCRP	Regional Climate Resilience Program for Eastern and Southern Africa
RS	Remotely-sensed
RWG	Regional Working Group
SADC	Southern African Development Community
SADC-GIP	SADC-Groundwater Information Portal
SADC-GLA	SADC Groundwater Literature Archive
SADC-GMI	SADC Groundwater Management Institute
SADRI	Southern Africa Drought Resilience Initiative
SMAB	Senegalo-Mauritanian Aquifer Basin
SSA	Sub-Saharan Africa
TBA	Transboundary Aquifer
TCO2EQ	Tons of CO_2Equivalent
ToC	Theory of Change
TWG	Technical Working Group
UNDP	United Nations Development Program
VBA	Volta Basin Authority
WASH	Water, Sanitation, and Hygiene
WDR	Water Data Revolution
WRM	Water Resources Management
ZRA	Zambezi River Authority

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Foreword

Climate change and conflict continued their unyielding advance across Sub-Saharan Africa (SSA) last year.

Civil war in Sudan. A coup in Niger. Conflicts in the Horn of Africa, which also faced floods after several years of historic droughts and locust surges, heightening food and water insecurity. There is so much water in Lake Victoria, where water levels have hit a 128-year high, that the region is bracing for flooding. As many as 3 million South Sudanese could need humanitarian assistance if governments do not cooperate to provide early warning and agreements about dam releases in upstream countries.

CIWA's work to promote transboundary water cooperation and management can help minimize conflict from many sources, including tensions caused by too little or too much water.

CIWA has achieved cooperation across SSA by focusing both on tangible outcomes such as investments and policy reforms and the intangibles such as fostering professional relationships, networks, and social capital and developing and sharing information, which can be leveraged to help mitigate the worst climate change effects and minimize conflict. By bringing governments, river basin organizations (RBOs), communities, and other partners together, **CIWA is helping turn potential sources of conflict into reservoirs of sustainable growth and development.**

From Mauritania to South Africa, CIWA's work in the 2024 fiscal year (FY) (from July 1, 2023 to June 30, 2024) reinforced our understanding that water, most of which is transboundary in SSA, is not only a resource but also the lifeblood of communities, ecosystems, and economies. We simply cannot alleviate poverty and achieve prosperity without protecting and restoring ecosystems and ensuring water and food security for everyone, especially for the poorest and most vulnerable women and men.

New initiatives launched

To complement the World Bank's Regional Climate Resilience Program (RCRP) for Eastern and Southern Africa, which aims to increase resilience to water-related climate shocks, CIWA launched the *Strengthening Transboundary River Basin Organizations through Program Development and Capacity Building in Africa* and the *South Sudan Transboundary Waters Support Program*. The latter will include large-scale analytics and advisory support to deepen the dialogue on climate risk and water resource management in refugee hosting areas and define targeted interventions to maximize climate resilience at multiple scales. This engagement will map the agencies engaged in water-related initiatives, which include water resources management and water, sanitation, and hygiene (WASH) activities in areas of forced displacement; help fill existing gaps; and leverage synergies, ensuring that the water-related needs of refugees and host communities are met effectively, efficiently, inclusively, and equitably and in a way that considers the challenges of women and other vulnerable populations.

The South Sudan program will improve livelihoods with a strong emphasis on the role of biodiversity and ecosystem services in contributing to resilience. This activity will create a freshwater biodiversity baseline and evaluate anthropogenic pressures on ecosystems in the SUDD wetland. The program also includes capacity-building workshops and dissemination of findings to the South Sudan Ministry of Water Resources and Irrigation.

CIWA's support to the southern African countries in RCRP includes preparation of a new resilient livelihoods enhancement program based on CIWA's past support for the Cubango-Okavango River Basin (CORB). It will address underlying drivers of poverty, which will inform longer-term sustained initiatives.

The program will propose resilient livelihoods investments with a pro-poor, gender, and inclusive focus aimed at increasing equitable benefits to women and men while restoring and maintaining the biodiversity integrity of the basin.

The new *Strengthening Transboundary River Basin Organizations through Program Development and Capacity Building in Africa* grant also includes Lake Kariba transboundary fisheries technical assistance. Lake Kariba, in the Zambezi River Basin in Southern Africa, has suffered a dramatic decline in water levels from droughts caused by El Niño, harming people who depend on the lake for food and livelihoods. The lake accounts for 35 percent and 90 percent of fish production in Zambia and Zimbabwe, respectively. The drop in water levels has led habitats and breeding grounds for many aquatic species to shrink, resulting in very low catches for fisher people. The lake also suffers from invasive species, water pollution, and competing uses. CIWA assistance will highlight and address differences in fisheries policy and practice between the two countries that affect the number of fish in the lake and are a source of tension between the countries. It will assess the socioeconomic impacts of the declining fisheries stock including how women and men are impacted differently and promote participation of women and other vulnerable populations in transboundary conservation and fisheries management.

Setting CIWA up for continued success

We took several key steps last year to position CIWA to build on its achievements in the years ahead.

Following our 2022 mid-term review (MTR), we have been working closely with donors, clients, World Bank experts, and other partners to develop a robust pipeline, a revised Theory of Change, and a new Results Framework (which we are referring to as CIWA 2.0). The changes reflect the increasing pressure on transboundary waters on the continent, as a result of climate change, population pressures and conflicts, client demand, greater strategic orientation, and enhanced approaches to working on the cross-cutting themes of biodiversity; climate resilience; gender and social inclusion (GESI); and fragility, conflict, and violence (FCV) as pathways to delivering results on the three Is (investments, information, and institutions). Changes to monitoring and evaluation indicators provide alignment with the new World Bank Scorecard and donor reporting needs; they also track higher-order impacts and better disaggregate CIWA's beneficiaries.

In line with the pipeline projects, CIWA 2.0 calls for a more diversified investment portfolio that includes groundwater resource management, nature-based solutions (NBS), biodiversity, and livelihoods; scaling up through seeking synergies with additional World Bank International Development Association integration programs; enhancing a bottom-up approach by expanding work to elevate the role of communities and civil society in regional water resources management and security, conflict prevention, and peace building; and democratizing information about the regional public good of transboundary water resources.

CIWA also positioned itself for strengthened strategic work by developing an FCV Framework, enhancing its Gender and Social Inclusion (GESI) Framework, conducting a biodiversity assessment, and developing a Biodiversity Framework. It also conducted a climate change assessment of all its initiatives, which found, for example, that 26.4 million tons of CO_2 equivalent (tCO2eq) of greenhouse gas (GHG) emissions from six major hydropower investments influenced by CIWA can potentially be mitigated each year.

Thanks to CIWA's track record of success, continued client demand, and strong donor interest, the World Bank management endorsed CIWA receiving a five-year extension, from 2026 to 2031. This will enable us to complete activities that are underway and have more time to continue fundraising for the new pipeline projects. We are grateful for the renewed support of our longtime donors and pleased to have brought Austria on board as a donor (see Annex 4 for donor information).

CIWA is well-positioned to match the higher ambitions set out this year by the World Bank's leadership and the Bank's new mission of achieving a world free of poverty on a livable planet. This includes aligning our program with the World Bank's Global Challenge Programs, including on strengthening water security, increasing access to safe water supply, and sanitation, and scaling up sustainable water management and disaster risk reduction solutions.

> **"In this era of relentless global challenges, we are more committed than ever to strengthening cooperative water management on the continent.**

Anders Jägerskog
Program Manager

Ai-Ju Huang
Deputy Program Manager

Introduction

Sustainable water resources management and development is critical for economic growth and poverty reduction in Africa. Adequate management of water resources can help build resilience against a changing climate, fragility, and other challenges. Across Africa, many competing demands include supplying multi-use household water, irrigating crops to address hunger, and developing hydropower to meet the continent's increasing electricity needs. Africa is endowed with a generous supply of water and natural water storage. However, the real challenge facing many African women and men is having water where they need it, when they need it, and of good quality. Many countries have inadequate systems in place to monitor, regulate, store, and use water. Complicating matters, most rivers, lakes, and aquifers cross country borders. In fact, all countries on the mainland continent touch at least one international river basin, which collectively are home to nearly 65 percent of Sub-Saharan Africa's population. There are 60 international river basins within Africa, covering 62 percent of the continent's area, and five of these are shared by eight or more countries (Congo, Niger, Nile, Zambezi, and Lake Chad).[1] The five largest river basins cover 52 percent of the area of SSA.

Africa has the highest population growth rate of any region in the world, and the population is predicted to increase to 1.8 billion by 2040. Africa's urban population is projected to double between 2000 and 2030. High rates of urbanization mean increased competition for water from the agricultural, industrial, and municipal sectors. By 2040, it is expected that the continent's food demand will double, energy demand will quadruple, and water demand will increase to five times that of today, putting stress on water sources in general and particularly impacting poor and vulnerable people. Climate change will worsen the situation by increasing uncertainty about water availability and the occurrence of extreme weather events. As water security declines, women and other marginalized groups will be disproportionately affected by the volatility of food and energy prices and will increasingly bear the brunt of disasters, including heightened vulnerability to food insecurity, deepening poverty, and increased exposure to violence and displacement.

Despite these challenges, the opportunities for harnessing Africa's water potential are tremendous. Less than six percent of its cultivated land is currently irrigated,[2] and no more than 8-10 percent of its hydropower resources has been developed.[3] Transboundary cooperation can increase the overall value of shared waters and improve regional payoffs through, for example, increased benefits of power distribution via regional power pools, reduction of flood and drought risk via coordinated operation of water storage, protection of environmental services and livelihoods that rely on water resources, and improvement of the sustainability of shared waters.

Collaboration on technical, environmental, financial, and political aspects of transboundary water management and development can help countries overcome regional challenges and seize much needed opportunities. For example, in the Nile Basin, water-energy cooperation could save total costs over more isolated development projects and limited trade in energy.[4] CIWA is using such opportunities for cooperative management and development to support riparian countries in Africa to unlock the productive potential of international waters. The complexity of the challenges of transboundary waters requires countries and the global development community to go beyond traditional approaches and embrace smarter ways for managing and investing in the water sector.

The CIWA program's objective is to strengthen cooperative management and development of international waters in Sub-Saharan Africa and to assist in achieving sustainable climate-resilient growth. To accomplish this, CIWA supports the institutions that manage and develop the basins, catalyzes and enables transformative water-related investments, and facilitates information gathering and sharing on the benefits of cooperation. As with all investment preparation projects, information sharing efforts, and institutional strengthening work, the impact of any support provided may not be fully realized for many years. CIWA often works upstream of investment implementation and, in many basins, has made long-term commitments to strengthening capacity in FCV-affected contexts, which is required for progress. CIWA's transboundary and multi-basin approach makes it unique in the development field. It works with regional river basin organizations, national governments, civil society groups, and other stakeholders to strengthen information and institutions and prepare investments. CIWA is structured to be responsive and flexible in enabling African countries to promote sustainable, climate-resilient growth that contributes to reducing extreme poverty and promoting shared prosperity in an equitable and inclusive manner. CIWA balances support for institutional development and information systems with assistance to help riparian governments improve the quality of investments.

[1] Wolf, A. T., Natharius, J. A., Danielson, J. J., Ward, B. S. & Pender, J. K. (1999) International River Basins of the World. Int. J. Water Resour. Devel. 15(4), 387–427
[2] FAO. 2020. https://www.fao.org/sustainability/news/detail/en/c/1274219.
[3] International Hydropower Association. 2023. https://www.hydropower.org/region-profiles/africa
[4] Etichia et al. Energy trade tempers Nile water conflict. Nature Water, 2024; 2 (4): 337

Structure of this report

This report first presents CIWA's new directions, which we collectively call CIWA 2.0, focusing on its new strategic orientation; enhanced approaches to FCV, GESI, biodiversity, and climate resilience; a more diversified investment portfolio; scaling up synergies with the World Bank Regional Integration IDA window; and an enhanced bottom-up approach. It then features regional sections that provide deeper dives into each of CIWA's grants. Results are focused on outcomes from FY24, with previous years' accomplishments described for context as needed. Whole-of-project narratives and results are provided when CIWA closed a project in FY24. The report then presents CIWA's progress on cross-cutting themes including biodiversity conservation, FCV, GESI, and communications. In Looking Ahead, it describes the current trajectories in CIWA's portfolio and how they are expected to be carried forward in the next fiscal year. Throughout the report are profiles of people with whom CIWA or its partners work in the field to provide a more personal look at CIWA's impact. Annexes provide (i) analyses of CIWA's cumulative allocations, (ii) annual and cumulative results of CIWA's indicators, (iii) a risk analysis with an emphasis on recent shifts or mitigation opportunities, (iv) CIWA's cumulative detailed financial record, (v) a value-for-money analysis of the cumulative portfolio, (vi) Midterm Evaluation Recommendations / Actions, and (vii) the communications results framework.

CIWA 2.0: Pathways to Impact

CIWA supports the equitable provision of regional public goods for poverty reduction and shared prosperity on a livable planet. Cooperation on transboundary waters management is a prerequisite for achieving key regional public goods such as conflict prevention, biodiversity protection, and climate resilience and for delivering on the Sustainable Development Goals (SDGs) for economic development, poverty reduction, gender equality, and human health. Regional challenges (e.g., climate change, population growth, migration) that put pressure on regional public goods require regional solutions.

CIWA's last MTR (2022) concluded that, in its purpose and design, CIWA has been a highly relevant and responsive source of financial and technical support in regions across Africa and individual countries. It assessed impact and provided key recommendations based on 112 stakeholder consultations and six case studies. The evaluation found that CIWA is realizing the World Bank's Regional Integration strategies (World Bank Africa Strategy 2019-2023 and updated Regional Integration and Cooperation Assistance Strategy 2021-2023), given that water is a key resource for bringing people and countries together.

The 2022 midterm review outlined 11 key recommendations (Annex 6); three pertained to program design (paraphrased): i) The CIWA theory of change (ToC) and Results Framework should be refined to better measure higher-level outcomes and reflect the program's focus on cross-cutting priorities, ii) CIWA should track its results over the lifetime of basin engagements, beyond individual projects, and iii) CIWA should further diversify its partners. The suitability of CIWA's program development objective (PDO), regional outcomes, modalities of action, and many intermediate results indicators continue to serve the program well. However, to address these recommendations, and given the new World Bank Scorecard (FY24-FY30), CIWA developed a 2.0 Theory of Change and Results Framework around its cross-cutting themes.

Alignment with the World Bank's Scorecard

The new World Bank Scorecard FY24-FY30[5] places results in the development context of client countries. CIWA shifted its 2.0 ToC and Results Framework to align with the Scorecard's principles. The Scorecard comprises four building blocks: vision indicators, client context indicators, World Bank results indicators, and results narratives. Vision indicators reflect the new vision for the World Bank, showing its ambition and providing high-level measures to gauge the direction and pace of progress in tackling global challenges. Context indicators reflect the circumstances in client countries, including multidimensional aspects of poverty, and are aligned with the SDGs.

Indicators alone do not present the total landscape of results. Results narratives complement the indicators by connecting results to broader World Bank-supported outcomes at the country and sector levels. For CIWA, they describe the many impactful CIWA operations that support policy reforms, institution building, and other results.

In line with this, CIWA's process- and output-level indicators measure results that can be directly attributed to a CIWA operation, while impact and higher-outcome indicators usually measure CIWA's contribution as having influenced delivery of the result. CIWA's revised Results Framework is directly linked to select World Bank Scorecard indicators, while other Scorecard indicator results will now be measured and aggregated through future independent MTRs.

The GESI[6] and Biodiversity Framework[7] ToCs organize results according to the three Is and whether they are a direct action or an influence of CIWA. The FCV Framework[8] and Climate Resilience Assessment (in process) do not have specific sub-ToCs, like GESI and Biodiversity, but CIWA's overall 2.0 ToC (Figure 1) and Results Framework capture relevant actions and results in those areas (Annex 2). The following pathways to impact illustrates how IR indicators measure the pathways to achieving results on the three Is. Investment-related IR indicators feed into the PDO indicators and substantiate improvements in cooperative water management and development through CIWA.

[5] https://scorecard.worldbank.org/en/scorecard/home
[6] CIWA GESI Framework. 2024. https://www.ciwaprogram.org/rcv1/gesi-framework/
[7] CIWA Biodiversity and Conservation Framework. 2024. https://www.ciwaprogram.org/rcv1/biodiversity-and-conservation-framework/
[8] CIWA FCV Framework. 2024. https://www.ciwaprogram.org/rcv1/enhancing-ciwas-engagement-in-fcv-affected-areas/

Biodiversity and Conservation

The vision of the CIWA Biodiversity Framework is *improved transboundary water management that supports biodiversity conservation to ensure more climate-resilient communities are better equipped to plan for and mitigate climate-related shocks, support livelihoods, sustain health and life, and improve economies.* The Biodiversity Framework's ToC explains how this vision will be achieved and aligns with the implementation of the three Is, the CIWA 2.0 ToC, and the World Bank Scorecard.

The Framework implements its vision through the following approaches that will be transformed into thematic impact areas/outputs and activities for implementation:

Actions:

Support the implementation of key actions linked to the three Is as part of the further development of the program.

Influence:

Using its comparative advantage, influence specific outcomes as part of other programs funded by the World Bank and partners.

Biodiversity—Information:

CIWA collects, enhances, and disseminates information to support integrated national and regional biodiversity management. CIWA will enhance policy and practice for effective integrated management of environmental and social risks. CIWA influences i) effective transboundary collaboration and strengthened governance and (ii) integration of policies and land-use planning with biodiversity and ecological processes to protect key habitats.

This will be measured by the indicator:

Transboundary water arrangements supported to enhance biodiversity and conservation

(CIWA 2.0 IR indicator 5).

Biodiversity—Institutions:

CIWA supports sustainable capacity building for institutions so that policies and land-use planning are integrated with biodiversity and ecological processes to protect key habitats. CIWA will support and enhance informed decision making, share knowledge and **lessons learned, and influence integrated monitoring to support national and regional biodiversity reporting.**

This will be measured by the indicator:

People trained in sectors related to transboundary biodiversity and conservation

(CIWA 2.0 IR indicator 2).

Biodiversity—Investments:

CIWA influences regionally relevant water-related investments to increase portfolio diversification and prioritize enhanced nature-positive investments. CIWA will (i) implement land restoration and improved management practices, (ii) increase diversified community livelihood benefits, and iii) support nature-based solutions for climate resilience. CIWA influences the planning and development of nature-positive investments.

This will be measured by the indicator:

Investments and World Bank projects influenced to enhance biodiversity and conservation benefits beyond the Environmental and Social Framework

(CIWA 2.0 IR indicator 6 & 7).

Climate Resilience

The **vision for CIWA's approach to transboundary climate resilience is that SSA water management and investment plans account for climate change projections (in other words, are climate-proofed) and that riparian countries incorporate a regional lens in their efforts to address climate change risks.** To achieve this vision, riparians must have reliable and timely data and computation services that can anticipate the effects of climate change on natural resources and minimize GHG emissions in development planning. This information must then be available and useful to key technical stakeholders in regional and national institutions and national decision makers for preparing regionally balanced water-related investment plans.

CIWA contributes to mainstreaming climate change resilience and mitigation in transboundary water resources management and development in all basins and regions where it works. This has been achieved by including climate resilience as an objective of many of its strategies and projects. CIWA supports climate change scenario building and includes climate-risk assessments in the planning and development of water investments. Women and other vulnerable populations tend to be more negatively affected by climate change—analyses by UN Women underscore that women are not only affected by climate change differently than men, but they can contribute to climate change action in a different manner.[9] As discussed above, CIWA continues to support studies and projects that target water sectors with high resilience potential such as groundwater and flood and drought management.

CIWA has contributed to i) influencing investments that are now delivering a significant amount of SSA's hydroelectric power, ii) delivering core information and institutional inputs that are requisite for climate change resilience, and iii) expanding its portfolio to previously lightly-touched sectors such as water quality; dam safety; nature-based storage solutions; groundwater management and sustainable use; and biodiversity, ecosystem services, and conservation. CIWA's active and pipeline projects have pivoted to more nature-positive investments, and future mitigation investments will likely focus on smaller investments such as carbon sequestration through climate-smart watershed management and rehabilitation plans, wetlands and biodiversity protection, or solar-pumped groundwater investments. Conversely, CIWA's climate resilience activities demonstrate a strong track record of improving regional WRM and planning while leaning into improving flood- and drought-risk management, dam safety, and water quality.

Climate Resilience—Information:

CIWA collects, enhances, and disseminates information to provide effective regional information platforms and services that enhance water-related hazard resilience and measures to counter water resources depletion and declining quality in a changing climate. CIWA will support the development of water monitoring and information systems, assist RBOs in incorporating climate-related factors (e.g., changes in precipitation, temperature, runoff, evapotranspiration) in hydromet forecasts, total/seasonal water availability, and water demand and storage planning; and fill in climate change-related data gaps that hinder policy formulation and implementation, such as groundwater resource water quality information.

This will be measured by the indicator:

1. Knowledge products are used to illustrate the evidence base for cooperation, needs, and challenges that directly support regional climate resilience or mitigation

(CIWA 2.0 IR indicator 3) **and**

2. Institutions using information systems that improve the incorporation or analysis of climate-related factors in disaster mitigation or water resources management

(CIWA 2.0 IR indicator 1.c).

[9] Equality in Climate Action: Planning for a gender inclusive future in Africa, UN Women (lead), UNFCCC, UNDP, 16-18 April 2024.

Climate Resilience—Institutions:

CIWA supports sustainable capacity building to strengthen adaptable institutions that enable robust water management amid growing uncertainty from climate change and competing demands for water. CIWA will support WRM training and expertise to regional and national institutions and community-based organizations to improve the climate resilience of water systems and of people.

The various reproductive and productive responsibilities that women undertake at both household and community levels, such as their roles in agriculture, energy provision, cooking, and the management of water, sanitation, and waste, increase their susceptibility to the effects of climate change. CIWA's support to institutions to become more equitable and productive environments for women are core activities. CIWA also influences institutional capacity around improved watershed, catchment, and wetlands management, monitoring, planning, and regulation; regional cooperation onwater-related disaster risk reduction including in dam safety, floods, and droughts; and incorporation of climate-proofing into national and transboundary water basin planning.

This will be measured by the indicator:

Transboundary basins with an arrangement for climate-proofed water cooperation or management and investment planning influenced by CIWA

(CIWA 2.0 IR indicator 5) **and**

Institutions strengthened to improve regional cooperation

(CIWA 2.0 IR indicator 1).

Climate Resilience—Investments:

CIWA influences regionally relevant water-related investments by providing a platform for cooperation by which riparians can take a systems approach to water security and mitigate the transboundary consequences of climate change. CIWA will influence supply- side management by expanding water resources (e.g., through diversification of water sources), reducing water losses, and/or improving cooperation on shared water resources), establishing core protected areas and buffer zones to safeguard biodiversity and ensure the sustainable use of water to meet ecosystem-dependent livelihoods during droughts, and improving dam safety. New operations and pipeline projects will i) increase support to develop NBS to protect against flood risks; ii) improve resilience of infrastructure to floods (e.g., bridges, water supply, community infrastructure); and iii) protect or reestablish wetlands.

This will be measured by the indicators:

Number of people supported to better adapt to the effects of climate change

(CIWA 2.0 IR indicator 8) **and**

Climate change mitigation or resilience benefits from cooperative management and development investments of international water resources influenced by CIWA

(CIWA 2.0 IR indicator 9).

Gender Equality and Social Inclusion

The vision of the CIWA GESI Framework is *equal and inclusive transboundary water institutions and programs in SSA that are committed and able to create equal opportunities for women and men to be agents of change and decision makers in transboundary water operations.* Patriarchal norms and gender stereotypes reinforce gender inequality at the household, community, and work levels, and discriminatory experiences cause women to be underrepresented as leaders and decision makers in transboundary water resources institutions. Without addressing harmful patriarchal norms, women and men cannot participate equitably in WRM fields, and gender-blind investments propagate these inequalities. This transformative approach acknowledges the need to undertake multiple interventions across different sectors to shift deep-seated norms that impede women's empowerment and equitable participation as leaders and decision makers.

The nature of the integration of a GESI-responsive transformative approach depends on the activity. If, for example, the Nile Basin Initiative (NBI) is hosting the Nile Basin Discourse Forum (NBDF), then integrating GESI could include such actions as facilitating the active participation of women at all levels from diverse backgrounds in the conference; inviting relevant women's groups to attend, speak, and join community-based organizations and NGO delegations; and advocating for the integration of GESI in the program. It could include offering day care services, providing ways for women to participate virtually, performing a stakeholder satisfaction survey that disaggregates by gender and social groups, and developing a costed action plan that improves the enabling environment for women's future participation. Moreover, each of the five agencies implementing the Nile Cooperation for Climate Resilience (NCCR)project now has a gender focal point and gender engagement plans that were endorsed by their respective senior managements. GESI training was provided to three centers (NELSAP, ENTRO and LVBC) that was tailored to each participating center. It included core concepts for GESI in development work, case study applications for maximizing GESI in activity design and implementation, and consideration of institutional/workplace practices for improved GESI.

Activities incorporating explicit actions to challenge gender and social norms can include training to foster an understanding about how to address patriarchal norms that can limit women's representation or to collaborate with Equal Aqua,[10] the World Bank platform that promotes women's empowerment and inclusion in water-sector jobs. It could include creating mentorship opportunities or internships for women and other vulnerable populations. These activities, such as providing training and networking to women engineers or identifying men in the male-dominated water sector who are willing to take concrete steps to improve the enabling environments for women at the institutional and programmatic level including through CIWA's Male Champions for Women's Empowerment initiative,[11] are key to meaningful change. Similarly to the NCCR, the countries of the Regional Climate Resilience Program are also being trained in GESI and the Equal Aqua platform, and next year the support will be further scaled up with the Women in Water Resilience diagnostic.

GESI—Information:

CIWA collects, enhances, and disseminates information on inequalities related to gender and social inclusion to guide the development of equitable and inclusive solutions. CIWA will gather and analyze quantitative and qualitative data on GESI inequalities to develop and disseminate information aimed at guiding the development of equitable and inclusive solutions for women and men from diverse backgrounds in transboundary water resources. CIWA supports decision makers and planners for regional WRM and development to have access to and to integrate reliable, relevant, and timely information about GESI that both affect and are affected by the intersection of potential investments and climate change, biodiversity, livelihoods, and other crosscutting issues.

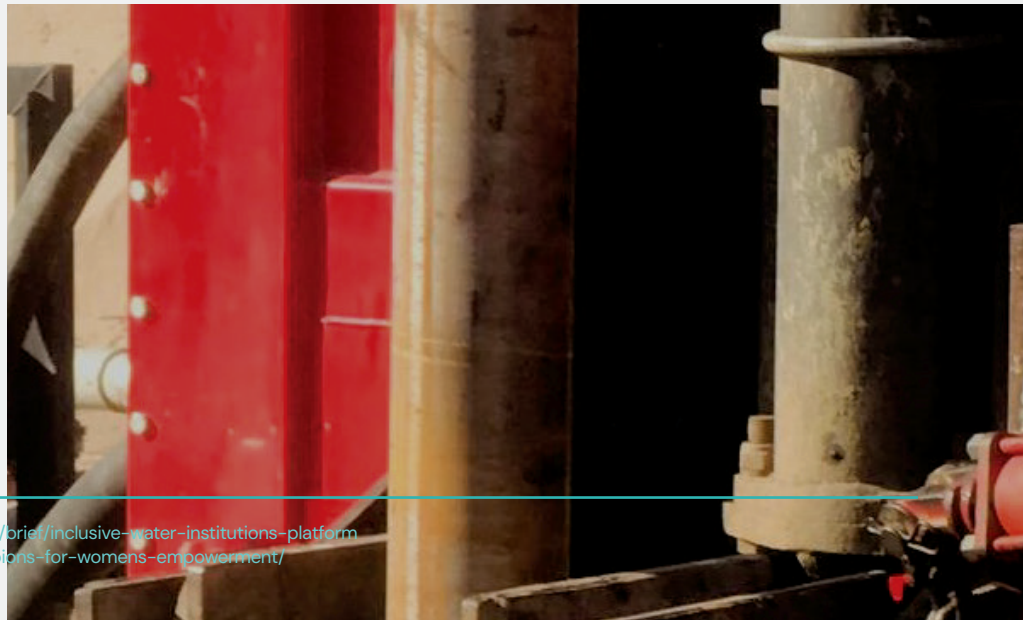
This will be measured by the indicator:

Activities incorporating disaggregated quantitative and qualitative information to challenge gender and social norms and increase women's representation and leadership in technical fields related to transboundary water resources management and development

(CIWA 2.0 IR indicator 4) **and**

People trained on GESI in transboundary water resources management and development

(CIWA 2.0 IR indicator 2.a).



[10] https://www.worldbank.org/en/topic/water/brief/inclusive-water-institutions-platform
[11] https://www.ciwaprogram.org/male-champions-for-womens-empowerment/

GESI—Institutions:

CIWA supports sustainable capacity building for institutions to adopt an integrated and comprehensive approach to gender and social inclusion. CIWA will provide technical training and support to female engineers, hydrogeologists, and other relevant stakeholders on GESI to improve capacity to integrate gender equality. Transboundary WRM institutions receive support to develop and implement policies and plans that assess and adjust their work environments and hiring, promotion, and retention practices to be more gender inclusive. CIWA influences i) increased capacity of transboundary institutions to adopt an integrated and comprehensive approach to GESI, ii) an increase in policies and plans that integrate GESI considerations, and iii) an improved enabling environment for female staff to work in transboundary water institutions.

This will be measured by the indicators:

Number of women in high- or medium-skilled and/or management positions provided technical support or trained in WRM data use, information, or decision support systems

(CIWA 2.0 IR indicator 2.b) **and**

Transboundary water arrangements have integrated GESI considerations

(CIWA 2.0 IR indicator 5).

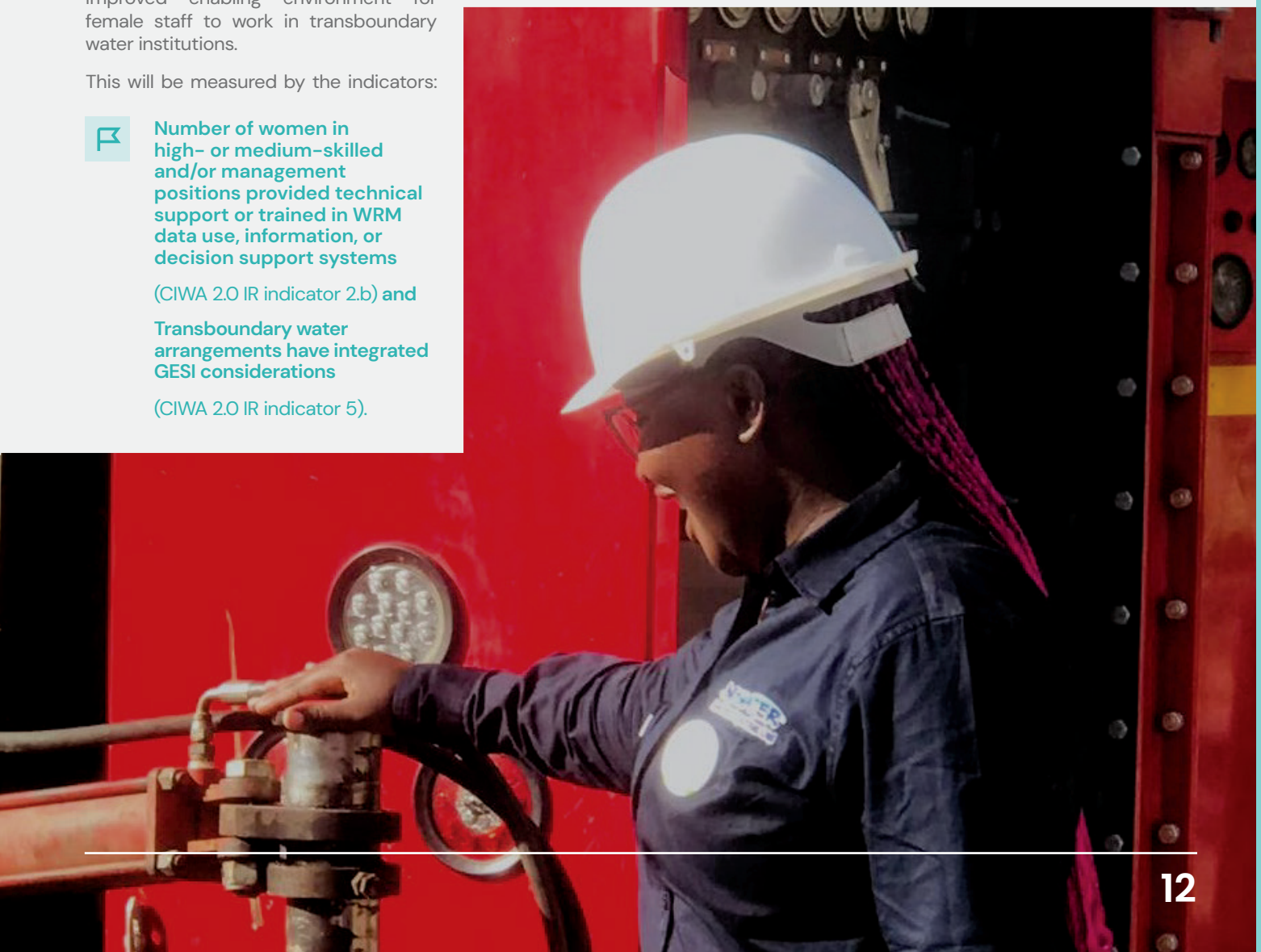
GESI—Investments:

CIWA influences regionally relevant water-related investments through design and implementation support to address inequalities related to gender and social inclusion on livelihoods, employment, assets, time use, and social norms. CIWA delivers Multi-Sector Investment Opportunity Analysis (MSIOAs), climate change adaptation plans, and other multisector investment plans that incorporate gender-disaggregated quantitative and qualitative data on livelihoods, water use, employment, and assets and produces investment plans that incorporate identification and prioritization criteria that facilitate equitable and inclusive stakeholder input, including from vulnerable populations. CIWA will influence investment design and implementation to address the effects of inequalities related to gender and social inclusion on livelihoods, employment, assets, time use, and social norms.

This will be measured by the indicator:

Investments or World Bank projects with improved stakeholder engagement that explicitly support the incorporation of GESI into the design or implementation beyond the ESF

(CIWA 2.0 IR indicator 6 & 7).



Support to FCV-Affected Regions

CIWA's vision for its support to FCV-affected people is that *investing in cooperative management of transboundary waters in basins affected by FCV will ease tensions, promote stability, and build resilience to water shocks.*

CIWA's FCV Framework provides World Bank Task Teams step-by-step guidance to enhance the effectiveness of CIWA-funded activities in FCV-affected areas. It provides a methodology for systematically applying conflict sensitivity to project design. The Framework does not include an explicit Theory of Change, but one of CIWA's overall regional outcomes is reduced risk of resource-related conflict. CIWA influences how informed and prepared people are for water scarcity by improving resilience through transboundary cooperation on WRM and development.

FCV is one of CIWA's key cross-cutting development priorities, along with GESI, resilience to climate change, and biodiversity conservation. CIWA is one of the few mechanisms that can maintain support to destabilized countries through its work with regional institutions and can leverage the broader region for capacity building when the time is right. There is a direct but complex interplay between FCV, GESI, climate change, biodiversity, and political economy that requires integrated approaches to development, and transboundary WRM and development exist at their intersection. This Framework also recognizes that women and other vulnerable populations tend to be more negatively affected in FCV contexts and are often underutilized change agents in FCV situations.

CIWA works in many FCV-affected countries in SSA included in the World Bank's annually updated list of Fragile and Conflict-affected Situations. The World Bank Group Strategy for Fragility, Conflict, and Violence 2020-2025 and the Bank Policy on Development Cooperation and Fragility, Conflict, and Violence are the key documents that guide the World Bank's engagement on FCV. CIWA is well-positioned to support African governments that are addressing FCV-related challenges, as many threats to growth and prosperity are related to national and transboundary waters (e.g., migration, floods, droughts, food insecurity). CIWA's nimble operational mechanisms, technical expertise, and convening power make the program a core resource to address some of the most complex challenges in water security.

CIWA primarily works with regional institutions and therefore can continue WRM and development efforts even in basins where some member states are temporarily, intermittently, or even consistently affected by FCV. The NBI has supported the Nile basin through many transitions of member states in and out of FCV and influenced mobilized investments that directly benefit FCV-affected states. This is only possible by sustaining long-term support and leveraging the abilities of higher-capacity basin partners. CIWA often complements recipient-executed projects that are complex or in difficult locations with Bank-executed grants so that the World Bank team can maximally support implementation and help partner institutions address their weaknesses and enhance capacity. One example is CIWA's support to the Government of Somalia through a Bank-executed grant while providing the Intergovernmental Authority on Development (IGAD) with recipient-executed funding in the Horn of Africa (HoA) Groundwater Initiative project.

Objectives of the CIWA FCV Framework:

1. **Not contribute to conflict.** To do no harm, CIWA will purposefully navigate issues to avoid supporting projects that could foreseeably cause or exacerbate conflict. CIWA's projects will exclusively pursue no-regret and win-win opportunities for development.
2. **Contribute to peacebuilding and development.** Through this framework and the environmental and social safeguards assessments, CIWA will identify three components: i) drivers of fragility, ii) mitigation measures, and iii) the operation's contribution to peacebuilding and development.
3. **Generate knowledge.** Contribute to expanding the knowledge base on transboundary waters management, FCV, and peacebuilding.

FCV—Information:

CIWA collects, enhances, and disseminates information to enable riparians to anticipate their community-level water resources and mitigate conflicts from water scarcity or insecurity. CIWA supports the development and use of climate, weather, and water monitoring and information systems by FCV-affected communities and governments.

This will be measured by the indicators:

Improved data and information systems that benefit people in FCV-affected situations and are used by communities

(disaggregate of CIWA 2.0 IR indicator 3.a).

FCV—Institutions:

CIWA supports sustainable capacity building for institutions to assist FCV-affected stakeholders to maintain and develop water resources despite potential setbacks in governance or violent conflict. CIWA supports capacity building of FCV-affected institutions and people to monitor and use their water and climate information. This enhances their legitimacy so that they can engage with other riparian countries on joint management and development plans on equal footing.

This will be measured by disaggregating indicators that assess capacity building by whether participants are from FCV-affected situations

(CIWA 2.0 IR indicators 2).

FCV—Investments:

CIWA influences regionally relevant water-related investments to support stakeholders to identify drivers of fragility and sources of resilience that impact water cooperation to inform cooperative investment identification and design.

This will be measured by:

The number of people from FCV-affected situations supported to better adapt to the effects of climate change

(disaggregate of CIWA 2.0 IR indicator 8) **and**

CIWA-influenced cooperative management and development investments of international water resources, which benefit FCV-affected countries

(CIWA 2.0 IR indicator 7).

Table 2: CIWA 2.0 Results Framework

CIWA 2.0 indicator	Relationship to ToC and PDO
PDO Indicator 1: US dollars influenced for cooperative management and development investments.	It is assumed that multiple cooperative processes must have been strengthened such as data sharing, having an agreement or MOU, possibly having jointly agreed regional policies that apply costs and benefits sharing, joint risk assessments, and engaging in negotiations for every regional investment that progresses to a feasibility assessment. The PDO indicators are proxy measurements for the cooperative processes that must be in place to deliver a potential or mobilized investment. At the higher level, cooperation is not the end goal but rather a requirement for joint development. CIWA's development objective is to deliver cooperation that is used for joint WRM and development but the actual development is expected to be implemented through other means such as private finance, lending, or IDA funding.
PDO Indicator 2: Number of people benefiting from improved water resources management and development investments.	
1. Institutions strengthened to improve regional cooperation.	Information development and institutional strengthening can take many forms and address many issues. IR indicators 1a-1c all measure aspects of institutional strengthening that can contribute to improved capacity, equitability, horizontal and vertical cooperation, sustainability, and improved leadership. CIWA's approach to influencing regional WRM and development solutions is that improved information and institutions drive cooperation and better investments. Therefore, this is an intermediate outcome with regards to influencing investments that support sustainable and equitable use of water for the good of the environment and people.
1.a Institutions with improved engagement of civil society, private sector, and academia.	CIWA's approach to cooperation includes both horizontal and vertical engagements. Results from this indicator track the inclusion of different levels from RBOs and national institutions in WRM and development planning and implementation.
1.b Institutions with increased water resources management and development information in the public domain.	Indicator 1b demonstrates results that contribute to sustainability and cooperation by enhancing transparency and accountability to the public.
1.c Institutions using improved analytical tools, knowledge products, data, and forecasting for improved water and climate risk management or investment coordination.	This indicator measures a higher-order result than the provision of analytical tools, knowledge products, data, forecasting, and/or capacity (Indicator 1) by measuring how individual institutions use the tools for improved water and climate risk management or investment coordination.
2. Number of people who participate in CIWA funded activities.	This indicator tracks the total number of people who participate in CIWA activities, which is usually distinct from the people who benefit from investments.

2.a People trained on GESI in transboundary water resource management and development.	This indicator is intended to measure training of regional and national RBO staff but may include community members. This is part of a result chain that leads to clients delivering project and investment design, planning, and implementation with improved GESI elements, especially beyond the GESI safeguards specified in the ESF. This higher order result is measured by indicator 12.b.
2.b Number of women in high- or medium-skilled and/or management positions trained in transboundary WRM data use, information, or decision support systems.	The core gender gap in transboundary WRM is that there are many fewer women in technical and leadership positions in WRM institutions. One entry point is addressing women's access to networking and training opportunities. Often these opportunities are given to men and many times when women are counted the majority are support staff. These results demonstrate progress toward strengthened, equitable, and thus more sustainable institutions.
3. Knowledge products to illustrate the evidence base for cooperation, needs, and challenges.	CIWA incentivizes cooperation by demonstrating potential benefits through delivering client-demanded strategic analyses and provides information on the potential pathways that clients can use to meet their development needs.
3.a Improved data and information systems used at the municipal or community level.	This indicator tracks CIWA's influence on involving communities in design and implementation of WRM and development. This moves beyond merely informing communities of activities to having them lead in aspects of implementation. Results demonstrate outputs for vertical cooperation.
4. Activities incorporating explicit actions to challenge gender and social norms that impact women's representation and leadership in technical fields related to transboundary water management and development.	CIWA's GESI Framework proposes a transformational approach. Results tracked here demonstrate CIWA's activities that are attempting to actually address harmful gender norms that limit WRM and development institutional performance.
5. Transboundary water arrangements (basins or aquifer) supported to enhance a) biodiversity and conservation, b) GESI, c) peace, or d) climate resilience.	Globally, around a third of transboundary surface waters and only a handful of aquifers have an operational agreement. Even fewer are climate proofed or consider environment and social inclusion. Adding support to deliver operational transboundary water arrangements is a critical aspect to delivering joint WRM and development investments.
6. World Bank projects informed by CIWA.	Many, although not all, CIWA-influenced investments are advanced and/or mobilized through substantially larger World Bank projects. This is intended as a core pathway for delivering impact through CIWA: facilitate information and institutional capacity building, engage stakeholders, identify jointly prioritized potential investments with enhanced information and institutions, then inform a new World Bank program to advance the investment with national clients. CIWA now tracks how it advances its solutions in GESI, biodiversity and conservation, and conflict sensitivity into the operations that they inform. These are activities that are beyond those expected from the ESF.

7. Investments with regional benefits that have been advanced through CIWA support.	This indicator is complementary to the World Bank projects informed by CIWA operations as it counts all CIWA-influenced investments, but also includes those mobilized without a World Bank project (e.g., through other donors or with national funding).
8. Number of people supported to have better climate change resilience.	CIWA will support people to have better resilience to climate change through their increased access to resources provided by mobilized investments, through training on empowering themselves for improved adaptation, and through participation in activities. This number is a subsection of people counted in both indicators PDO 2 and IR 2.
9. Climate change mitigation or resilience benefits from cooperative management and development investments and CIWA activities.	This indicator will qualitatively track the climate resilience benefits of influenced investments and activities.

CIWA in FY24*

People who benefit from investments influenced by CIWA:

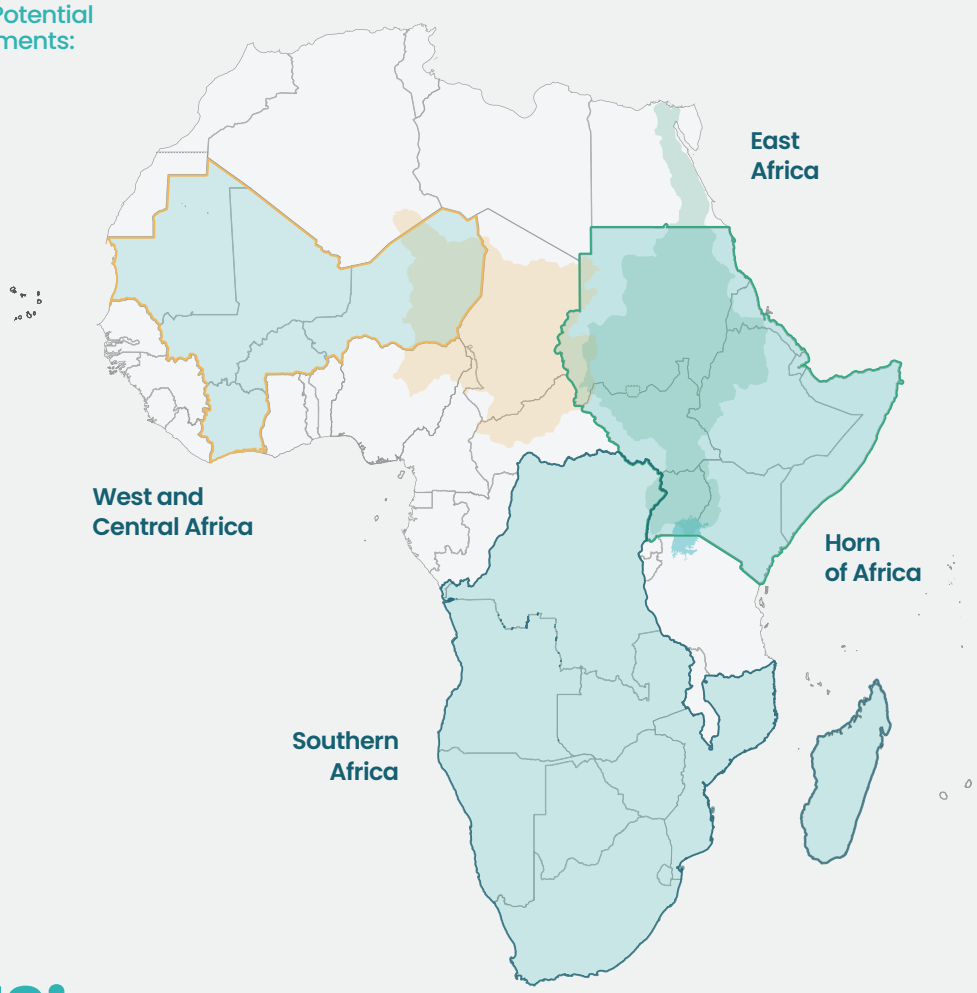
19.875
million people
From Mobilized Investments:

66.03
million people
From Potential Investments:

$17.4 billion in investments to manage watersheds, develop groundwater, build storage, etc

$11.03
billion
Potential investment (unchanged)

$6.365
billion
Mobilized Investment

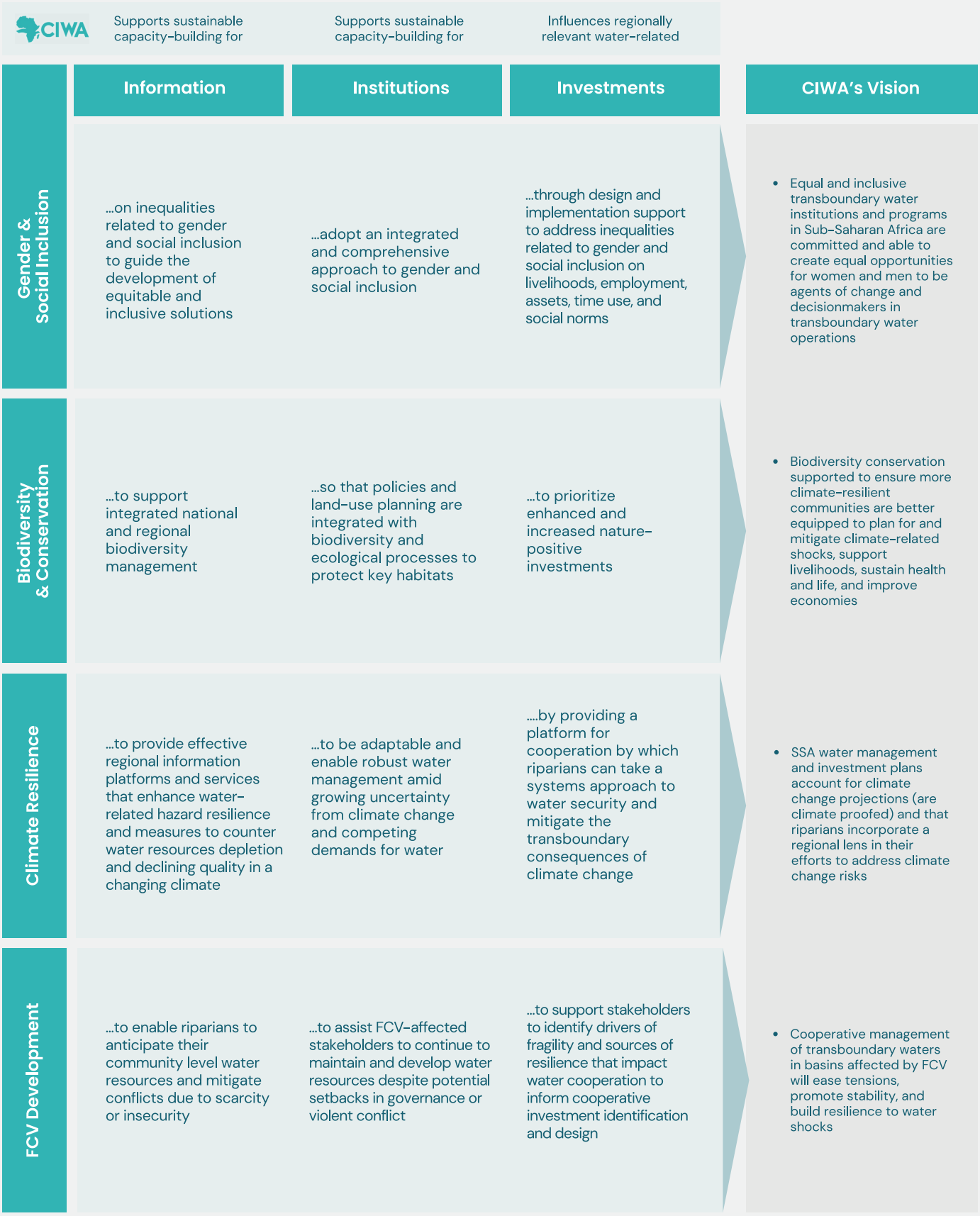


Focus areas:

- Nile Basin
- Lake Chad Basin
- West and Central Africa
  - SMAB Aquifer
- Southern Africa
  - SADC
- Horn of Africa
  - IGAD

* The results on this page are for FY24. For cumulative results, see Annex 2, page 95.

Figure 1: CIWA 2.0 Theory of Change



Regional Focus

West & Central Africa

West and Central Africa faces increased climate impacts, including prolonged drought and unpredictable rainy seasons causing flooding in the Sahel, which also suffers from fragility, violence, and political instability and armed conflict, which are expected to increase the number of forcibly displaced people in 2024. Women are often most at risk from these conditions. CIWA is working to ensure their equitable participation in water resources decision making in a region marked by extreme gender inequality. CIWA is also improving water resources management by identifying investments and policy actions and addressing knowledge and capacity gaps.

Improving Water Resources Management in West and Central Sahel

Context

The objective of the ongoing CIWA-supported initiative, Improving Water Resources Management in West and Central Sahel, is to contribute to improved WRM through selected engagements in the basins and countries of the Sahel region by (i) identifying pragmatic investments and policy actions that can be supported by future operations and (ii) addressing critical analytical and capacity gaps through "fit-for-purpose" WRM assessments and technical assistance. All engagements under this activity also proactively account for climate change impacts and specific challenges in FCV environments such as volatility, low capacity of state institutions, protracted political crises, and the increased risks and impacts that women and other vulnerable groups face.

This program began in January 2020, with an initial phase until February 2023, and was extended for two years, with a second phase of US$1.4 million until February 2025. Based on the success of this initiative, a third phase is now proposed to capitalize on progress and continue to add support to a new consolidated regional investment program.

Progress

Previous CIWA Annual Reports provide details of progress before FY24, including:

Strengthening Water Security in the G5 Sahel:

The report provides a basis not only for deepening the dialogue with regional counterparts, but also for conceptualizing the vision for a regional water security program (Development, Resilience, and Valorization of Water in West Africa [DREVE]). DREVE is being prepared as a Multi-phase Programmatic Approach that will include the Senegal and Niger River basins and key transboundary aquifers such as the Senegal-Mauritania Aquifer Basin (SMAB) and the Illumeden aquifer.[12]

Operationalizing Strategic Storage in the Western Sahel:

The team collaborated with a consortium of international partners to develop the Water Harvesting Explorer,[13] an online decision support tool for small-scale water storage planning. It has been deployed to train implementing agencies in Niger and Nigeria on its use for investment identification and community consultations for new investment projects. Based on its application to the Western and Central Sahel, multiple projects and teams in other regions have expressed interest in using the tool and expanding its functionality, and in FY24 it has been adapted in dryland areas of Sudan, Ethiopia, Eritrea, and Kenya.

Water analytics for West Africa Water Unit:

The flexibility of this support window to address emerging needs in water analyses and reforms has been a cornerstone of its success. It has enabled the World Bank to respond swiftly to challenges and opportunities in the West Africa region, ensuring that water-related interventions are both timely and effective. In Niger, for example, the project supported a technical workshop that was instrumental in drafting new regulations aimed at the identification, monitoring, and protection of groundwater-dependent ecosystems. This collaborative effort between the Ministries in charge of Environment and Water directly supported the Development Policy Financing program Niger First Resilient Growth and Capital Building.

FY24 progress follows:

Groundwater Program for the Senegal-Mauritania Aquifer Basin:

The SMAB is a large aquifer shared between The Gambia, Guinea-Bissau, Mauritania, and Senegal, covering an area of 330,000 km^2 that is home to about 16 million people. An RWG was created that comprised representatives of the four countries and Organisation pour la Mise en Valeur du Fleuve Gambie (OMVG) and Organisation pour la mise en valeur du fleuve Sénégal (OMVS). The CIWA-funded technical assistance supported the RWG to develop a joint vision and program for long-term cooperation on the SMAB aquifer. Technical assistance included preparing project proposals, which prioritized harmonizing and updating data platforms, building a regional hydrogeological information system, and developing web-based SMAB maps. This effort requires cooperation between the four countries and regional institutions for data exchange and capacity building. Based on the findings about the legal and institutional frameworks in each country, potential options for an institutional arrangement for cooperation will be supported through the World Bank's DREVE program, which will address barriers to cooperation from limited monitoring and water data exchange.

[12] DREVE is described further in Next Steps.
[13] https://sahel.acaciadata.com/

Preparatory work on the three other Sahelian transboundary aquifers (Taoudeni Basin, Iullemeden Aquifer, and Lake Chad Aquifer Basin) was undertaken. An assessment is being conducted to characterize existing infrastructure (boreholes and wells) and to develop population and climate change projections through 2040. This assessment will support dialogue to prepare future investments and international collaboration on these aquifers.

The creation of a CSO water platform will require a better understanding of the needs of community-based associations and stronger collaboration with NGOs and CSOs to facilitate communication with governments and among themselves. The team proposed operationalizing the model by:

(a) **Organizing a series of consultations with regional stakeholders in six priority countries that will be involved in the DREVE regional program under preparation: Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal.** Following presentation of the country diagnostics and receiving stakeholder feedback at the regional workshop, the team will build on these diagnostics to draw a roadmap for the creation of a CSO water platform.

(b) **In parallel, initiating dialogue with basin-level counterparts (e.g., OMVS, Niger Basin Authority) for integrating such broad-based civil society engagement in their core agendas.**

Key results of this activity were presented at the Stockholm International Water Initiative World Water Forum in 2024, with CIWA supporting the participation of the Youth Transboundary Water Parliament from Burkina Faso.

Preparation of DREVE:

During FY24, this CIWA initiative has actively supported the preparation of DREVE, a regional Multiphase Programmatic Approach that will promote WRM and development as a key driver of prosperity, peace, and climate resilience in the sub-region. It proposes a new approach to development by leveraging regional and national stakeholder cooperation for conjunctive water use (both groundwater and surface water versus the usual river basin approach) and boosting the valorization of water for socioeconomic development through transboundary cooperation.

CIWA supported key regional organizations in West Africa in the preparation of DREVE:

Technical assistance was provided to the Water Resources Management Center of the Economic Commission of West African States, the Permanent Interstate Committee for Drought Control in the Sahel, and the West African Economic and Monetary Union.

A working group was formed comprising the three organizations and the World Bank to discuss how water resources cooperation could be strengthened through DREVE and CIWA support. CIWA supported a presentation about DREVE in June 2024 at the 11th session of the technical expert committee of the Permanent Framework for Coordination and Monitoring of Integrated Water Resources Management in West Africa and the 5th Ministerial Monitoring Committee for WRM in West Africa.

CIWA also supported the dialogue with OMVS for preparation of a follow-up project to the Senegal River Basin Climate Change Resilience Development Project that will be integrated into pillar 1 of DREVE.

Next Steps

The next phase of this operation will consist of four elements:

i) key support to design and prepare the DREVE program; ii) support to advance the SMAB institutional arrangements; iii) enhancing transboundary water resources through NBS using the water harvesting explorer tool; and iv) ongoing technical assistance building on the activities on groundwater management, CSOs, water harvesting mapping, and *ad hoc* requests aligned with the objectives of the program, such as conducting rapid water security diagnostics.

DREVE is a large, multiphase programmatic approach program (US$>1 billion) to be launched in 2025. This technical assistance will: (i) review OMVS studies for developing navigation on the Senegal River between Mali, Mauritania, and Senegal; (ii) provide technical assistance to the West African Economic and Monetary Union and Economic Commission of West African States Water Resources Management Center for preparing DREVE's regional integration pillar; (iii) hold a DREVE regional forum; and (iv) advance dialogue with the regional organizations for the Niger and Volta River basins to prepare DREVE activities in investment identification.

This operation will continue to support the RWG on the SMAB transboundary aquifer. DREVE will support the implementation of activities identified by the SMAB RWG, ensuring continuity and progress on these important issues. As this SMAB support ends, the operation will pivot to the Iullemeden Aquifer System, which spans Algeria, Benin, Mali, Niger, and Nigeria. New CIWA support to DREVE is expected to be prepared during this period.

(Jean Damase ROAMBA, the youth delegate from Burkina Faso, 10th World Water Forum, Bali, Indonesia. ©PNJBE

Lake Chad Water Security

Context

This initiative assesses the current state of water security and transboundary cooperation in the Lake Chad Basin at the political (vision), institutional (roles), and technical (investments) levels. It is divided into two pillars: Pillar A focuses on building the analytical and institutional foundation for water security and informs the identification and design of activities under Pillar B to catalyze future investments.

The core deliverable of this technical assistance is the Water Security Assessment, finalized in October 2023. The initiative also supports current and future national and regional investments to strengthen water security. In addition to the assessment report, several thematic notes were developed to tackle strategic issues. The completed thematic notes[14] include:

- Water, climate, and conflict: Lake Chad Water Security Resilience Assessment
- The role of CSOs in the water sector in Lake Chad Basin
- Groundwater institutional diagnostic and comparative assessment of legislation in Lake Chad Basin (complementary study ongoing)
- Strengthening the Hydro and Meteorological Observation Network in Lake Chad

The thematic note on groundwater and the hydromet needs assessment have clearly highlighted the lack of institutional and legal frameworks and insufficient information on groundwater resources (e.g., quantity, quality, location). Based on the findings from these studies, the Lake Chad team has agreed to extend this technical assistance, allowing further studies on irrigation development, which will be critical to operationalize the water security assessment and identify potential investments.

Progress

Groundwater Legislation Comparative Assessment: Nigeria, France, and Spain

The first set of studies to assess the state of groundwater legislation covered Cameroon, the Central African Republic, Chad, and Niger. The assessment is ongoing for Nigeria, which presents an added layer of complexity from the large number of states (36) along with the federal government. An inventory of all state and federal legislation related to groundwater has been completed. Benchmarking using France and Spain is ongoing with the same timeline. The Lake Chad comparative analysis of all riparian countries is expected to be finalized in late 2024.

Water Security Assessment

The Lake Chad Basin water security assessment, finalized in FY24, categorizes the drivers of water insecurity and sources of resilience and makes recommendations to inform investments.[15] Despite significant risks and barriers to water security, the basin has sources of resilience that can be enhanced and promoted to help ensure a water-secure future.

Next Steps

Irrigation development assessment

The Lake Chad Basin urgently needs an irrigation development plan to address food insecurity and water scarcity while ensuring environmental and biodiversity protection. The Water Security Assessment's main findings show that the basin's fluctuating water levels—naturally seasonal but exacerbated by climate change and unsustainable land-use practices—have severely impacted agricultural productivity, threatened food security and economic stability, and begun to negatively affect biodiversity. The report recommends exploring small-scale infrastructure and NBS to support water security, along with enhanced hydrometric data and water resources planning.

In this context, an effective irrigation development plan will use both shallow groundwater and surface water resources to ensure efficient and equitable distribution of water for agriculture. This plan must incorporate advanced hydrological modeling and environmental and biodiversity sustainability, consider socioeconomic and climate change scenarios, include stakeholder engagement at local levels, and develop sustainable, adaptable irrigation pathways. Additionally, integrating modern technology for hydrometric data improvement and a dynamic online resource management dashboard for water accounting purposes will optimize water resources management at the transboundary level, enhance resilience, and promote sustainable development in the Lake Chad Basin.

This approach to a water security and irrigation investment pipeline based on the CIWA technical assistance would benefit from additional analyses and support,[16] but these are pending more financing.

[14] The reader should refer to the FY23 CIWA Annual Report for detailed descriptions of these notes.
[15] See CIWA Annual Report FY23 for full description. https://www.ciwaprogram.org/rcv1/ciwa-annual-report-2023/
[16] a) Socioeconomic cost-benefit analysis of small-scale water interventions and nature-based solutions, b) dialogue with riparian countries on the importance of data sharing, and c) direct support for identification and preparation of investments.

The Lake Chad Basin urgently needs an irrigation development plan to address food insecurity and water scarcity while ensuring environmental and biodiversity protection.

View from the Field:

Landing Bojang

Protecting groundwater from depletion in the SMAB

View from the Field:

Protecting groundwater from depletion in the SMAB

Landing Bojang is worried.

"If you have excessive groundwater withdrawal to below the level of the river," says Bojang, "the river will dry up, which would be catastrophic for ecosystems and biodiversity and all the services they provide."

Bojang, the chief hydrologist of The Gambia's Department of Water Resources in the Ministry of Fisheries, Water Resources, and National Assembly Matters, adds, "This is how critical the basin is."

The basin he is focused on is the SMAB, which is shared by The Gambia, Guinea Bissau, Mauritania, and Senegal. CIWA is supporting the creation of a roadmap for the development of a joint vision and program to establish long-term cooperation on the SMAB, which is expected to ultimately lead to a charter governing its management.

"Excessive groundwater abstraction is already a concern," Bojang says.

"The main problem is that we are not tracking data for groundwater withdrawal. We are falling short of our obligations on the Sustainable Development Goals, especially indicator 6.4.2, which aims to ensure sustainable withdrawals and supply of freshwater to address water scarcity and water stress," he says. "We do not have information on which sectors are using the water—whether for domestic use or commercial, industrial, or agricultural purposes."

Safeguarding groundwater so countries can develop

Bojang, 40, believes passionately in the importance of water resources and their contribution to socioeconomic development for his country, which led him to major in hydrology in college.

He received his BSc degree in hydrology and water resources engineering in 2013 from Hohai University in Nanjing, China and his MSc degree in water resources management in 2018 from the IHE Delft Institute for Water Education in the Netherlands.

"Water is fundamental for socioeconomic development, so access to water is pivotal," he says. "The groundwater that lies below our feet is such a crucial resource, and it can supply water to remote communities with less investment. It sustains the ecosystem and keeps the river flowing because there is connectivity."

And, he says, because the SMAB intersects with the Gambia River Basin and the Senegal River Basin, "it is even more critical.

"With the looming crisis of climate change, there will be increased salinization of rivers, which also affects groundwater and will accelerate saltwater intrusion into coastal aquifers."

Moreover, Bojang says, he's very concerned about the effects of pollution and inadequate sanitation services on the quality of water resources. "We need effective policies to regulate sanitation to avert groundwater pollution" coupled with awareness raising among the communities, he says.

For example, he says that some people place impermeable materials such as concrete tiles on the ground in public spaces such as family compounds, which prevents rainfall from recharging groundwater.

"We need public sensitization, laws, regulations, and institutional capacity to be able to manage and govern the groundwater," he says.

A "game-changer for the region"

For the last four years, Bojang has been a member of the RWG focused on achieving a SMAB cooperation agreement signed by all four countries. The RWG is housed at the SMAB Secretariat that was created by the two regional RBOs—OMVS, which includes Mali, Mauritania, Guinea, and Senegal, and the OMVG, which includes The Gambia, Guinea, Guinea-Bissau, and Senegal. The Sahara and Sahel Observatory is also an RWG member, while Guinea and Mali have observer status.

Bojang says the RWG has accomplished a lot, including the production of knowledge reports about the recharge extent of the aquifer; reviews of different aquifer management systems; and examinations of institutional capacity, data availability, and data sharing protocols.

Not surprisingly, cooperation has not always come easily. It took some time, for example, for basin countries to agree on the staffing of the Secretariat. "Everyone wanted a fair share of the benefits of the cooperation—this is human nature," he says. But the RWG persevered and the high commissioners of the two RBOs signed an operating protocol in October 2023.

In addition to CIWA, the work of the RWG has been facilitated by the Geneva Water Hub, the Secretariat of the Water Convention serviced by the Economic Commission of the United Nations for Europe, and the International Groundwater Resources Assessment Center. The European Union, the Swiss Agency for Development and Cooperation, the United Nations Environment Program (UNEP), the Italian Agency for Development Cooperation, and UNESCO are also financing projects.

Bojang says he is grateful for CIWA's support to assess the capacity of member states and the two RBOs for managing the SMAB and to develop the institutional framework for aquifer management.

"We are so excited to have this support from the World Bank so that we can improve groundwater management and sustainability," Bojang says. "It is our future and the future of generations to come. We cannot afford to lose this groundwater to pollution or to overexploitation. We need to stop the depletion of this aquifer. With World Bank support, it's a game changer for the region."

> **"We cannot afford to lose this groundwater to pollution or to overexploitation. We need to stop the depletion of this aquifer. With World Bank support, it's a game changer for the region.**

Landing Bojang collecting and monitoring water data in the SMAB. ©Landing Bojang

East Africa

East Africa faces many challenges, including food and water insecurity; growing fragility, conflict, and violence; and worsening climate change impacts. CIWA, which has had a long-standing engagement in the Nile River Basin, is working to enhance the region's resilience to climate change and water insecurity, elevate the voices of civil society in decisions about water resources, and provide opportunities for riparian dialogue and hydro-diplomacy that are equitable and inclusive.

Nile Cooperation for Climate Resilience

Context

The Nile riparian countries share a mutual interest in sustainable socioeconomic progress, which requires collaboration. Cooperative transboundary water management and use of shared resources can help create prosperity and avoid conflict.

The Nile River Basin is shared by 11 countries, each facing unique challenges, and all of which have ambitious national development plans to fuel economic growth and reduce poverty that depend on the sustainable use and management of transboundary waters. The benefits and sustainability of many of these plans and investments could be enhanced from a regional perspective. Cooperative development and management of Nile waters can generate substantial "win-win" benefits to help unlock the full productive potential of the Nile basin. Over the past decade of CIWA support, the NBI and Nile countries have built a better knowledge base, instituted a cooperation platform, increased engagement by stakeholders and civil society organizations, and developed an investment portfolio that encourages strategic cooperation between riparian countries and responds to sustainable development needs.

The Nile Cooperation for Climate Resilience (NCCR) project is an initiative that offers complementary support in information, institutions, and infrastructure. Through this project, the three NBI centers—Eastern Nile Technical Regional Office (ENTRO), Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU), and the Nile Secretariat (Nile-SEC)—along with the Nile Basin Discourse (NBD) and the Lake Victoria Basin Commission (LVBC), work together to support flood- and drought-risk warning, mitigation, and preparedness; improve dam safety; improve water quality management in the Nile River and Lake Victoria basins; develop and disseminate information for climate-resilient investment planning; and provide a platform for communities, decision makers, and water managers to cooperate on the sustainable use and management of water resources.

The NBI celebrated its silver jubilee in 2024,[17] marking 25 years of service and commitment to building capacity in transboundary water resources management, knowledge, and investments. NCCR is entering its final full year of implementation and is informing the design of future work.

CIWA managers visit the new office of the Nile Basin Discourse in Entebbe, Uganda. ©Anders Jagerskog / CIWA Program

Progress

Platform for Cooperation

Under NCCR, the NBI's Young Professionals and Internship programs were expanded to both the NBD and Nile-SEC. There were 32 participants in the internship program (including 12 women) in FY24, bringing the total to 51 interns (19 women) since the NCCR began. ENTRO hosted 19 interns (six women) from Egypt, Ethiopia, South Sudan, and Sudan in FY24; the theme of the latest internship cohort was Eastern Nile Water Resources Assessment: Situation Analysis. The NBD hosted its pilot internship program for four women from Egypt, Ethiopia, South Sudan, and Sudan. One goal of the NBD program was to increase participation of women as water experts, leaders, and decision makers, as women are the main purveyors and managers of domestic water usage at the community level. In FY24, the Nile-SEC hosted nine Young Professionals (two women) from Burundi, Democratic Republic of Congo (DRC), Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. Internship workshops included flash-flood forecasting and warning systems, system analyses, river hydraulic and hydrodynamic modeling, groundwater management, and Earth Observation techniques.

The 7th NBDF[18] was held in Kampala, Uganda under the theme, Deepening Nile Cooperation: Accelerating the Achievement of SDGs in a Changing Climate. The event attracted a record 1,061 participants from 58 countries and featured the 4th Nile Basin Media Awards, which celebrates outstanding journalistic reporting on the Nile River, emphasizing the importance of responsible and constructive media coverage that nurtures understanding

[17] https://nilebasin.org/content/nile-basin-initiative-celebrates-its-25th-anniversary-year
[18] https://www.eventleaf.com/nbdf

and cooperation. The Awards had over 160 entrants covering seven aspects of journalistic work—print, digital, TV, radio, photo, best female entry, and best collaborative entry.

Highlighting the importance of involving youth as key stakeholders of water resources management, the NBDF event also featured the first-ever Nile Basin Youth Competition, which aimed to identify innovative science and technology solutions, policies, and good practices and experiences for addressing water challenges. It received over 100 entries ranging from solutions for a wide range of water resources-related challenges including water quality management, water scarcity remediation, water conflict resolution, and climate change resilience.

Between February and May 2023, the NBI compiled 166 papers for the NBDF by using a mix of calls for abstracts and direct requests for papers, which were used to design 25 webinars[19] under five themes of basin monitoring: strategic water resources assessments and the water-energy-food nexus; watershed management and ecosystem sustainability; climate change resilience and mitigation; finance, investment, and the SDGs; and transboundary water governance. The webinars were attended by 1,061 people from 58 countries, including engineers, hydrologists, foreign service officers, and civil society activists—with 78 percent of participants from the Nile Basin and 31 percent female.

Other platform activities were cross-cutting with components described below.

Flood- and Drought-Risk Mitigation

ENTRO's flood-risk mitigation activities have made significant progress, focusing on the three main work areas. The initial phase involved comprehensive surveying and data collection aimed at improving the accuracy of model forecasts. This phase covered nine cities and towns in Ethiopia, South Sudan, and Sudan, providing essential maps that will enhance the flood-risk landscape. The project has delivered a database and categorized data, including time series and spatial datasets for member states. Additionally, community field surveys in flood-prone areas, including Akobo, Malakal, Pibor, Nasir, Gambela, and Itang, have been completed and will be used as input for modeling and community awareness.

The enhanced EN-FFEWS system is now operational for Tekeze-Setit-Atbara, Blue Nile, Lake Tana, and Baro-Akobo-Sobat sub basins, covering 35 forecast locations and rainfall in 55 catchments.[20] Flood hazard maps and flood vulnerability and risk maps have been produced for 16 flood-prone areas (Figure 2). The EN-FFEWS has significantly protected livelihoods by mitigating the adverse impacts of floods on agriculture and other economic activities in the floodplains and surrounding communities. Improved flood management is expected to safeguard critical infrastructure such as roads, bridges, and irrigation systems, thereby reducing repair and maintenance costs.

During the upcoming flood season, ENTRO is working with Young Professionals to provide tailored forecast alerts via local media channels such as WhatsApp and Telegram, enhancing support for the countries affected by flooding. Capacity-building training on the strengthened system was conducted for national Flood Forecast Center experts from Ethiopia, South Sudan, and Sudan.

Enhancing the early-warning system and raising awareness for its uptake are crucial. ENTRO strengthened flood community awareness and preparedness for 17 flood-prone sites—comprising seven locations in Ethiopia (in the sub-basins Tekeze-Setit-Atbara, Lake Tana, Baro-Akobo-Sobat), four in South Sudan (sub-basin Baro-Akobo-Sobat), and six in Sudan (sub-basin Tekeze-Setit-Atbara).

In FY23, the NELSAP-CU, in collaboration with the NBD, identified and mapped flash flood-prone areas attended by technical working group (TWG) members and experts from each country's national meteorology agency and disaster preparedness offices. A dissemination platform is delivering three customized early-warning products daily to stakeholders within 48 hours of a flash-flood forecast.[21]

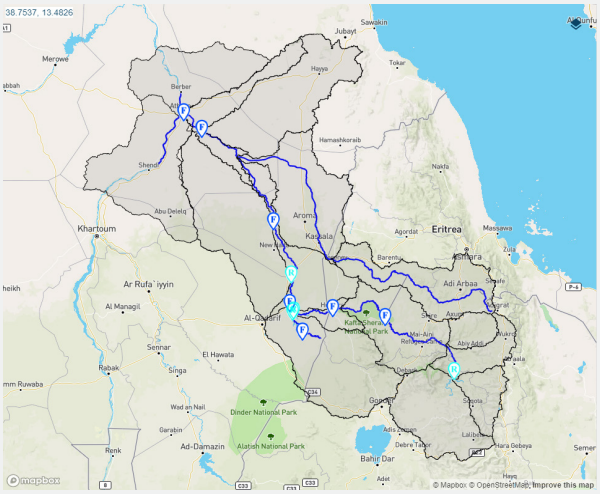
In March 2024, an inception report was created to initiate a basin-wide flood assessment and identify investment options for flood-risk mitigation. This process involved a consultation workshop attended by the regional working group (RWG) and participants from meteorological agencies to inform the assessment. Following this, from April to July 2024, the NELSAP-CU and NBD conducted country consultations and field visits in Ethiopia, Kenya, Rwanda, Tanzania, and Uganda to assess national priorities for flood-risk management, collect data, and map stakeholders. The national flood-risk assessments are anticipated to be completed in 2024.

Nile-SEC produces the bi-weekly Monitoring and Forecasting Drought Bulletin.[22] Content includes drought indices tailored for both hydrological and meteorological droughts, using climate data from the 10 major Nile sub-basins and enhancing the Nile River Basin flow-forecast system in FY25.

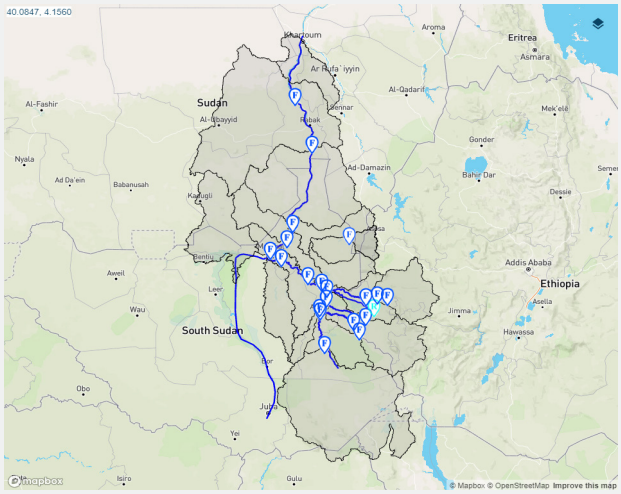
The development and implementation of the Nile Drought Early-Warning System (Nile DEWS) under ENTRO has been underway since October 2023, following a drought early-warning needs assessment and data gap analysis conducted by ENTRO in 2022. A regional inception workshop for Nile DEWS was held on January 2024 in Addis Ababa. The work is on track to deliver the first version of the Nile DEWS in 2024.

[19] https://www.youtube.com/watch?v=s_mx3WOnt2I&list=PLTI8iRAEinFVpXy6U8b5PTBZhryhslPoi
[20] The model is publicly accessible: https://entro-ffews-dev.westeurope.cloudapp.azure.com/
[21] https://waterdss-wrd-prod.eu.mike-cloud.com/workspaces/6c407e1b-5d25-4d83-b782-b6c81f8648ee
[22] https://www.flooddroughtmonitor.com

A Tekeze Setit Atabara



B Baro Akobo Sobat



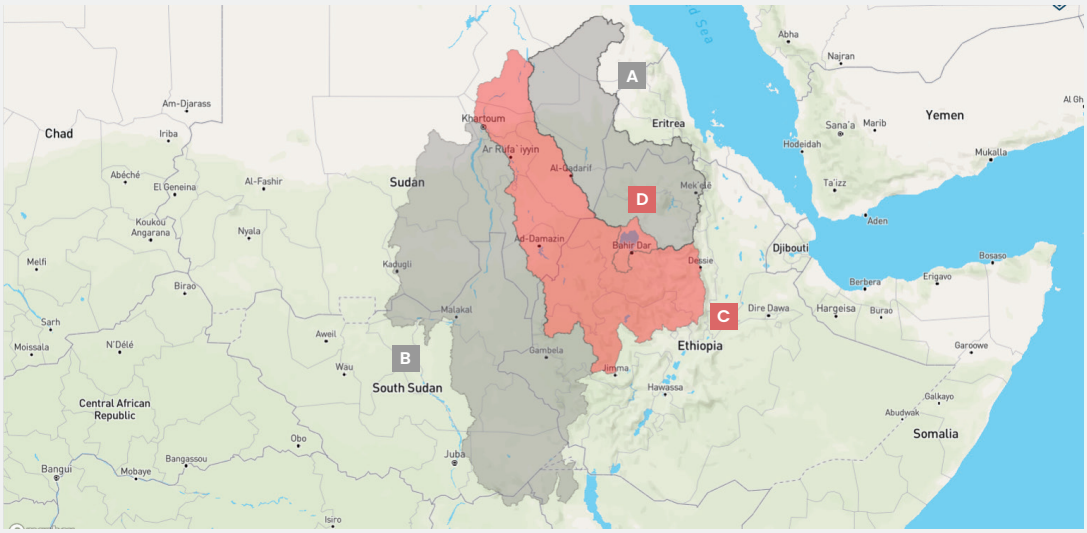
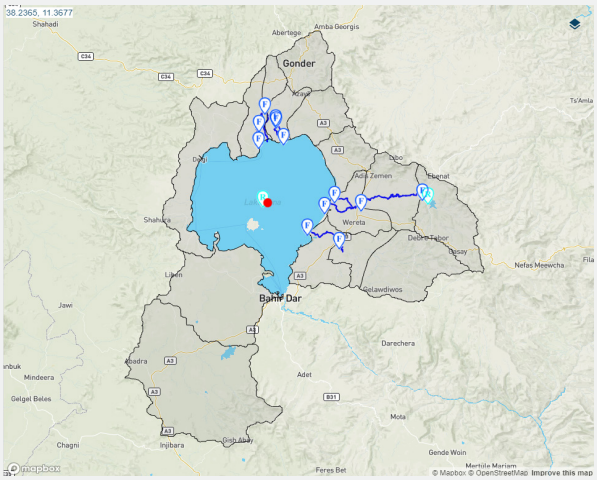
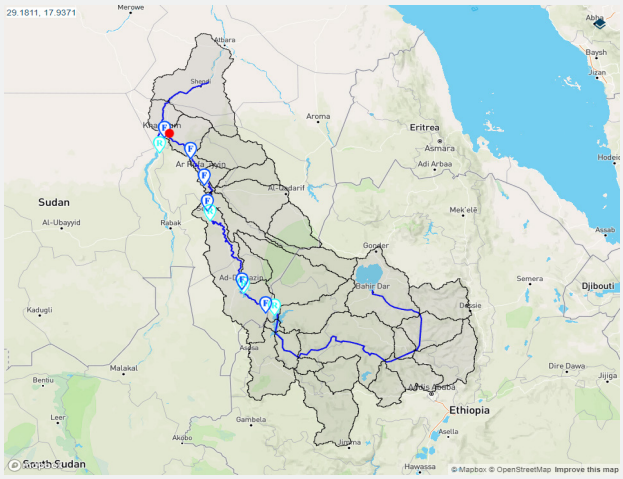


Figure 2:
Flood forecast locations in the Eastern Nile Basins

C Lake Tana



Blue Nile D



Water Quality Investment Planning and Prioritization

The NBI centers are supporting national water-quality monitoring networks and regional water quality information systems to facilitate Nile Basin member states in jointly addressing and reversing the impacts of deteriorating water-quality. This work is focused on the Lake Victoria Basin.

Water Quality Pollution Interventions Assessment

The Water Quality Technical Working Group agreed on the two water-quality hotspots during the 1st Regional Workshop: Gilgel Abbay Jemma sub-watershed in Ethiopia (Eastern Nile) and Lake Victoria (Mwanza Gulf) on the Tanzanian side. Water-quality models were created for the Jemma River (Ethiopia) and the Mwanza Gulf (Tanzania) using hydraulic, hydrological, water quality, and climatic data to better understand the drivers and sources of pollution. Water quality models can be used for analyzing pollutant spills, predicting long-term water quality in rivers, and understanding the local sources of pollution. Multiple potential interventions were identified, including the demarcation of drains, streams, and wetlands around Lake Victoria's Mwanza Gulf and the construction of a wetland at the mouth of the Mirongo River for the treatment of terminal waters (waters that that do not have an outlet to the ocean or any other large body of water). Site visits and water quality intervention assessments were conducted for two hotspots: Akagera River (Rusumo) in Rwanda and Tanzania and the White Nile from Malakal (South Sudan) to Jebel Aulia Khartoum (Sudan).

Agricultural practices including the use of agrochemicals are the main pollution sources in the Jemma River, leading to sedimentation, eutrophication, and increased soil erosion from deforestation and overgrazing. The recommended strategies for addressing water pollution in the Jemma watershed include improving sanitation infrastructure through construction of latrines; promoting sustainable agricultural practices including manuring, integrated pest management, and intercropping; and implementing soil erosion control measures. Restoration and conservation measures should involve the management of riparian zones along streams, the restoration of wetlands to bolster their natural filtration capacity, and control of deforestation by facilitating natural regeneration. Monitoring and enforcement are another critical aspect, which includes the establishment of water-quality monitoring stations and the application of WRM in the Abbay sub-basin. Lastly, capacity building and public awareness are imperative for the success of these strategies, including training and education to enhance local capacity of women and men in WRM, launching public awareness campaigns, and promoting nature-based solutions.

The Mwanza Gulf, primarily situated in the Nyashishi catchment, faces significant commercial growth and urbanization, making it the most polluted catchment in the Lake Victoria Basin. A comprehensive set of recommendations has been proposed to reduce pollution, including demarcation of drains, streams, and wetlands around Lake Victoria to establish clear boundaries for these vital water resources. Strengthening industrial wastewater management is essential to mitigate the risk of harmful pollutants entering the lake. Enhancing municipal wastewater management needs to ensure that sewage is appropriately treated before discharge.

An action plan has suggested making Mwanza city a zero-landfill site, which would significantly diminish pollution from solid waste. The construction of a wetland at the mouth of the Mirongo River is proposed for wastewater treatment, which would use natural (plant and soil) purification. The development of a water-quality monitoring network will be crucial. The formation of a committee to oversee these initiatives and guarantee their effective execution is needed, as is a strategy to scale up learning to spread knowledge and best practices and involve male and female stakeholders in the preservation of the Mwanza Gulf and its ecosystems. This could include devising strategies that facilitate the equal participation of, and input from, women and men from diverse backgrounds, including those working in the informal sector.

Enhancing water quality data in the Nile Basin

To help countries better identify and address water-quality hotspots, the Nile-SEC team is scheduled to conduct factory acceptance testing of water-quality equipment in 2024. Installation of the equipment will follow. A Nile basin water quality database has been produced through NCCR.[23]

East African Community Water Quality Management Policy

The LVBC developed the East African Community (EAC) Water Quality Management Policy[24] to provide a cohesive and harmonized framework for water-quality management across member states. It addresses the challenges of fragmented responsibilities, lack of uniform water-quality standards,

[23] https://nilebasin.org/waterqualitydatabase
[24] https://www.lvbcom.org/water-quality-management-strategy-and-action-plan-submitted-to-east-african-community-partner-states-for-approval/

and uncoordinated efforts to promote environmental sustainability, public health, and socioeconomic development. The policy encompasses policy and legal framework harmonization across member states, fortification of institutional structures, and the establishment of comprehensive water-quality monitoring and assessment programs. It targets the reduction of pollution through improved wastewater management and advocates for the development of regional disaster risk management strategies. The policy also encourages research and innovation partnerships and capacity building for water-quality management and addresses cross-cutting issues such as GESI and environmental sustainability.

Aligned with the East African Community Water Quality Management Policy, the Water Quality Management Strategy for the Nile Equatorial Lakes and its Action Plan were prepared to respond to watershed degradation. The long-term goal is to contribute to "a prosperous population living in a healthy and sustainably managed environment that provides equitable opportunities and benefits to communities across the NEL region." Strategy objectives include: (i) preventing or reducing water pollution and improving the quality of surface and groundwater sources, (ii) increasing resilience of communities and aquatic ecosystems to climate change impacts, (iii) strengthening the governance framework for water-quality management and pollution control in the Lake Victoria Basin, (iv) improving regional cooperation on climate change resilience, (v) strengthening the governance framework for water-quality management and pollution control in Lake Victoria Basin, and (vi) improving regional cooperation to prevent pollution and manage water-quality on shared water resources.

The Action Plan for 2025-2030 focuses on establishing a Regional Water Policy Facility to support national water policy enhancements, setting regional water-quality objectives for Lake Victoria and other shared waters, and initiating a regional water-quality monitoring network. It also aims to develop a regional investment program for urban pollution management and watershed restoration, mobilize resources for water-quality management, construct wastewater treatment plants, improve waste management systems, implement watershed management in degraded areas, standardize water sampling methods, build laboratory capacities, promote research, and foster capacity building.

5th Water-Quality Regional Workshop

The 5th Water Quality Regional Workshop was held in Entebbe, Uganda in June 2024 to review interim reports and baseline survey reports for the multi-criteria analysis to prioritize investments in the above-identified water quality hotspots.

Dam Safety Capacity Building

The ENTRO and NELSAP-CU are working together to strengthen the institutionalization of dam safety management across the basin through a combination of activities to enhance the technical capacity of dam professionals, support institutional development of dam safety regulators, and identify and close critical information gaps about the distribution and risk profiles of dams in the basin.

Regional Training Center

The inception report, Institutional Framework, and Prospective Strategic Partners Report for the Regional Dam Safety Training Center have been completed. The Center will support regional dam safety capacity building. The report includes a training needs assessment that identifies gaps between current and desired knowledge and skills in dam safety management across the basin. It also includes competency-based, flexible, and targeted curriculum to equip trainees with the knowledge and skills they need to perform dam safety tasks effectively.

Strengthening Dam Safety Units

Under the NCCR dam safety capacity-building initiative, several activities are underway within the ENTRO and NELSAP components, along with training efforts that significantly contribute to strengthening dam safety units (DSUs). These activities include the creation of a basin-wide inventory of dams, the development of a Dam Safety Risk Management Framework, and the establishment of a basin-wide Reference Regulatory Framework and Guidelines. These key initiatives directly enhance the DSUs' technical capacity by enabling them to identify and manage their portfolio of dams, prioritize riskier dams for intervention, and become familiar with the above frameworks and guidelines. To further build capacity, training sessions were conducted during each deliverable review workshop, which included the ENTRO's capacity-building training for 33 participants and the NELSAP's training for 33 people in March 2024.

Dam Safety Risk Framework

An interim report on a tiered dam safety risk management framework based on preliminary hazard classification and risk screening with the Risk Index Method was developed, and the framework was tested on dams in Rwanda. A framework that incorporates potential hazard classification and detailed risk screening using the Risk Index Method significantly enhances dam safety management by providing a systematic approach to identifying and assessing risks from dam operations. The risk index will facilitate systematic decision making and enable the identification of dams requiring further detailed studies based on their risk profiles. This allows for more effective allocation of resources and attention to the most critical risks that require immediate intervention or monitoring.

8th NCCR internship cohort working on the theme "Eastern Nile Water Resources Assessment: Situation Analysis" in partnership with the Nile Secretariat, Kampala, Uganda. ©ENTRO / NCCR

Development of Dam Inventory Database

Data on dams has been collected as part of the dam inventory using traditional methods and remote detection techniques. The development of the Nile Dams Database, a WebGIS database for all dams in the basin, will ultimately systematically compile and organize this data.

Information services for climate-resilient investment planning

NCCR is enabling the NBI to expand its data and analytics services (NB-DAS) for climate-resilient water resources management and investment planning. The NB-DAS builds on the data platform originally used to create the NBI's Decision Support System (DSS).[25] Work in FY24 focused on performing stakeholder needs assessments and providing capacity building on tools and data types. NB-DAS user needs assessment workshops were conducted in the DRC, Ethiopia, Kenya, Rwanda, South Sudan, Tanzania, and Uganda to validate the inception report, which includes stakeholder consultation feedback, typology for decision making, data catalogue, IT scoping, and an NB-DAS concept and implementation plan.

A two-day NB-DAS user community forum was conducted to introduce technical teams in member states to ongoing activities that are leveraging freely available global data sets, which was attended by 264 water experts and experts on modeling, agriculture, Earth Observation, remote sensing (RS), and energy. Technical trainings were held in Burundi and Rwanda on Python and R software for water resources and climate data analysis attended by 31 people (seven women). Multi-day training was provided to further strengthen the analytical capacity of NBI staff and member state water resources experts on the use of QGIS for accessing, interpreting, and analyzing Earth Observation datasets. The training attended by 27 people (six women) demonstrated various data-related components of a GIS, such as data models, data input, data editing, data visualization, metadata, and geographic database management.

[25] https://nbdss.nilebasin.org/support/home

Next Steps

Overall, NCCR has disbursed 75 percent of funds as of June 2024 and picked up speed on almost all planned activities after early implementation delays. The project closes in November 2025. With the completion of the Flash Flood Early-Warning System, NELSAP-CU will focus on deploying the FFEWS through the NBI portal, its operationalization strategy, and awareness-raising activities in time for the next flood season. A site-specific flood awareness and preparedness plan will be produced for 17 flood-prone sites and used for strategic flood management. This will be supported by community awareness and preparedness activities around flood management strategies, implementation, and local interventions scheduled for completion by December 2024. The activities include creating flood management strategies tailored to flood-prone communities, developing a community awareness and preparedness plan and implementation plan, and designing local interventions for flood protection.

The Nile Equatorial Lakes Technical Advisory Committee provisionally endorsed the FFEWS in June 2024, pending preparation of a strategy to operationalize it with components to test and monitor its performance. Preparations for the September flood season are ongoing to deploy the FFEWS through the NBI Portal and raise awareness about it. Capacity-building sessions to train users on the NB-FFEWS will be conducted by November 2024. A detailed flood-risk assessment for selected locations is expected to be finalized by December 2024 and a comprehensive flood-risk management plan by May 2025.

Nile DEWS software is scheduled to be finalized for approval from the Eastern Nile Council of Minsters by May 2025, with plans to make Nile DEWS publicly accessible.

The remaining activities under Water Quality Investment Planning and Prioritization include upgrading laboratories and harmonizing water-quality standards, implementing quality management standards, and accrediting labs. Additional outputs will include the development of an NBI water-quality source book; e-learning modules on water pollution control and conservation; and training for national laboratory agency technicians on the installation, operation, and maintenance of monitoring equipment. The remaining activities under the LVBC include receiving approval of the EAC water-quality management policy and recommendations and the regional water-quality management strategy and action plan. The LVBC action plan will be reviewed to ensure it effectively incorporates a gender mainstreaming strategy.

In FY25, ENTRO will focus on the Regional Dam Safety Training Center. Much data on dams has been collected as part of the dam inventory using traditional methods and remote detection techniques. Systematically compiling and organizing this data is crucial and achieved through the development of the Nile Dams Database, a WebGIS database for all dams in the basin. Upon its completion, the database will be integrated with the NBI Integrated Knowledge Portal (NBI-IKP). The Nile Dam Database will significantly contribute to dam safety management by providing a comprehensive and centralized repository of essential information on all dams. By creating a systematic framework for data collection and storage, basin countries can access critical information quickly, enabling informed decision making. This will be followed by preparation of a list of dams for detailed dam safety assessment. The next steps for strengthening DSUs involve reviewing the deliverables for the establishment and strengthening of the unit and evaluating the Dam Safety Risk Management Framework. Country consultations will be conducted to address dam safety institutional capacity building for all DSUs, based on identified specific capacity gaps. For countries with large dam portfolios, support will be provided to develop dam safety institutional benchmarking tools.

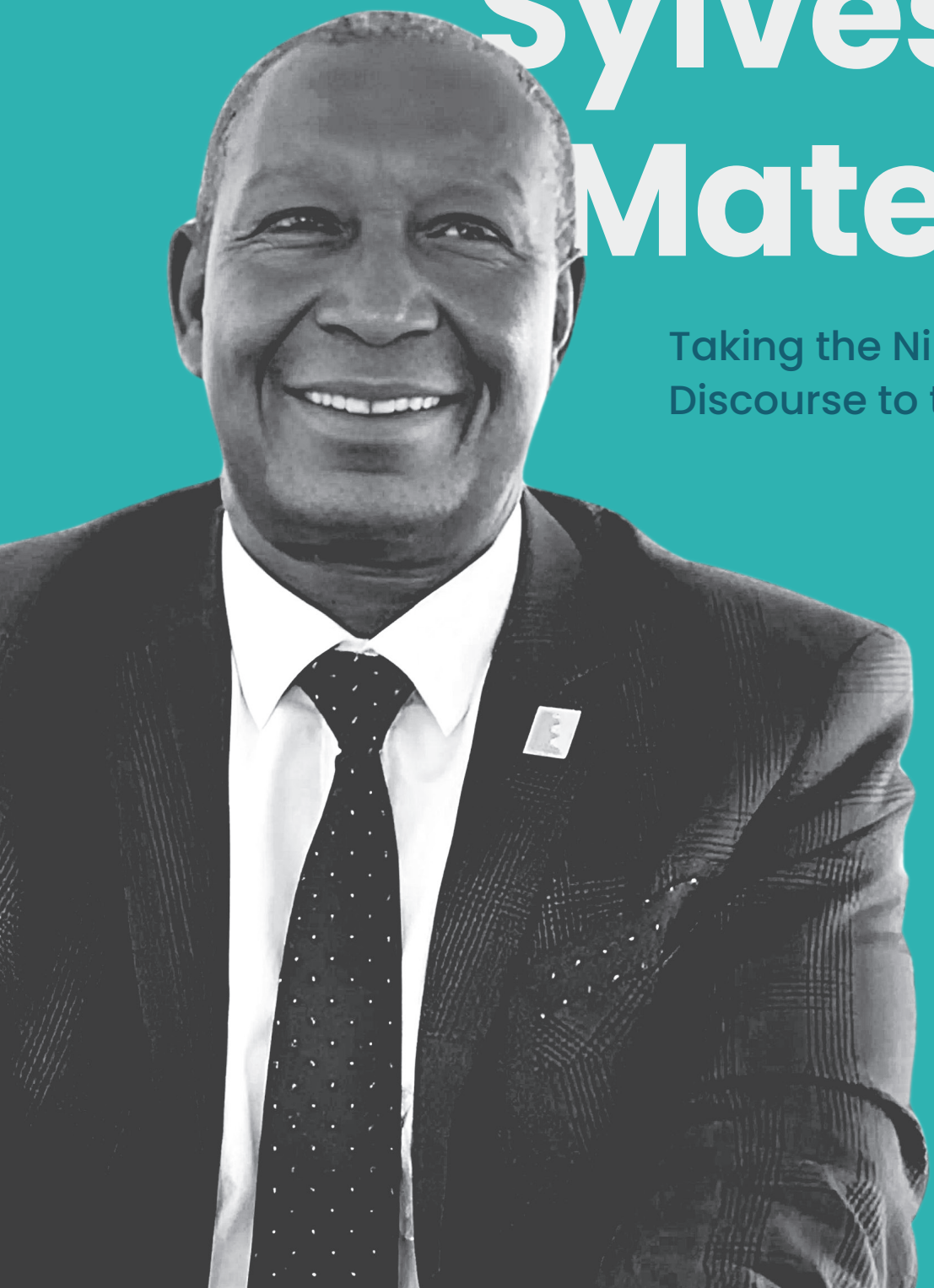
Platform for Cooperation activities planned for FY25 include the Zambezi Basin Experiential learning tour for NBI governance members.

In FY25, CIWA will continue the process of preparing a new three-year recipient-executed grant with the NBD to provide a platform for citizen engagement in Nile Basin investment decisions and riparian dialogue, learning on climate risk management and resilience-building strategies, and promotion of the benefits of Nile Basin cooperation. Activities will include implementing a citizen science platform to support watershed/wetlands management and rehabilitation programs in the Nile region.

View from the Field:

Sylvester Matemu

Taking the Nile Basin Discourse to the next level



View from the Field:

Taking the Nile Basin Discourse to the next level

"Without nature, we are nothing," says Sylvester Matemu, who became head of the Nile Basin Discourse earlier this year. "Without nature, we cannot do anything.

That perspective underlies Matemu's passion for protecting water resources and involving communities in gathering data about water and adapting to climate change.

CIWA previously supported NBD with projects totaling over US$5 million and is currently developing a US$2.5 million grant to enhance community engagement at the grassroots level for climate resilience. Through capacity building and other activities, the new project will engage communities in water and climate data generation to enhance water resources management planning, disaster preparedness, and cooperation. NBD is committed to increasing the participation of women in climate action and water policy decision making because it can facilitate the creation of more sustainable climate-resilient communities.

A well-rounded career in the water sector

Matemu, 66, is well-positioned to take the helm of the NBD as its regional manager. He has worked on water issues from several vantage points—including at the governmental and nongovernmental levels.

Matemu worked for 27 years in the public water sector of his home country, Tanzania, including as assistant director in the Ministry of Water, where he coordinated negotiations on transboundary water agreements and supervised the preparation and execution of transboundary management and development plans.

He most recently was the NBI's executive director and served as president of the African Network of Basin Organizations.

A civil engineer, Matemu also has a master's degree in international and national water law. He recently published a book, the *Legal Obligations and Challenges to Manage Nile Transboundary Waters*.

Matemu's dedication to improving transboundary water resources cooperation also stems from the fact that Tanzania shares 14 water bodies with its eight neighbors—the highest number of shared water bodies in SSA.

Cooperation, therefore, is not an option, he says, it's imperative.

A model for other river basins

"Governments alone will not be able to achieve water resources management without involving communities," he says. "Empowering citizens will strengthen cooperation and sustainability in the Nile Basin."

Matemu's vision for the NBD is to "ensure that it becomes an example on the African continent of advocating for communities, not only through top-down dialogue—bringing policies down to citizens—but also through bottom-up" communication.

"I want NBD to become No. 1 in Africa in civil society engagement and working closely with policymakers," he says.

Matemu says that a strength of the NBD is its relationships with the 10 Nile Basin governments through the national Nile Discourse Forums, comprising the more than 600 civil society organizations (CSOs) and non-governmental organizations in the NBD network.

The NBD's primary challenge has been strengthening its financial sustainability. Along with support from other development partners, the new CIWA grant will help NBD continue elevating the voices of communities to policymakers while striving for greater financial stability. "I want to thank the World Bank, and CIWA in particular, for supporting NBD and NBI," Matemu says.

Strengthening climate adaptation

The Nile basin faces many challenges including surging populations, poverty, rapid urbanization, uneven resource distribution, deteriorating water quality, disappearing ecosystem habitats, and worsening climate change. These challenges compromise the health, livelihoods, and lives of more than 272 million people living within the basin, with women being impacted at disproportionately higher rates than men.

Given these challenges, a sustainable Nile basin can only be achieved if governments, civil society, the private sector, and communities work together toward a common vision on climate change interventions, he says, including aligning policies with community priorities. NBD serves as a conduit between policymakers and local communities on the critical issue of climate change resilience.

Matemu says that many people have indigenous knowledge about how to adapt to climate change. For example, animals can sense certain atmospheric signals that foretell earthquakes and, by observing their behavior, their owners can prepare.

But many communities need capacity building to strengthen their climate resilience skills, and that is precisely what the new CIWA grant plans to do. The project will generate citizen data on water and climate change to inform national and transboundary policies. And when communities produce information, they are more likely to take ownership of climate change mitigation and resilience measures. NBD plans to work with a foundation to develop citizen science data tools.

The new project will improve stakeholder dialogue and action through a gender equality and social inclusion lens by strengthening and sustaining national and regional Nile Women Networks, establishing national Nile youth platforms and a regional youth network, scaling up NBD's internship program, and bolstering relationships with other institutions.

"Every citizen has a responsibility to protect what we have," Matemu says. "Otherwise, we will be a water desert where you can see water, but you cannot use it, where you will find water flowing, but you cannot drink it because it is polluted. We need to protect this precious resource that we have for our livelihoods, for our ecosystems, for our economies, for our health, and for our present and future generations."

Sylvester Matemu visiting a community vulnerable to flooding on the banks of the Baro River, Ethiopia-South Sudan border. ©Gambella Mass Media Service / NBD

Horn of Africa

The Horn of Africa is experiencing floods after suffering the worst drought in four decades along with high levels of conflict, locust infestation, and political instability. CIWA worked to improve access to groundwater as the region's cornerstone of water security by expanding the knowledge base on groundwater, strengthening the capacity of partners to manage and develop this valuable resource, and improving regional initiatives focused on building resilience.

Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands

Context

The HoA is facing increasing temperatures, shifting rainfall patterns, floods, and more frequent and severe droughts.[26] Climate change is having adverse impacts on agricultural crop production, pastoral and livestock livelihoods, and fisheries, significantly increasing the challenges to food security and poverty eradication.[27] The region is particularly vulnerable to impacts on agriculture, with potentially significant reductions in agricultural output and increased water stress and insecurity.[28] The spread of human and livestock diseases, unsustainable natural resource extraction, increased conflicts and insecurity, and the breakdown of various services are among the indirect impacts of climate change that affect women and other highly vulnerable groups the most because of higher levels of poverty, higher household work burden, and greater dependence on threatened natural resources.[29]

The toll from climate change is already significant throughout the region; in Somalia, grazing and more variable water availability is impacting livestock and related livelihoods. Many people in Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda are simultaneously affected by displacement and eruptions of violence and conflict between competing tribes and factions or against the government. The impacts of families losing their livelihoods have been especially severe for women and girls. In a region where surface water is scarce because of high evapotranspiration rates, sustainable groundwater use and management are key to peace and the welfare of people, industry, and agriculture. The Horn of Africa's borderlands are areas of particular concern, with few formal institutions and a high risk for conflict from increasing climatic pressures over natural resources.

Groundwater plays an important role in building climate resilience and water security, which in turn helps address drivers of migration and conflict, but the resource is ill-defined and largely untapped, as it tends to be more difficult to monitor and measure than surface water. Groundwater often remains the most reliable water source, acting as a natural reservoir during times of drought and facilitating resilience to climate shocks. Much is unknown about its potential for building resilience, including its role as a natural buffer against climate variability in borderland communities, the role of (shallow) groundwater in water security in fragile or conflict-ridden regions, and its role as a catalyst for economic opportunity (e.g. agricultural irrigation), inclusion, and regional integration.

Men fetch water in the county of Wajir, in North Eastern Kenya. ©Wajir Tintseh / World Bank

[26] Cumulative Impact Assessment Horn of Africa Initiative: Regional Economic Corridor Project (Addis-Djibouti Corridor) (P174485) (English). Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/099195503222334107/P17448507e54750909c0d0c49e06faf88a

[27] Turn down the heat: climate extremes, regional impacts, and the case for resilience - full report (English). Turn down the heat Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/975911468163736818/Turn-down-the-heat-climate-extremes-regional-impacts-and-the-case-for-resilience-full-report

[28] Africa - Africa's water resources in a changing climate: toward an operational perspective - summary report (English). Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/731511467990383417/Africa-Africas-water-resources-in-a-changing-climate-toward-an-operational-perspective-summary-report

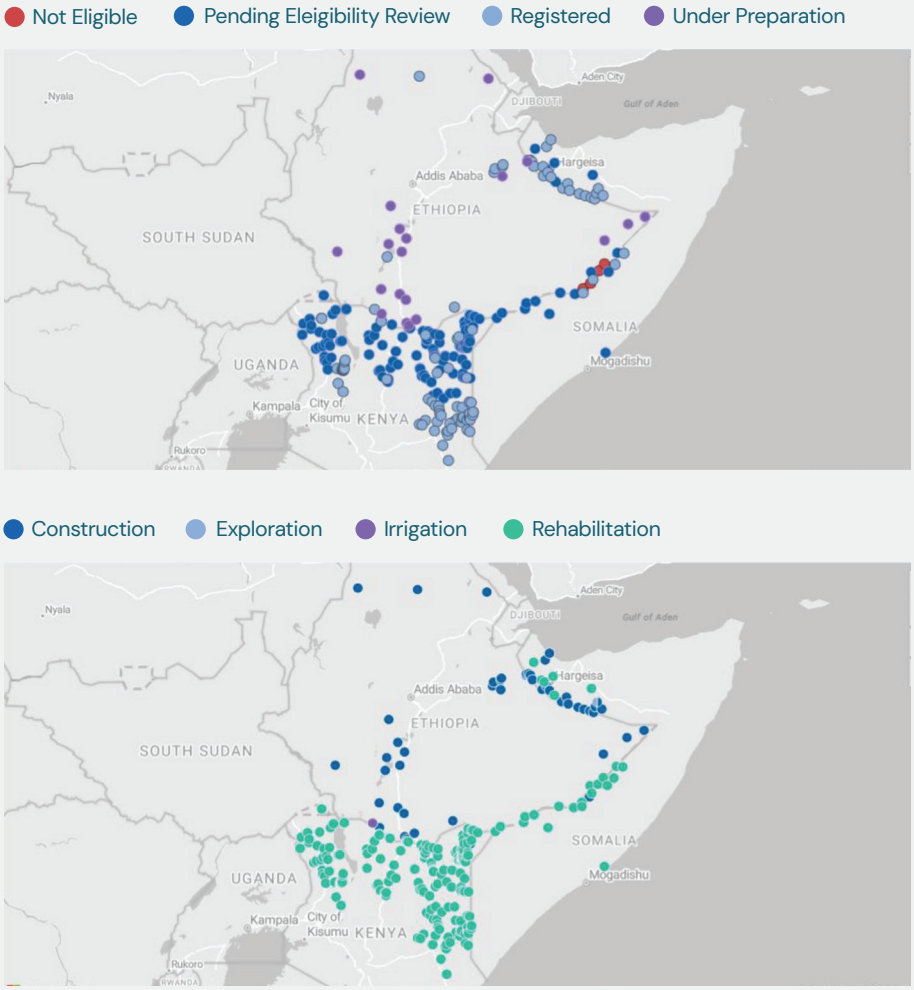
[29] *Regional initiative in support of the Horn of Africa (English).* Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/571071468194354658/Regional-initiative-in-support-of-the-Horn-of-Africa

Because of the borderlands' regionality and complexity, the World Bank's Groundwater for Resilience (GW4R) program[30] requires a robust, tailored approach to monitoring, learning, and strengthening institutional capacity for enhanced regional cooperation.

Now entering its third year, CIWA's Untapping Resilience grant is providing an improved mechanism for the use of project data through the Groundwater for Resilience management information system (GW4R-MIS) in GW4R Phase 1 countries (Ethiopia, Somalia, and Kenya) (Figure 3). Emerging lessons from field- and site-level data are being used to analyze and advance the research and bring the lessons back into the operation. This knowledge has mainly been used by World Bank experts and UN agencies (UNDP, UNESCO, and UNICEF) to strengthen implementation through the three learning pillars of CIWA's Untapping Resilience and will be used to inform a potential phase 2 in these and/or other countries.

In the last FY of GW4R implementation, the team finalized site selection for borderland groundwater investments in Kenya and Somalia and conducted site visits to confirm eligibility of these sites and define the scope of the interventions. These visits were aimed at maximizing impact and sustainability while reducing risks. In Ethiopia, the project is moving toward execution of work in 22 sites (Figures 4 and 5).

Hydrogeological experts are advising on key national and transnational aquifer assessments being conducted under GW4R. While in Ethiopia assessments will be undertaken in the highlighted districts (green areas; Figure 6), in Kenya, groundwater aquifer assessments will be conducted in seven aquifers (orange areas; Figure 6), and a groundwater mapping exercise is to start in Somalia at the country level (purple area; Figure 6). Under the regional program, IGAD is assessing the Dawa transboundary aquifer (between Kenya, Somalia, and Ethiopia), and two more are under procurement for the Northern Basin and Shebelle Aquifers.



Figures 4 and 5: MIS project maps. Top: classification of sites according to the eligibility process and readiness. Bottom: classification of sites according to the typology of intervention.

These studies will greatly improve the available data about HoA groundwater resources.

Progress

Component 1: Enhanced knowledge & learning on groundwater in the HoA

This component involves a remote monitoring platform (GEMS[31]-based) and a series of knowledge products across the three learning pillars of Untapping Resilience: (i) Sustainable Groundwater Service Delivery, (ii) Groundwater Addressing Fragility and Enhancing Resilience, and (iii) Groundwater and Regional Integration.

Remote Monitoring Platform: FY24 included further development, enhancement, and maintenance of the GW4R-MIS, which is a project-customized platform whose goal is to provide an overview of project progress and monitor and manage real-time project risks at sub-project level. The team registered 273 sites for potential groundwater investments and uploaded regular site visits data, investment eligibility and preparation documentation, and quarterly site reports. Training was provided to project implementers, including the third-party monitoring agent, who is contributing to data

[30] https://projects.worldbank.org/en/projects-operations/project-detail/P174867
[31] https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/geo-enabling-initiative-for-monitoring-and-supervision-gems

collection and analyses, enhancing supervision, and ensuring knowledge is turned into implementation by analyzing project data and managing risks. Data usage and analysis are not only tracking progress and enhancing implementation, but also contributing to the Untapping Resilience learning agenda. Most recently, hydrogeologists have used this data to conduct site-level hydrology and salinity assessments, which will greatly enhance investment preparation[32] and impact.

In addition, UNESCO, contracted through the CIWA grant, is supporting IGAD to upgrade the project-funded regional Groundwater Information System by enabling linkages to publicly available resources, such as United Nations databases. The operation will begin linking the GW4R-MIS and the IGAD Regional Groundwater Information System in coming months.

Knowledge Products

i. Sustainable Groundwater Service Delivery

Knowledge into Implementation: Sustainable Groundwater Service Delivery (September 2023): The United Nations Development Program (UNDP) Africa Borderlands Center, contracted under the CIWA grant, undertook primary and secondary data collection, analyses, and mapping on groundwater. This assessment helped prioritize suitable sites to be financed under the project and understand the reasons behind rural water supply system failures that are informing sub-project eligibility and preparation. A policy note is being published with the results.

HoA GW4R Aquifers

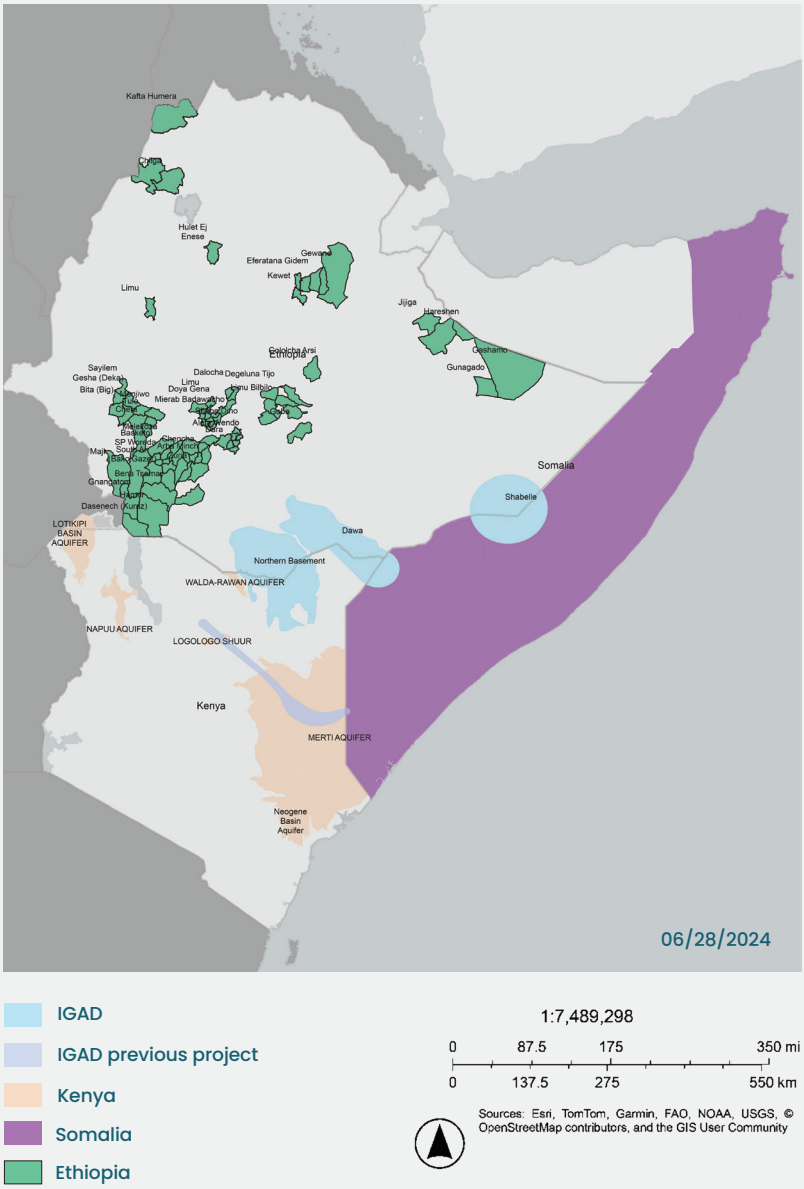


Figure 6: Geographical areas subject to hydrogeological assessment or mapping exercises (IGAD)

Dealing with Groundwater Salinity in the Horn of Africa, Guideline (March 2024): Salinity often positively correlates with other water-quality concerns (e.g., fluoride, sodium, sulphate, chloride). The initiative produced guidelines and training to optimize decisions in managing the challenges of high groundwater salinity in water supply projects, which is a common problem in the Horn of Africa. The guideline is meant to be used along with conventional borehole-siting processes that involve geological mapping, geophysical surveys, water point inventories, and drilling site selection. The guideline has three considerations: i) validate water-quality data before taking an investment decision; ii) exhaust safe sourcing options (find freshwater zones in high-salinity environments applying hydrogeology knowledge) before implementing desalination technology; and iii) ensure appropriate management arrangements, capital, and operating expenditures are in place for the implementation of desalination technologies to ensure their sustainability. Currently the guideline is primarily being used for site selection and ensuring the investments will be

[32] See the FY23 CIWA Annual Report, page 30, for a full description. https://www.ciwaprogram.org/rcv1/ciwa-annual-report-2023/

sustainable, and it has been applied to decisions on site selection in Ethiopia. There is a need to expand this work to assess capacities of local and national governments to deal with the salinity problem at scale and make recommendations on establishing the proper institutional and financial arrangements to develop this capacity, which will require skills, technology, and affordability.

ii. Groundwater's Role in Addressing Fragility and Enhancing Resilience in the Borderlands

Conflict, Scarcity, and Hybrid Governance (September 2023): The Rift Valley Institute conducted field research in three study sites in the borderlands of Kenya (Turkana County), Somalia (Hiran Region, Hirshabelle State), and Ethiopia (Borena Zone, Oromia Region) using qualitative methods and expert consultations. Recommendations from the final report in February 2024 include considering conflict dynamics, ownership, and resource control more carefully in project design, developing more flexible governance involving both formal and informal institutions in water management, consulting and engaging more widely when developing water projects, and making water-sharing agreements clearer and more equitable.

The findings and recommendations of the study were discussed with project teams at various learning events. The team is developing guidelines to promote a more robust and inclusive process of community engagement in siting, design, and management and to assess potential impacts on conflict, livelihoods, rangeland, and settlements that integrate the different concerns and needs of women and other vulnerable groups. This work is using the data collected from early stages of project implementation in site selection, eligibility, and preparation documents stored at the GW4R-MIS. The guideline will inform implementation support activities so that social, environmental, and gender specialists work closely with engineers and water specialists to promote an understanding of the socioeconomic and livelihood contexts supporting the development of appropriate and sustainable interventions led by communities.

Water point gender/gender-based violence (GBV) checklist (May 2023): This comprises a comprehensive checklist to comply with before construction begins at selected project sites to ensure a robust integration of gender inclusion aspects throughout implementation. For instance, checking whether women have confirmed that the location of the water point development is convenient and doesn't pose safety risks to them and girls (e.g., is in a distant, dark, or insecure area) or whether water collecting and queuing facilities are sufficiently separated from those of herders to minimize harassment that women and girls experience when they are collecting water. It also includes ensuring that there is zero tolerance for GBV through continual independent monitoring of compliance with GBV-related obligations throughout contract implementation.

iii. Groundwater and Regional Integration

Transboundary groundwater investment pilots (ongoing): The Merti Aquifer (transboundary aquifer between Kenya and Somalia) feasibility study, previously financed by CIWA, identified locations on both sides of the border for potential development of rural water schemes tapping the Merti aquifer, called the Dhobley-Liboi transboundary water investment pilot. The GW4R program used this as the launchpad for the identification of other potential transboundary sites along the borderlands of the three participating countries. The Dhobley-Liboi sub-project consists of two productive boreholes in Kenya, two productive boreholes in Somalia, and one shared monitoring well to track abstractions and manage use. The team has further investigated the socioeconomic, gender equality, and technical conditions on the ground, suggesting a way forward for the management and development of this project by Kenya and Somalia and kickstarting the dialogue for the countries to engage through a Memorandum of Understanding (MoU) developed and facilitated by IGAD. The MoU outlines the areas of collaboration for development, coordination of the pilot, and other potential investment sites in the Merti Aquifer; establishes joint management committees as part of the institutional structure for the pilot delivery; and defines the key roles of the parties. Other sites that can benefit from transboundary collaboration are being identified, and the GW4R-MIS will also track transboundary dynamics on all sites, given that these sites are mainly located at the borderlands of the HoA countries where herders and communities cross the border every day. Tracking these dynamics will inform conflict mitigation strategies at site level. The feasibility studies for groundwater development and management in the Dawa, Northern Basement, and Shebelle transboundary aquifers are expected to follow similar processes.

Vision and roadmap for an effective regional collaborative framework for groundwater management in the Horn of Africa (April 2024): This report developed a vision for an effective regional framework for groundwater collaboration in the Horn of Africa. It includes insights and recommendations based on progress of regional activities under the program. It also presents a roadmap for a collaborative framework, identifies key milestones for IGAD and member states, and highlights lessons learned and the main challenges to transboundary collaboration, suggesting a way forward to create a suitable enabling environment for transboundary cooperation. This roadmap is helping guide the dialogue with regional stakeholders toward achieving project objectives related to regional integration around groundwater management.

Joint Regional Study (ongoing): The technical assistance has supported dialogue and consensus building with IGAD and member states to conduct a

joint regional study on appraising climate risks and their effects on groundwater resources in the HoA. This will lead to development of a joint knowledge base on climate variability effects on transboundary aquifers and regional collaboration through data integration and knowledge sharing. With CIWA support, experts are helping with quality control of the terms of reference and providing technical guidance to IGAD and country teams leading this activity.

Based on the outcomes of these completed knowledge products, the World Bank, through CIWA support, signed a contract in February 2024 with the UNDP Borderlands Center that includes an MoU with UNICEF and UNESCO to enhance the learning agenda for the HoA GW4R program. This collaborative effort seeks to maximize the impact of the GW4R program by addressing key knowledge and capacity gaps, strengthening project monitoring in remote areas, and enhancing technical support at sub-national and local levels, with particular emphasis in FCV areas. The work is structured around three pillars: i) enhancement of the HoA Groundwater Data Hub, supported by UNESCO, centers on HoA data collection for the groundwater information system, long-term regional data sharing, capacity building of the IGAD Groundwater Center, and knowledge dissemination; ii) applied research to strengthen the GW4R implementation, supported by UNICEF, will enhance understanding of the drilling market and rural water supply management models including social and fragility dimensions; and iii) capacity building and application of lessons learned in project implementation, led by the UNDP, focuses on project implementation support at the local level and in remote fragile areas.

Component 2: Enhanced institutional capacity on groundwater management

Addressing the Groundwater Salinity Crisis in the Horn of Africa (virtual), February 2024: The project conducted a webinar on different methodologies for desalinating water, current reverse osmosis installations with solar panels or photovoltaic reverse osmosis sites, bottlenecks for introduction and proliferation of desalination technologies, and guidelines for identifying safe groundwater sources in high-salinity settings. Because of technical capacity issues and high capital and operational costs in poor remote rural contexts, local application of desalination at the community level is challenging. The guideline on decision making with high salinity sources is being used to inform site selection.

World Bank Engagements in Transboundary Aquifers: Lessons Learned, Challenges, & Way Forward (internal hybrid event), August 2023: This session was organized during Water Week 2023 and shared lessons learned from program design during previous activities involving transboundary aquifer development and management that can inform the design of similar operations to improve program implementation. Knowledge sharing included recommendations on institutional and legal aspects, information and data sharing, and technical and procurement considerations to inform the design of a transboundary pilot (Dhobley-Liboi in Kenya and Somalia).

The Groundwater Capacity Development Program in Somalia: The program aims to strengthen the capacity and technical knowledge of key project staff in Somalia. It will be adapted and replicated in other GW4R countries. The learning modules will be translated into Somali, recorded as videos, and uploaded on a distance-learning platform in 2024. The training program provides a comprehensive primer on how to develop and manage groundwater in the HoA, including hydrogeology, water governance, planning, and community water management, and complements the institutional strengthening activities embedded in the GW4R program to build the capacity of the Ministry of Energy and Water Resources.

Regional Learning Events: The HoA GW4R program delivers, through IGAD and enhanced with the support of CIWA's technical expertise, two regional events per year to share knowledge, address common project implementation challenges, reach agreements on regional activities, and expand regional collaboration and coordination functions for groundwater management. The events (two in Kenya and one in Ethiopia) have facilitated agreements on a data-sharing protocol on groundwater, getting feedback on IGAD-implemented activities, bringing new knowledge in the form of innovations in the region for rural water supply delivery, discussing and agreeing on the way forward on project implementation bottlenecks, and improving communication and coordination.

Next Steps

During FY25, the HoA Groundwater for Resilience program will execute the first works for rural water schemes in Ethiopia, start rehabilitation of water schemes in Somalia and Kenya, and begin aquifer assessments. CIWA expertise will be used to assess the quality of the procurement process and inform key technical challenges. The GW4R-MIS will enhance monitoring and investment quality, while facilitating research and using the knowledge to inform implementation. Using lessons learned from the first batch of procurement contracts for the design and construction of rural water schemes in the borderlands, the CIWA team of experts is compiling a checklist of key features for ensuring designs are climate resilient. This guideline will be used in the procurement of the second batch of schemes and will be enhanced as more lessons are learned from project implementation.

There is also ongoing work to expand the scope of the salinity guidelines for site selection, going beyond the decision tree. As the areas are affected by high salinity and fluoride problems, expertise is required to develop treatment solutions at scale and assess how to develop institutional capacity, skills, financing, and markets. A guideline is also being written using input from the first project sites to improve and monitor community engagement processes for water point management. Two new regional knowledge-sharing events are being planned to focus on these and other relevant project issues, one of them to be held at a higher political level at the IGAD Water Forum in mid-FY25.

At the regional IGAD meeting in May 2024, representatives from Kenya, Ethiopia, and Somalia met to discuss the opportunities, interest, and commitment to scale up transboundary collaboration initiatives on groundwater to more locations, prioritizing sites already marked for investment under GW4R. Countries agreed to continue to monitor the impact of the GW4R investments on water supply dynamics and transboundary interaction between communities under implementation, capturing lessons learned to be used in the expansion of these initiatives. The team will document the three identified avenues for transboundary aquifer collaboration: (i) those emerging from the three feasibility studies currently being undertaken by IGAD (Dawa, Northern Basement, and Shebelle aquifers), (ii) other projects within the Merti Aquifer that can emerge from the successful collaboration in the Dhobley-Liboi pilot, and (iii) those emerging through documenting transboundary interactions across borderland investments and bringing these interactions to high-level ministerial committees or meetings such as the Borderland Committee between Kenya and Ethiopia.

The IGAD Groundwater Information System will be enhanced and operationalized through technical support, backstopping, capacity building, dissemination, support for data entry, and facilitation of data-sharing processes. This involves a variety of activities to support IGAD including stakeholder engagement, data standardization, quality assessment, capacity building, and dissemination efforts. Through this support, UNESCO, which has already helped produce a draft harmonized geology and hydrogeology map for the three countries, will support IGAD in fostering a comprehensive approach to enhance the capabilities for sustainable groundwater management.

UNICEF will inform, through evidence gathered in the field, on mitigation of drilling risks and enhanced contract management on drilling contracts, improving the understanding of the drilling market in the HoA by identifying the associated risks, developing and implementing risk mitigation measures, and advising on the adequacy of management models for rural water supply and sanitation. It is anticipated that some drilling risk mitigation measures will target capacity improvement of the private sector/drilling companies and for GW4R client countries to develop sound bidding documents, technical specifications, and contract management. Management models for rural water schemes adopted under this program will be informed by the applied research, which will help assess and advise on institutional roles (of formal and informal institutions) and their relationship with community engagement processes and potential roles of the private sector in service delivery and markets to ensure that efficiency, value for money, sustainability, and accountability mechanisms are in place.

Work to address fragility and conflict will start with the production of more robust community engagement guidelines, followed by key checks at various stages of sub-project implementation. That will help ensure that investments consider the needs of women and men from the community, that sub-project designs are responding to the needs of women and other vulnerable populations, and that conflicts over rangeland and water resources are assessed and treated from the onset so that mitigation measures can be developed.

View from the Field:

Iqbal Salah

Calming conflict through groundwater resilience

Calming conflict through groundwater resilience

Igbal Salah, a hydrologist at IGAD, is doing her part to minimize conflict in the borderlands of the HoA by working with CIWA on its Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands initiative and the related World Bank GW4R program.

"A major source of conflict is water," she says.

The borderlands are hotspots for discord, fragility, and insecurity for many reasons, including competition for water and grazing land, poverty, ethnic tensions, and conflict between armed groups or against the government. Sustainable access to, and management of, groundwater resources can help address some of these drivers of fragility and conflict, especially frequent water-related communal disputes.

The ravages of climate change have heightened tensions and clashes. The Horn of Africa suffered a historic drought for five consecutive seasons from 2021 to early 2023 that was followed by torrential rains and flash floods. Millions of people are still facing food insecurity in the aftermath of these disasters, which has led families to relocate to find food, water, and pastures for their animals, increasing the potential for conflict with host communities.

Within this challenging environment, the World Bank launched GW4R, a US$385 million regional program which, along with CIWA's Untapping Resilience, is strengthening the ability of IGAD and communities to cope with, and adapt to, climatic shocks and enhancing IGAD's capacity to promote regional cooperation on WRM and development. Supported activities will draw on and align with IGAD's Gender Equality Strategy 2023-2030, which includes the priority of increasing women's participation in sustainable management of natural resources, resilience building, and food and nutrition security.

While increased water security can help address drivers of migration and conflict in the borderlands, there is much to learn about groundwater's potential for building climate resilience, and that is precisely what Untapping Resilience's learning agenda is doing.

A long journey toward cooperative transboundary waters management

Born and raised in Sudan, Salah, 53, trained as a civil engineer at the University of Khartoum and earned her master's degree in hydrology from the University of Galway and a Ph.D. in water resources from University College in Dublin, Ireland. She worked for 25 years in Sudan's Ministry of Water Resources and Irrigation as a senior engineer and head of the modeling section before moving to Nairobi three years ago to join the staff of the IGAD Climate Prediction and Application Center.

She has been a key IGAD hydrologist working with the World Bank and CIWA on the two groundwater projects.

Salah is leading a joint regional study on the recharge of groundwater related to climate change. In an arid region with little rainfall, it is vital not to deplete the important water resource. After determining the baseline of groundwater storage in the aquifer, the project will then monitor the recharge to establish an appropriate amount of yearly water abstraction. The project will also lead to the development of an Aquifer Management Plan and Decision Support System to inform the development and implementation of investments related to aquifer water to benefit the borderland communities.

Groundwater for Resilience, having completed a feasibility study of the Merti Aquifer with CIWA's support, is now studying the Dawa Aquifer, shared by Ethiopia, Kenya, and Somalia; the Shebele Aquifer, shared by Somalia and Ethiopia; and the Northern Basement Aquifer, shared by Kenya and Ethiopia.

“A major source of conflict is water.

Developing a unified agreement with all three countries over data sharing has proven challenging, Salah says. Although Somalia and Ethiopia have signed a draft procedure, IGAD is still negotiating with Kenya, which has additional legal and other requirements to meet before agreeing to ratify it.

“We are trying,” she says. “It is their security and sovereignty,” she says. “It is a long journey, but we have started.”

Encouraging signs of collaboration

Salah says that she is buoyed by how CIWA’s Untapping Resilience initiative has fostered communication and cooperation between member states.

With regular interaction between technical water resources staff among the three countries during capacity-building events and meetings of the bi-weekly National Focal Group, technical Task Force, Project Steering Committee, and Technical Advisory Committee, she says, they have learned “to speak freely regardless of their national background.”

“Water management in one country will affect the downstream country,” she says. “The project is good for the collaboration of the three countries for the benefit of communities. The three countries have become closer.”

Igbal Salah monitoring a well cover. ©Igbal Salah / CIWA Program

South Sudan Transboundary Waters Support Program

Context

Beginning in 2022, the European Union's INFORM Index[33] has ranked South Sudan as the world's most vulnerable country to climate change and as having the lowest level of coping capacity. South Sudan is also one of the world's most politically fragile countries. Repeated extreme flooding from 2020 through today has submerged an area larger than Denmark, affecting 1 million people. Ten percent of the country's arable land has become swampland at a time when over 7 million people are food insecure. The 2024 INFORM Index noted that South Sudan's vulnerability is tightly linked to its lack of infrastructure and very low capacity of WRM institutions. Women who have been forced to flee from their homes and now live in displacement camps face multiple challenges, and several factors including floods and drought make it difficult for them to see a doctor even when they are pregnant. Women are also exposed to harassment or sexual violence and constant physical stress from transporting water over long distances.

South Sudan's water-related risks and opportunities are fundamentally transboundary in nature, as the Nile Basin contains all the country's surface and groundwater resources. Upstream conditions, therefore, influence water availability and the occurrence of floods and droughts.

While the country's nascent water management institutions are working to address many challenges, they face severe constraints. Draft water legislation has been pending since 2013. The Ministry of Water Resources and Irrigation (MWRI) lacks capacity and has limited physical infrastructure to carry out its mandate. Information systems and the hydrometric monitoring network are weak and the use of DSSs to guide WRM is minimal.

The World Bank is providing technical assistance to strengthen the MWRI and local WRM capacity. CIWA's activity, launched in June 2023, is a Bank-executed grant to support the South Sudan component of the RCRP by facilitating South Sudan's participation in Nile River Basin dialogue, strengthening technical capacity, and contributing to the National Master Plan being developed under the RCRP. This technical assistance seeks to deepen dialogue and strengthen knowledge for sustainable planning and management of transboundary water resources to increase water security by (i) supporting transboundary water management and water resources planning, (ii) strengthening regional information exchange, and (iii) supporting knowledge generation and capacity building with a focus on biodiversity and FCV, which includes the integration of a gender lens into project design and implementation.

The initiative is providing technical assistance to the MWRI on transboundary water cooperation and management and conducting analytical activities to map and quantify the hydrological ecosystem services provided by the Sudd wetland. It also supports South Sudan's efforts to learn from international best practices for transboundary water management, including from the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Progress

Supporting transboundary water management and water resources planning: In FY24, the team collaborated with the United Nations High Commissioner for Refugees to gain insights on actors operating in refugee settings with the goal of strengthening effectiveness and inclusiveness of the interventions in forced displacement contexts. In addition, the team began one of the key activities on building climate resilience and strengthening water priorities and investments for vulnerable groups, a technical assistance on climate-related water risks and interventions for refugees and host communities. Climate impacts exacerbate the vulnerability of refugees and host communities, primarily because they experience greater exposure to extreme weather events, have severely limited adaptive capacity to changing environmental conditions, and rely significantly on natural resources. This technical assistance will deliver a mapping report of key actors in this space, which will include guidance on how to improve coordination, fill gaps, and leverage synergies among stakeholders. An infrastructure inventory of WRM assets and their vulnerability to climate-related conditions will be developed, leading to a multicriteria analysis that prioritizes future investments for flood and water management.

Strengthening regional information exchange: The hydrometric monitoring network, which includes five operational hydrometric stations, is extremely weak. These stations are manually operated, are not set up for automatic data transmission mechanisms via telemetry, and do not have a systematic data management tool to store and process data.

[33] https://drmkc.jrc.ec.europa.eu/inform-index/

The NBI, through its regional Nile Basin Regional Hydromet initiative, has further identified the potential to expand hydrometric systems to benefit South Sudan and other riparian countries.[34] Long-term WRM is further limited by the lack of hydrological and water resource system models. A coarse-resolution flood hydrology model developed by the NBI is currently the only available option.

In FY24, two main activities were undertaken to strengthen regional information exchange:

- The Climate Finance Regional Climate Resilience Program: As part of the Regional Climate Resilience program, a workshop was held to establish a strong foundation for collaboration and knowledge exchange to enhance resilience. Over 70 participants attended, including representatives from RCRP countries (Comoros, South Sudan, Madagascar, Malawi, and Mozambique), regional and continent-wide institutions (the ENTRO, Southern Africa Development Community [SADC], NELSAP, and African Union), regional climate experts, and World Bank representatives. Representatives from the South Sudan Ministry of Environment, Ministry of Finance, and Ministry of Water attended. The sessions focused on leveraging lessons learned to inform climate financing, identifying concrete actions, and exploring opportunities to strengthen RCRP implementation with an emphasis on climate financing activities.

- National Project Development and Implementation Partners Meeting in South Sudan: This meeting focused on strengthening the capacities of the National Meteorological and Hydrological Services in developing multi-hazard early-warning systems and services. Over 40 participants attended, including representatives from the MWRI, World Meteorological Organization, World Bank, Food and Agriculture Organization, and others. The workshop mapped activities to be implemented by partners to strengthen hydrological monitoring, forecasting, and early-warning systems, ensuring synergies and complementarities between various projects in South Sudan.

Supporting knowledge generation and capacity building with a focus on biodiversity and FCV: South Sudan can be divided into three main sub-hydrological units: (i) the Bahr el Jebel, receiving the outflow from the East African lakes; (ii) the Baro-Akobo-Sobat system, flowing along the east from Ethiopia; and (iii) the Bahr el Ghazal, formed by streams arising along the Nile-Congo divide in northwestern South Sudan. The confluence of the Bahr el Ghazal and the Bahr el Jebel forms a vast area of marsh and wetland (both permanent and ephemeral) known as the Sudd Wetland. The Sudd is one of the largest wetlands in the world and designated as a Ramsar site, which confers globally recognized importance for containing representative, rare, or unique wetland biodiversity. In 2020, the annual economic value of the Sudd wetland ecosystem services was estimated to be over US$660 million.

In FY24, discussions were facilitated between the MWRI, World Bank environment colleagues, and counterparts at the NBI to ensure alignment and collaboration. In FY25, the study will focus on Sudd wetland hydrological services (including flood regulation). It aims to benefit all Nile riparian states by offering a detailed understanding of how South Sudan's ecosystems influence the basin's hydrological balance, creating a freshwater biodiversity baseline, and evaluating anthropogenic pressures on ecosystems.

Next steps

Procurement for Component 1 is expected be completed in 2024.

This activity will:

- **Map current active humanitarian and development actors in refugee settlements and host communities. This will identify and analyze the agencies currently active in water-related initiatives (both on WRM and water supply, sanitation, and hygiene) in the forced displacement space.** A mapping report will be produced with the key actors' initiatives and their relative influence, which will include guidance on how to improve coordination, fill gaps, and leverage synergies among stakeholders

- **Assess climate risks in refugee hosting areas. A holistic approach will be developed to assess current and predict future climate risks, which will analyze three dimensions of risk: type of hazard, exposure, and vulnerability.** An inventory will be developed for existing assets, such as roads, flood embankments, WASH systems and facilities, and other assets that are vulnerable to climate-related impacts. This assessment will guide the identification of targeted resilience-strengthening interventions in the refugee areas.

- **Identify interventions to mitigate climate risks faced by refugees, internally displaced people, and their host communities.** These will include policy and regulatory improvements to enable resilience of people who are forcibly displaced (e.g., how to integrate people into national and local development planning and in early-warning services or hazard monitoring, promote greater environmental protection and rehabilitation in refugee hosting areas). The team will identify targeted risk-mitigation measures for systems and assets (e.g., water supply systems, livelihoods systems, other critical infrastructure including schools and hospitals). The proposed targeted interventions will account for complexity and cost of the design and be ranked and prioritized by location and implementation modalities.

[34] https://atlas.nilebasin.org/treatise/nile-basin-regional-hydromet/

- **Strengthen institutions and capacity of key implementing agencies.** This activity will review and analyze the capacity of government systems at various levels on their readiness to prepare for, and respond to, climate risks faced by forcibly displaced populations and their hosts. It will review global best practices on integrating climate risk management with refugee policies and frameworks and identify recommendations for, or current refugee policies and frameworks in, South Sudan. This will also enhance organizational arrangements and capacity to manage, coordinate, and implement these interventions for the forcibly displaced.

This activity will include:

- **Ecosystem mapping and ecosystem services assessment, which will define the area, characteristics, and state of the Sudd wetland, including its connection with transboundary surface and groundwater flows.** Deliverables include spatial data on wetlands, riparian areas, and their states and spatial data on ecosystem services provided by wetlands. A policy report will be produced, focusing on policy-relevant insights related to emerging trends in wetland areas and ecosystem states.

- **The freshwater biodiversity data component, which will provide a biodiversity baseline for monitoring and evaluation and environmental impact assessments.** This will involve synthesizing existing data on freshwater biodiversity and piloting innovative data collection techniques. The consultant will propose species groups for field surveying, such as fish, birds, and aquatic vegetation, including invasive species. Deliverables include a freshwater biodiversity baseline for the Sudd wetland, comprising existing and newly collected data, along with a metadata document describing data characteristics and sources.

- **An assessment of multiple pressures and responses, which will identify and evaluate the impacts of anthropogenic pressures—such as pollution, climate change, and invasive species—on ecosystems and their services.** The consultant will propose an overarching framework, such as the drivers, pressures, state, impact, and response model of intervention used to describe the interactions between society and the environment and a methodology involving a literature review, spatial analysis, remote sensing data processing, and stakeholder engagements.

Southern Africa

Prolonged drought conditions in Southern Africa are fueling water, food, energy, and water insecurity; poverty; and economic fragility. In response, CIWA addressed the region's significant challenges managing its increasingly important groundwater resources. It worked to build resilience to widespread impacts of droughts by addressing cross-border drought risks, promoting cooperative management of shared waters, and facilitating cooperation efforts around cross-border sustainable management of transboundary aquifers.

Sustainable Groundwater Management in SADC Member States—Phase II

Context

Southern Africa experienced the most severe drought in over 100 years from January to March 2024, prompting the SADC to launch a US$5.5 billion humanitarian appeal to support over 61 million people affected by the El Niño-induced climatic phenomenon that unleashed drought, cyclones, and floods. The widespread drought resulted in a 71 percent[35] decrease in harvested cereal compared to the previous year, causing widespread food insecurity.

Highly dependent on rainfed agriculture and climate-sensitive livelihoods, the SADC region is home to about 345 million people, over 70 percent of whom rely on groundwater as their primary water source. SADC member states have an estimated 2,491m³/per capita/year in renewable groundwater but currently only use 1.2 percent of the resource. Groundwater is often used without proper knowledge of the aquifer potential or monitoring of its status and use, potentially leading to overexploitation or contamination and jeopardizing long-term sustainable groundwater use. Monitoring groundwater resources is crucial in a heating and drying climate. There is, however, still a lack of groundwater information availability and resistance among countries to sharing groundwater data. Lack of information, along with the transboundary nature of many of the aquifers, complicates sustainable water management at the national and international levels.

The project has three components: Capacity building and strengthening for sustainable groundwater management; knowledge development, dissemination, and advocacy; and building resilient livelihoods and inclusive groundwater management.

Progress

Component 1: Capacity building and strengthening for sustainable groundwater management

The objective of this component is to strengthen institutions at local, national, and transboundary levels to better manage groundwater. In the last FY, the initiative established five national focus groups (NFGs) in the DRC, Lesotho, South Africa, Tanzania, and Zambia (bringing the total to 10 NFGs created by the project) to drive the groundwater agenda, oversee groundwater activities at the national level, and provide a linkage between SADC-GMI and national stakeholders.

Training sessions were held in October 2023 and January 2024 to support the NFGs in developing Terms of Reference (ToR) for the specific contexts of their countries, mobilizing financial resources, and planning around groundwater. Botswana, Comoros, Madagascar, and the Seychelles are the remaining SADC countries that need to develop an NFG. The project is leading study tours for these four countries to demonstrate the benefits of forming their own NFGs.

To enhance equitability, the ToR for the NFGs require gender balance and cross-sectoral representation. For all the training and professional opportunities, SADC-GMI asks member states to nominate male and female candidates. However, progress on including more women in groundwater management (e.g., the NFGs) has been slow, in large part because of low numbers of women working in relevant fields. Thus, the SADC-GMI is aiming to involve more young people, especially women, in equitable and sustainable groundwater management and continuing to implement a Young Professionals program to drive progress and innovation. In FY24, 39 Young Professionals (15 women) were placed in internship programs either at the SADC-GMI or national entities.

The SADC-GMI has signed MoUs with several RBOs. Through these MoUs, the SADC-GMI is implementing several institutional-strengthening and capacity-building initiatives for the RBOs, including the Limpopo Watercourse Commission (LIMCOM), the Cuvelai Watercourse Commission (CUVECOM), and the Incomati and Maputo Watercourse Commission (INMACOM). These RBOs have created groundwater committees and are now developing groundwater strategies for their basins. The SADC-GMI continues to serve as the Secretariat to the established Groundwater Committees and facilitates integration of groundwater into the conjunctive governance of water resources.

Component 2: Knowledge development, dissemination, and advocacy

This component is at the core of improving understanding of groundwater and its role in building resilience and coping with the impacts of climate change amid all the

[35] https://www.usaid.gov/sites/default/files/2024-06/2024-06-11_USG_Southern_Africa_Regional_Drought_Fact_Sheet_1.pdf

the other global and transboundary cooperation challenges. The SADC-GMI is upgrading the SADC-Groundwater Information Portal (GIP) to provide more services to stakeholders by incorporating time series data, adding the ability to generate graphs, maps, and, where data is missing, apply big data analytics and machine learning to generate useful information. Twenty-two Young Professionals were deployed to update the GIP.

The SADC Groundwater Literature Archive (SADC-GLA) is one of the most critical repositories of reports, research materials, and documents on groundwater. This archive was originally established by the British Geological Survey (BGS) under the Africa Grey Literature Archive. The project has now migrated the hosting of the SADC-GLA database from BGS servers to give the SADC-GMI more control. SADC-GMI signed MoUs with the University of Botswana, Mzuzu University in Malawi, and the University of Namibia to help acquire and upload documents to the SADC-GLA. They added about 500 documents including scientific and technical reports and research materials.

The project has recently developed and tested a Numerical Model for the Eastern Kalahari-Karoo Basin Transboundary Aquifer (EKK-TBA) and given it to technical personnel from the Botswana and Zimbabwe water authorities for use.

The SADC-GMI acknowledges that one of the weakest links to achieving prudent decision making for the sustainable management of surface and groundwater resources is the absence of quality data. This triggered it to initiate a pilot project to develop a regional groundwater monitoring network starting with a few strategic aquifer systems to identify common or unique parameters necessitating monitoring in three types of aquifers—mainland SADC TBAs, coastal aquifers, and island state aquifers.

The SADC-GMI has started rolling out the Policy, Legal, and Institutional Framework for sustainable groundwater development. One of the identified quick wins implemented under the Policy, Legal, and Institutional Framework during the reporting period is the review of the SADC Regional Water Policy (2005) to accommodate groundwater and other emerging regional priorities.

The annual SADC Groundwater Conference attracts approximately 150 participants across the region to facilitated dialogue on better integration of groundwater into the management of transboundary RBOs, more effective groundwater monitoring systems, and regional knowledge sharing. The previous conference was convened in Namibia in November 2023, and the next will be in November 2024 in Lesotho.

Component 3: Building resilient livelihoods and inclusive groundwater management

This component focuses on creating more resilient livelihoods and inclusive groundwater management by implementing sub-grant projects within member states. Twelve countries were allotted sub-grants of US$125,000 each to implement groundwater projects, which leveraged a total of $128,672 in in-kind country contributions. In all, the sub-grants are expected to benefit 251,653 people when completed.

> **Over 70 percent of [SADC's] population relies on groundwater as its primary water source, often used without proper knowledge of the aquifer potential or monitoring of its status and use.**

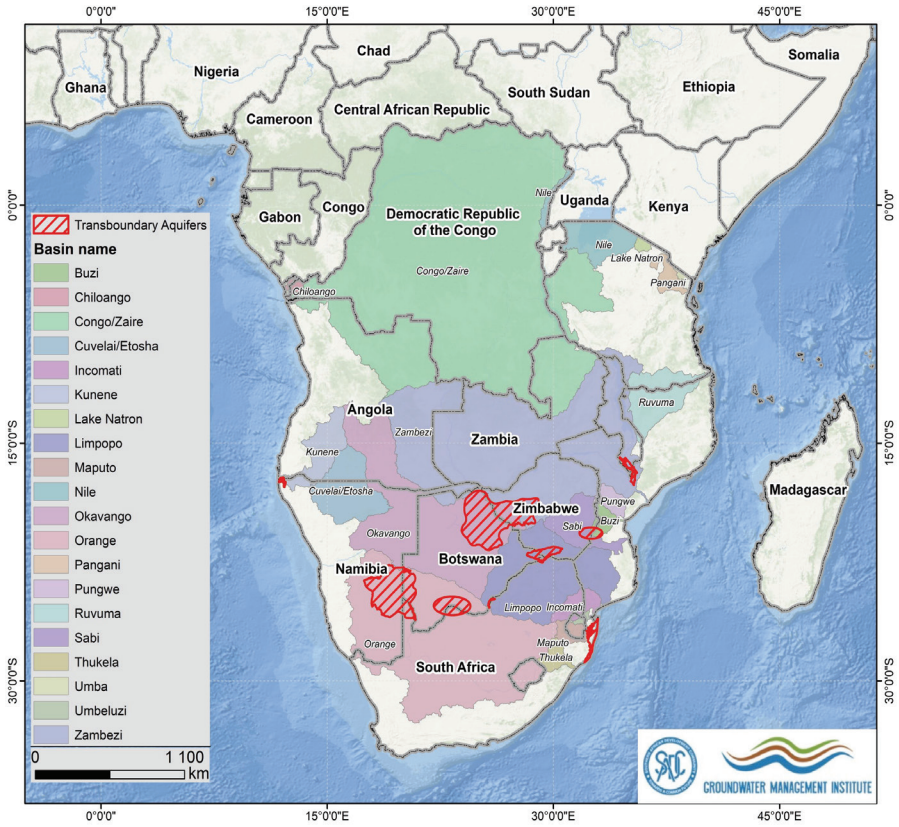


Figure 7: Transboundary aquifers and river basins in the SADC region (Source: SADC-GMI)

Country / amount		Project	Description	Status
Angola Base Grant: In-kind Contribution: Total:	 $125,000 $0 $125,000	Caimbabo Water Supply Project	The project is strengthening the water supply capacity of the Communes of Caiave and Catengue in the municipality of Caimbambo, Province of Benguela. Activities include drilling and installing a small water supply system and equipping two boreholes with submersible solar-powered pumps.	Project kick-off meeting was held in May 2024.
DRC Base Grant: In-kind Contribution: Total:	 $125,000 $17,300 $142,300	Water supply project in Congo Central, DRC	The scope of work includes the construction of a mini-network of water distribution and a groundwater pumping station in the Kango Central Community.	Three boreholes drilled, and two ferrocement tanks built of 75m^3 each.
Eswatini Base Grant: In-kind Contribution: Total:	 $125,000 $0 $125,000	Improving knowledge on groundwater availability through the assessment of available groundwater resources, capacity development, and innovative groundwater information management	The project supports improved knowledge on groundwater resources in the Kingdom of Eswatini through provision of an information base for water management and development. Activities include innovative approaches for improving knowledge on groundwater, capacitating managers and relevant stakeholders in groundwater monitoring and management, and providing a state-of-the-art monitoring information system.	Consultant on board.
Lesotho Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Construction of groundwater monitoring and water supply systems	The scope of work includes drilling new boreholes for monitoring and water supply for vulnerable communities and identifying natural springs for supply.	Consultant on board.
Malawi Base Grant: In-kind Contribution: BASEflow: Malawi Scotland Regulatory Partnership: Total:	 $125,000 $0 $17,289 $19,083 $161,373	Rehabilitation of 20 monitoring wells	Revitalization of the groundwater monitoring network by rehabilitating wells and installing telemetrically enabled monitoring wells in strategic aquifers and building the capacity of national, district, and community stakeholders for effective management of the existing groundwater monitoring network; main project activities include rehabilitation works on 20 monitoring boreholes.	Rehabilitation of 20 boreholes completed. Construction of the boreholes has begun, with three completed.

Country / amount		Project	Description	Status
Mauritius Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Groundwater monitoring through installation of automatic data logging, transmissions, and acquisition system for representative boreholes in the main aquifers of Mauritius	The project will acquire real-time groundwater management data by equipping 10 representative monitoring wells in the main aquifers with automatic data loggers and a telemetry system. Project activities include identification of 10 monitoring wells for rehabilitation and securing boreholes.	Project kick-off meeting was held in May 2024.
Mozambique Base Grant: In-kind Contribution: Total:	 $125,000 $17,300 $142,300	Groundwater assessment of Machangulo region Matutuine District	The project will evaluate groundwater in the Machangulo region, which is seen as an alternative source of water for local populations given that this region does not have surface watercourses nor a public water supply system. The project will comprise two phases: assessment of groundwater availability, followed by construction for water supply.	Procurement stage.
Namibia Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Enhancing sustainable groundwater use in the deep Karoo and the crystalline basement aquifers in southern Namibia/Karas region	The project will promote sustainable and coordinated management of groundwater resources for improved livelihoods, ecosystem health, and economic development.	Procurement stage.
South Africa Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Update hydrogeological map and information brochure in Polokwane Area	The project is developing methodology and updating the hydrogeological map of South Africa. It will be an interactive map on the Ministry database and systems.	Stakeholder engagement undertaken. Geophysical studies being undertaken.
Tanzania Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Groundwater development and management of Nzunguni Aquifer	This will include assessment studies and drilling exploratory boreholes, which will advise on the development of safe and reliable sources for augmenting the water supply of Dodoma City.	Procurement stage.

Country / amount		Project	Description	Status
Zambia Base Grant: In-kind Contribution: Total:	 $125,000 $12,500 $137,500	Groundwater mapping and development at Sihumbwa Basic School in Kazungula District, Southern Province	Characterize aquifers in the Sihumbwa area, determine water demand for Sihumbwa school and the surrounding community to supply clean and safe water to Sihumbwa Health Post, construct three boreholes, design and build a solar-powered water supply network to the school, clinic, and the community, and protect the Sihumbwa catchment from deforestation.	Procurement stage.
Zimbabwe Base Grant: In-kind Contribution: Total:	 $119,000 $0 $119,000	Groundwater monitoring in the Save Alluvial Aquifer	The project will install a real-time telemetric system to enable sustainable management. Activities include redesigning the monitoring network, rehabilitating monitoring wells, training staff on the telemetric system, and holding community awareness meetings.	Stakeholder engagement undertaken. Geophysical studies being undertaken.

Next Steps

One of the greatest challenges that the region still faces despite ongoing initiatives is huge gaps in the understanding of groundwater resources. Acknowledging the important role of information and communities in the region, in FY25 the project aims to improve citizen science by conducting participatory research to draw out the knowledge of communities about the value of biodiversity, which will facilitate testing new solutions to key regional groundwater challenges. It will also generate data to feed into the DSS for climate adaptation and resilient livelihoods. The project also aims to roll out implementation of the Policy, Legal, and Institutional Framework for sustainable groundwater development in the member states that have developed framework roadmaps (DRC, Lesotho, Malawi, Mauritius, and Zambia). The project also will implement priority activities from the Joint Strategic Action Programs to foster shared development and governance of groundwater in the RBOs and transboundary aquifers.

Participants of May 2024 meeting organized by the CIWA / World Bank RCRP Technical Team meeting, Johannesburg, South Africa, hosted by the Southern Africa Development Commission (SADC). ©SADC

View from the Field:

Mmasechaba Lebogang Moropane

Researching the effects of groundwater-dependent invasive species in South Africa

Researching the effects of groundwater-dependent invasive species in South Africa

About 10 million hectares of land in South Africa have been invaded by alien plants—primarily the Prosopis, Acacia, and Eucalyptus species—that are dependent on groundwater, with some consuming up to 50 liters per day. In a water-stressed country, these plants pose risks to groundwater-dependent ecosystem services and groundwater conservation.

Mmasechaba Lebogang Moropane, 26, wants to help. She is using satellite-based techniques in Google Earth Engine to detect and map the extent of invasive species that rely on groundwater in the Heuningnes Catchment in the Western Cape province.

A graduate student at the University of the Western Cape, Moropane believes that her research findings will be crucial to share with environmental and water resources managers to guide them in decision making about invasive species-clearing efforts, groundwater conservation, and protection of native species. She intends to ask the SADC-GMI to connect her with water resources managers when her research is completed.

"To better adapt to climate change and drier conditions," Moropane says, "it's very important to know how much space is being occupied by these species and how much groundwater they are extracting. Because invasive species adapt better to drier conditions than native species, projections indicate that we will end up losing our ecosystems and ecosystem services. Paying attention to these species is very important to help achieve Sustainable Development Goal 15, target 8, which aims to prevent invasive species on land and in water ecosystems."

Moropane's research, tuition, room, and board is being funded by a nearly US$11,000 scholarship from SADC-GMI's Young Professionals program, which is supported by CIWA. Moropane believes that her research is unique both in South Africa and globally. She said she learned from her literature review that while there is extensive research on groundwater-dependent ecosystems and on invasive species, there are few studies that link them to show the impact of these plants on ecosystems and groundwater levels.

A river in retreat

Moropane grew up in Mokwete, a small farming community in Limpopo province in northern South Africa. Her father grows vegetables and raises cows and goats on a half-hectare of land. He used to bring his roughly 20 cows to the Ngwaritsi River behind their house to drink. Back then, the river flowed year-round and overflowed during rainy seasons.

Now, she says, "It's a different story. When I was in grade six or seven, all of a sudden the water started declining. It dried up completely some years. Now we have to give water to the few remaining cows from buckets at home. Most of the cows died from hunger, stomach diseases, and walking long distances in rocky areas to find alternative water sources."

During her youth, many village residents believed witchcraft was responsible for the decline in rainfall and the drying river. When Moropane was in grade 10, her geography lessons taught her about rainfall. She realized that it was not witchcraft that dried up the river.

"That's when I got inspired to learn more about rainfall and how water moves through the environment, and I wanted to pursue a geography-related degree," she says. Now, she adds, "I'm very passionate about being an environmental hydrologist."

Improving the environment for the next generation

"I'm very grateful to SADC for providing me with the scholarship," Moropane says. "My parents couldn't help me with this journey. I would have had to drop out."

Moropane has excelled in school. As an undergraduate, she received the Golden Key International Society award and the Dean's merit award three times and graduated summa cum laude from the University of the Western Cape, with a degree in environmental and water sciences.

"Her performance has been exceptional," says Timothy Dube, associate professor of earth sciences and director of the university's Institute of Water Studies. "She is extremely curious, hardworking, disciplined, creative, and works well with others."

Moropane plans to attain her PhD and ultimately work in sectors that prioritize environmental health and water conservation. And she wants to bring her knowledge back home to teach

people about the need to change their practices, for example, illegal dumping into the river. She will also be a role model for other girls looking to enter this male-dominated field.

With a doctorate degree, she says, "When I talk, they will listen, because they have strong respect for people with higher education. The opportunity to get them to listen can have a huge impact on my community and the environment. When I share my knowledge with them, I feel it will make them see things in a different way. And they will start being environmentally conscious."

She adds, "What will fulfill me is contributing to environmental health and conservation of water resources. I want to contribute to making the lives of present and future generations easier by taking actions that protect and conserve the environment and its limited resources."

"Ten million hectares in South Africa are invaded by alien plants like Prosopis, Acacia, and Eucalyptus, consuming up to 50 liters of groundwater daily.

Three professional women investigating invasive species that pose risks to groundwater-dependent ecosystem services and groundwater conservation. © Mmasechaba Lebogang Moropane / SADC

Strengthening Transboundary Basin Organizations through Program Development and Capacity Building in Africa

Context

Climate change poses a major threat to long-term development objectives in Eastern and Southern Africa, especially poverty reduction in highly vulnerable regions. The danger of climate change to the two regions' economic growth and poverty reduction comes from two fronts: (i) the livelihoods of about 70 percent of Africans are highly dependent on ecosystem services and (ii) climatic shocks are draining fiscal resources and particularly affecting poor people, who have less resilience than others. Drought frequency has increased six-fold and flood frequency 10-fold in recent years. Given the urgency posed by climate change, the African Union 2022 Climate Change Strategy and Action Plan calls for (i) increased regional collaboration on climate action and (ii) a regional platform to scale up investments in resilience, including through transboundary water management.

Improving transboundary WRM is critical to increase the adaptive capacity of countries in the region. Impacts of climate variability and climate change have rippling effects across borders, impacting ecological services and economies. Regional cooperation on the main transboundary water systems (e.g., Nile, Okavango, Zambezi, Limpopo) to improve drinking water, food, energy, biodiversity, climate change resilience and mitigation, and job security can be further developed. In fact, it is critical for addressing growing water, food, and energy shortages. The risks of non-cooperation are high, as most water comes from transboundary rivers, and water use in one country may negatively affect availability and quality in neighboring countries. For instance, severe degradation in the Shire River Basin in Malawi exacerbates flooding in the Zambezi region of Mozambique. Only coordinated transboundary solutions can help reduce the risk of climate-related disasters.

CIWA's new grant, Strengthening Transboundary Basin Organizations through Program Development and Capacity Building in Africa, is supporting the World Bank's implementation of the Regional Climate Resilience Program for Eastern and Southern Africa. RCRP is a regional IDA-funded multiphase programmatic approach that promotes a bottom-up and demand-driven strategy for regional cooperation and aims to increase resilience to regional water-related climate shocks. Phase 1 includes Comoros, Madagascar, Mozambique, South Sudan, the NBI, and SADC;[36] Phase 2 includes Malawi and the African Union.[37]

Advancing regional cooperation in climate resilience is a complex, high-transaction cost process that needs to be driven by strong and focused national buy-in. This requires an incremental, flexible, and opportunistic approach set within a clear regional framework and theory of change. The project explicitly draws lessons from the past decade of transboundary water resources programs in Africa (e.g., Nile, Niger, Zambezi), considering the need for climate-resilient water investments to have a more nimble, sequenced approach to transboundary benefits; reflecting national priorities; and ensuring strong buy-in.

The grant has two components: (i) resilience planning and prioritization of investments in transboundary waters by supporting RBOs and (ii) programmatic support to promote the climate resilience agenda by strengthening national and sub-national water resources institutions, including support to the RCRP. This grant complements the CIWA-funded South Sudan Transboundary Waters Support Program, which supports the implementation of the RCRP in South Sudan (described above).

Component 1 will include:

1. **Institutional diagnostics of RBOs in RCRP countries. The objective is to identify a pathway to make RBOs more sustainable, better able to mobilize investments (including climate finance and private-sector financing), and increase their effectiveness.** It will include an in-depth assessment of the rules (legal mandate), organizations

[36] https://projects.worldbank.org/en/projects-operations/project-detail/P180171
[37] https://projects.worldbank.org/en/projects-operations/project-detail/P181308

(capacity, staffing, resources), and financial resources needed to function sustainably and effectively. It will also assess the potential of establishing networks of CSOs in Southern Africa such as the Nile Basin Discourse.

2. **Citizens' engagement in transboundary WRM, particularly around biodiversity, ecosystem services, and livelihoods.** This activity will develop and implement guidelines and just-in-time support for improving citizen engagement in transboundary WRM, programs, and projects to strengthen livelihoods with a strong emphasis on the role of biodiversity and ecosystem services in improving environmental (including water quality) and social conditions. Currently, most livelihoods projects are small, isolated community activities. Larger livelihood investments will allow identification of a more systematic series of pro-poor interventions at the basin level that prioritize resilience to climate and other non-climatic uncertainties. Support for the operationalization of the CORB Endowment Fund[38] is also envisaged, which will lead to the development of at least one Livelihoods Improvement Program.

3. **A binational fisheries management plan for Lake Kariba. Lake Kariba, an artificial lake covering 5,580 square kilometers, primarily provides water for hydropower production.** However, this water resource now serves many users, and its sustainability is threatened by invasive weeds, water pollution, cyclic droughts and floods, competing uses, and multiple legislative provisions. The lake, which is part of the Kavango-Zambezi Transfrontier Conservation Area, is shared between Zambia and Zimbabwe. It accounts for 35 percent and 90 percent of Zambian and Zimbabwean fish production, respectively, and the industry is a source of food security, health, and income generation. The fisheries population has been decreasing for several decades, primarily from lack of management and enforcement, and climate change is expected to significantly impact the quality and availability of water in the lake. This activity will provide an evidence-based, participatory approach to assess the socioeconomic impacts of the declining fisheries population and the impact of climate change. It will also promote stakeholder participation from both countries to advance sustainable lake management.

This component will also include support to the Okavango River Basin Water Commission (OKACOM), the LIMCOM, Orange-Senqu River Commission (ORASECOM), and the International Commission of the Congo-Oubangui-Sangha Basin (CICOS), which have expressed a desire for scaling up dialogue and investment cooperation.

Component 2 includes:

1. **Implementation of a remote monitoring and management platform. This will include a PowerBI-based (or similar) interface that tracks RS data on storage and manages flood risk and investment site selection under the RCRP.** This is expected to yield more efficient and transparent monitoring of the impact of program activities on resilience in the region and enhance access to information on water-related investments. Transparent and low-cost approaches for remote monitoring of transboundary water infrastructure help overcome information asymmetries and reduce risks related to disinformation, paving the way for improved cooperation. As part of this activity, support will be provided to countries on the use of data to make informed decisions.

2. **Strengthening the capacity of RCRP countries for transboundary WRM.** Given overall capacity and institutional gaps, this activity aims to strengthen core sector capacities and knowledge. It will include action-oriented knowledge products and promotion of knowledge sharing on key topics for transboundary WRM and climate resilience and support and complement activities being financed under the RCRP. This component will also provide just-in-time-support to respond to urgent demands from project countries and RBOs on the above-mentioned issues in both components.

3. **Continuing mainstreaming of the Equal Aqua tool on gender inclusion and citizen engagement.**

Progress

This grant launched in FY24 and has implemented multiple activities:

A regional capacity-building workshop, Enhancing Regional Collaboration and Climate Financing Capacity in Eastern and Southern Africa, was held in Johannesburg, South Africa in May 2024. Hosted by the SADC Secretariat, the event marked the launch of the RCRP Regional Steering Committee, the first face-to-face regional capacity-building meeting of RCRP countries on technical topics that are pivotal to ensure the program's regional resilience impact. With over 70 participants from Comoros, Madagascar, Malawi, Mozambique, and South Sudan, regional organizations (ENTRO, the Nile Equatorial Lakes Strategic Action Program [NELSAP], the African Union [AU], and SADC), and regional climate experts, the workshop focused on strengthening regional capacity to access mitigation and adaptation financing and to improve water resources management.

Enhanced skills on WRM will be pivotal for the RCRP's implementation, which includes the promotion of regional risk-financing solutions, support for regional/global exchanges to African countries, and global expertise to support countries to access climate finance. The event (i) launched the RCRP Regional Steering Committee, (ii) reached

[38] https://www.okacom.org/sites/default/files/documents/CORB%20Fund%20Factsheet.pdf

agreement among RCRP countries and institutions on regional-national coordination mechanisms during project implementation, (iii) built the capacity of participants on climate finance and carbon markets opportunities, and (iv) identified an initial roadmap to implement the RCRP climate financing sub-component.

A preliminary assessment of the readiness of RCRP countries for international carbon market participation highlighted potential projects in Comoros, Madagascar, Malawi, Mozambique, and South Sudan, including best practices and areas for improvement. Applying the technical training to national contexts, participants joined country-focused roundtable discussions on the potential role of carbon markets and identified existing institutional arrangements for carbon markets, ongoing efforts, challenges, and key areas of support needed.

Based on the technical knowledge acquired through the event, country delegations prepared an initial roadmap for climate financing under the RCRP. The discussions identified mitigation investments; priority areas to address in the short-, medium-, and long-term; activities to be financed in the next year under the climate financing sub-component of the RCRP; and the basis for enhanced regional collaboration. Participants agreed that the next RCRP event will focus on transboundary water management, including operations and maintenance and flood risk management issues, which are at the core of the RCRP's implementation.

A technical water resources modeling training was delivered in Addis Ababa, Ethiopia in May 2024. The training aimed to equip key government officials, technical authorities, and selected academics with national and transboundary water management models.

Next Steps

Transboundary capacity of RBOs: The program will continue providing regional capacity-building events under the RCRP to strengthen the ability of national and regional institutions on climate resilience and transboundary WRM, especially for women and marginalized and vulnerable communities. An institutional diagnostic of priority RBOs will be conducted to identify a pathway to make them more sustainable, better able to attract financing, promote financial viability (including climate finance and private-sector financing), and increase their effectiveness. Support will focus on improved capacity and knowledge of RBOs to account for biodiversity and fragility factors in water-related investment planning and prioritization.

Emphasis on regional cooperation: Improved information exchange, which forms the basis of transboundary water cooperation, will be fostered through support to OKACOM and potentially scaled up to LIMCOM, ORASECOM, and CICOS. Conversations are ongoing to identify the key entry points with these RBOs that will be the focus of the coming year's support. For example, OKACOM is interested in an institutional and legal assessment that will also include a financial strategy. Activities will include the preparation of a binational management plan for Lake Kariba fisheries.

Progress monitoring and learning: A monitoring platform will be designed and launched to apply mapping information technologies and remote sensing technologies on storage, flood risk management, and site selection for RCRP investment identification and planning.

Citizen engagement: Guidelines and just-in-time support will be provided for improving citizen engagement in transboundary water management and developing programs and projects to improve livelihoods, with a strong emphasis on the role of biodiversity and ecosystem services and consideration of gender and social inclusion aspects. This support will lead to the development of at least one Livelihoods Improvement Program in a selected basin.

> **"The risks of non-cooperation are high, as most water comes from transboundary rivers, and water use in one country may negatively affect availability and quality in neighboring countries.**

View from the Field:

Tracy Molefi

Protecting the Cubango-Okavango River to support livelihoods

Protecting the Cubango-Okavango River to support livelihoods

The Cubango-Okavango River Basin is home to 1 million people and one of the world's most pristine rivers.

The Cubango-Okavango River begins in the highlands of Angola, flows through Namibia, and then enters Botswana, where it forms the Okavango Delta. The rich biodiversity of the Delta, one of the world's largest, makes it a World Heritage site and a wetland of international importance. The Delta is a vast inland oasis in the Kalahari Desert, supporting a wide variety of wildlife and livelihoods. However, people living near this treasured but fragile resource are among the poorest in the three countries because of low levels of economic development and distance from the main economic centers.

Poverty is not only a challenge for families but also for the long-term sustainability of the CORB. In recognition of the importance of joint and coordinated management of the basin, the three CORB countries established the OKACOM in 1994.

Tracy Molefi, program coordinator at OKACOM, says that she and her colleagues are determined to promote sustainable development and management of the CORB while also improving livelihoods of communities. The main vehicle to achieve these goals is the OKACOM Strategic Action Program supported by various partners including CIWA. In keeping with OKACOM's Gender Mainstreaming Strategy and Implementation Plan, OKACOM is also taking concrete action aimed at promoting gender equality and the empowerment of women and other vulnerable groups.

While there is a thriving tourism industry in Botswana and Namibia, most people work as subsistence farmers, fish, or collect reeds and grass to make baskets and mats to sell in markets.

When Molefi began her career, she worked directly with CORB communities. "I understand their plight," she says. "I understand their challenges. I understand the issues on the ground."

"As much as I am an environmentalist," says Molefi, who has a master's degree in environmental science from the University of Botswana, "it is equally important for communities and countries to accrue benefits from this shared resource."

Enhancing climate-smart livelihoods

CIWA provided earlier support to OKACOM resulting in a Multi-Sector Investment Opportunities Analysis. The analysis identified different development scenarios, considering potential economic, social, environmental, and climate-resilient trajectories to the year 2040. It recommended three development paths, including a livelihoods enhancement program, a tourism investment framework to mobilize private-sector resources, and cooperative infrastructure development.

The pathways provide OKACOM with a framework to address the underlying drivers of poverty while protecting the environmental integrity and sustainability of the basin's water resources.

"The MSIOA was really helpful because it put things in perspective for OKACOM in terms of what needs to be done and where it can be done," Molefi says. "It helped shape the OKACOM program going forward."

Now CIWA is funding the preparation of a livelihoods program as part of its support to the RCRP. The project will build on existing initiatives to provide short-term interventions and deliver relatively quick returns over three-to-five years. This will demonstrate the proof of concept for a longer-term sustained livelihoods initiative.

CIWA's Bank-executed grant has three components. First, it will develop a program to prioritize pro-poor and resilient investments and assess the contribution of basin activities to job creation, economic growth, and environmental and social well-being that takes into consideration gender and social inclusion. Second, it will strengthen the enabling environment for the execution of a long-term livelihoods program and provide support for the operations of the CORB Endowment Fund, a unique entity created to mobilize resources for livelihoods and sustainable resource use. Third, it will provide institutional support to the OKACOM Secretariat to implement the project.

Benefits must "accrue to the people"

The CORB, as elsewhere in Africa, is experiencing extreme rainfall variability and weather events ranging from dry spells to floods. The reduction in the river's water level in Angola in 2021 and 2022, for example, forced the suspension of some livelihoods demonstration projects using climate-smart agricultural approaches because there wasn't enough water for farmers to grow their vegetables.

The MSIOA found that the Delta is more sensitive to climate change than other parts of the Basin, especially to ecological and biodiversity impacts, and recommended a focus on mitigation of a drying climate.

The CIWA project will address livelihoods from a climate-resilience perspective. For example, it could support non-timber options for livelihoods, as people's use of charcoal and trees for energy has led to deforestation and degradation, Molefi says. It could also support expansion and replication of the demonstration climate-smart horticulture livelihoods projects with access to markets.

"What is important," Molefi says, "is the long-term sustainability of the resource and enhanced livelihoods options that support the co-existence of human and natural resources of the CORB. It is our responsibility, as managers of OKACOM, to ensure that the people are taken care of. And it's important that, while countries commit to working together toward conservation of the resource, they also ensure that benefits accrue to the people."

"This support from CIWA to build this program is critical," Molefi adds. "And it's also coming at the right time, when OKACOM has completed the implementation of the demonstration project, which provides good lessons learned for possible replication under the CIWA support."

> "The CIWA project will address livelihoods from a climate-resilience perspective.

Tracy Molefi working on a community water project project site, Bubisa, Kenya. ©James Origa Otieno

Cross-cutting themes

Water Data Revolution: Closing the data gap for transboundary water in Africa

C IWA supported the Water Data Revolution (WDR): Closing the Data Gap for Transboundary Water in Africa (Bank-executed technical assistance) to improve regional organizational capacity to collect, manage, and use RS data for evidence-based decision making. This technical assistance is building regional capacity for, and demonstrating applications of, RS data platforms to improve management of transboundary waters. WDR is helping clients adopt RS data and data platforms for decision making by (i) supporting end-to-end, sustainable, demand-driven services and (ii) testing and adopting efficient and free or low-cost hydro-informatics data, tools, and services. This initiative has three pillars: Pillar A) assessment of needs, Pillar B) capacity building, and Pillar C) adapting innovative tools for improved management of water resources.

WDR first assessed the data demand and capacity of RBOs from 37 SSA countries, which revealed data gaps and priority needs that could be mitigated through adoption of RS-based technology, data products, and analytical tools. WDR then used the outcomes of the assessment to provide virtual capacity building for RBOs.

In parallel to capacity-building activities, WDR initiated the development of a Water Accounting Dashboard for the Volta Basin Authority (VBA) and the INMACOM. The assessment found a need for RBOs to have an overview of their water resources at a larger scale (e.g., basin level). To maximize the effectiveness of investment in WRM, two factors are crucial: (i) the availability of accurate and appropriate data and (ii) a shared understanding and acceptance of management options among diverse stakeholders.[39] This requires the establishment of a suitable framework for planning, monitoring, and evaluating water resources within river basins. Therefore, Water Accounting becomes one of the essential tools for improved and informed management of water resources at the basin level, allowing RBOs to build a better understanding of the status of the resource and plan future investments accordingly.

WDR initiated development of a Water Accounting Dashboard in February 2024 to showcase how continental-scale products can be transformed into practical and actionable tools for water accounting applications, customized to meet needs and requirements and provide valuable insights into water availability, usage, and trends. The development of user-friendly dashboards is crucial, as it simplifies complex data into visually engaging and easy-to-understand formats. This ensures that stakeholders with varying levels of technical expertise can use the information efficiently for decision making and planning.

To launch this project, an initial technical consultation workshop was held with VBA specialists and representatives from member countries. This collaborative workshop allowed VBA to outline its expectations, identify needs, and guide the creation of a comprehensive, user-friendly, and interactive dashboard. The workshop was essential for involving VBA and its stakeholders in a participatory

[39] Karimi, P., Bastiaanssen, W. G. M., and Molden, D.: Water Accounting Plus (WA+) – a water accounting procedure for complex river basins based on satellite measurements, Hydrol. Earth Syst. Sci., 17, 2459–2472, https://doi.org/10.5194/hess-17-2459-2013, 2013.

design process, ensuring he dashboard met their requirements for monitoring water resources, understanding water use and availability, and supporting informed water management decisions. Following the workshop, the technical development of the dashboard proceeded over a three-month period, culminating in the finalization of the initial prototype.

After the dashboard development, a capacity-building workshop was held in May 2024 in Accra, Ghana. The training covered the potential of RS data in WRM and focused on operationalizing use of the dashboard, which included how to use the functionality of dashboard tools, incorporate outputs of the dashboard into decision making, and manipulate the dashboard for VBA's needs. The workshop also provided a crucial platform for discussing the dashboard's role in enhancing decision making across the Volta Basin and its potential for optimal WRM in a transboundary context. Based on feedback, the beta version of the Water Accounting Dashboard was finalized and presented to VBA in June for final validation. VBA is now integrating the dashboard into its online servers and webpage.

A similar process is under development for INMACOM. Online consultations took place in August 2024. Launch of the dashboard along with a capacity-building workshop is expected to be in September 2024.

WDR has been extended to December 2024 to compensate for delays in development of the dashboard, which is being implemented by the International Water Management Institute. In this last phase, WDR and the institute will finalize the development of the Water Accounting Dashboard for selected RBOs and provide training and capacity building on use of RS data.

Participants at the water accounting workshop in Accra, Ghana, May 2024. ©Noosha Tayebi / CIWA Program

Biodiversity and Conservation

Unsustainable patterns of consumption and production are recognized as the root causes of climate change, biodiversity loss, and pollution, which can be mitigated through the implementation of sustainable land use and resource management practices. Women in many developing countries are the principal users and managers of land, with primary responsibility for household food production and water use. Their role in promoting sustainable land management is an opportunity to achieve the dual objective of sustainable land management and gender equality. Considering these challenges, in FY23 CIWA assessed its biodiversity work,[40] which concluded that CIWA operations have supported a range of regional biodiversity-related activities.[41] These activities provided both direct and indirect benefits to biodiversity conservation, however, they were largely opportunistic and lacked an explicit agenda and systematic approach to improve transboundary water-related biodiversity conservation.

The objective of the CIWA Biodiversity Framework, which was completed in FY24, is to align CIWA's transboundary water cooperation efforts with biodiversity conservation goals, including identifying opportunities at the intersection of transboundary water management and freshwater biodiversity and conservation. The vision of the Biodiversity Framework is *improved transboundary water management that supports biodiversity conservation to ensure more climate-resilient communities are better equipped to plan for and mitigate climate-related shocks, support livelihoods, sustain health and life, and improve economies*. The implementation of the CIWA Biodiversity Framework is focused on three interconnected areas: i) programmatic level, ii) project level, and iii) tools and solutions. CIWA's effort is aligned with the World Bank's commitment to supporting the implementation of the Global Biodiversity Framework adopted at the 15th Conference of the Parties of the Convention on Biological Diversity (COP15). The implementation of the Framework will be guided by its Theory of Change, which outlines the vision, context, key focus areas, and results areas.

In FY24, NCCR supported the LVBC to deliver the EAC Water Quality Management Policy, which will address the challenges of fragmented responsibilities, lack of uniform water-quality standards, and uncoordinated efforts to promote environmental sustainability, public health, and socioeconomic development. The project also created water-quality models for the Jemma River in Ethiopia and the Mwanza Gulf in Tanzania using hydraulic, hydrological, water-quality, and climatic data to better understand the drivers and sources of pollution.

The support to the Lake Chad Basin will deliver an irrigation development plan that considers both shallow groundwater and surface water resources to ensure efficient and equitable distribution of water for agriculture. This plan will incorporate environmental and biodiversity sustainability data in the hydrological modeling and climate change scenarios.

CIWA's new support to the RCRP through the South Sudan Transboundary Waters Support Program and the Strengthening Transboundary Basin Organizations through Program Development and Capacity Building in Africa grants is anticipated to deliver results in supporting biodiversity knowledge generation and conservation capacity building. In FY25, the South Sudan program will begin generating a detailed understanding of how South Sudan's ecosystems in the Sudd wetlands influence the basin's hydrological balance. The operation will create a freshwater biodiversity baseline and evaluate anthropogenic pressures on ecosystems in the wetland. Strengthening Transboundary Basin Organizations will begin Lake Kariba fisheries cooperation work.

> **"CIWA's effort is aligned with the World Bank's commitment to supporting the implementation of the Global Biodiversity Framework adopted at the 15th Conference of the Parties of the Convention on Biological Diversity (COP15)**

[40] See Annex B of CIWA's new Biodiversity Framework
[41] https://www.ciwaprogram.org/rcv1/biodiversity-and-conservation-framework/

Gender Equality and Social Inclusion

CIWA has ramped up its efforts to apply a gender-transformative approach to shift gender norms and consider the diverse needs of vulnerable populations throughout transboundary water institutions and programs.

A key strategy is CIWA's GESI training. The NBI is one of the lead intergovernmental organizations in SSA that has adopted a gender-transformative approach and, to build on efforts of NBI centers and Nile RBOs, CIWA provided a two-day GESI training to the NELSAP, ENTRO, and LVBC. The training was offered in response to requests by each of the organization's Gender Focal Points to address shortcomings in staff capacity to understand the basics of gender equality and to improve their ability to mainstream GESI into projects and programs. It was targeted to all staff within each organization and secured senior management participation to ensure long-term commitment to GESI.

Using a participatory and practical approach, the two-day training included facilitation of collective engagement on revisions of organizations' respective Gender Action Plans. Previous gender plans focused on mainstreaming GESI at the project and institutional level. Building on the findings from surveys from Equal Aqua,[42] the revised plans have now identified concrete actions that can be taken by staff to address gender barriers such as providing access to childcare. As part of broader communications efforts that include regular social media outreach to promote CIWA's GESI work, a blog about the training was published to showcase the approach and outcomes.

Another key vehicle supporting gender transformation is CIWA's Male Champions for Women's Empowerment (MCWE) initiative, which is designed to work with men to counter cultural norms about men's dominance in the water sector. Male champions work with other men to foster more gender-equitable spaces for women's participation and leadership in the water sector and to confront resistance to women's empowerment. CIWA sees this as a critical way to create a favorable enabling environment for women to become leaders, thus facilitating more equitable and inclusive decision-making processes about water resources.

MCWE hosted monthly virtual meetings to identify concrete actions that Male Champions can take and foster collaboration, as articulated in the MCWE Action Plan. Steps have also been taken to recruit new Male Champions, with five new members joining from Southern and West Africa.

CIWA showcased the MCWE at the Women in Water Diplomacy Network Second Global Network Forum, which generated significant interest in this strategic and novel approach. To guide the evolution of the MCWE, CIWA conducted a survey of Male Champions to understand their needs and interests and validate the initiative's new name and objectives. In September, MCWE co-hosted an online event in partnership with the Women in Water Diplomacy Network to explore challenges women face within the transboundary water sector and identify actions that Male Champions can take to address them.

CIWA also updated its GESI Framework this year. In addition to capturing work undertaken since it was written in 2021, the framework now includes a Theory of Change, which builds on actions to ensure that GESI is effectively captured by revised indicators in CIWA's Results Framework.

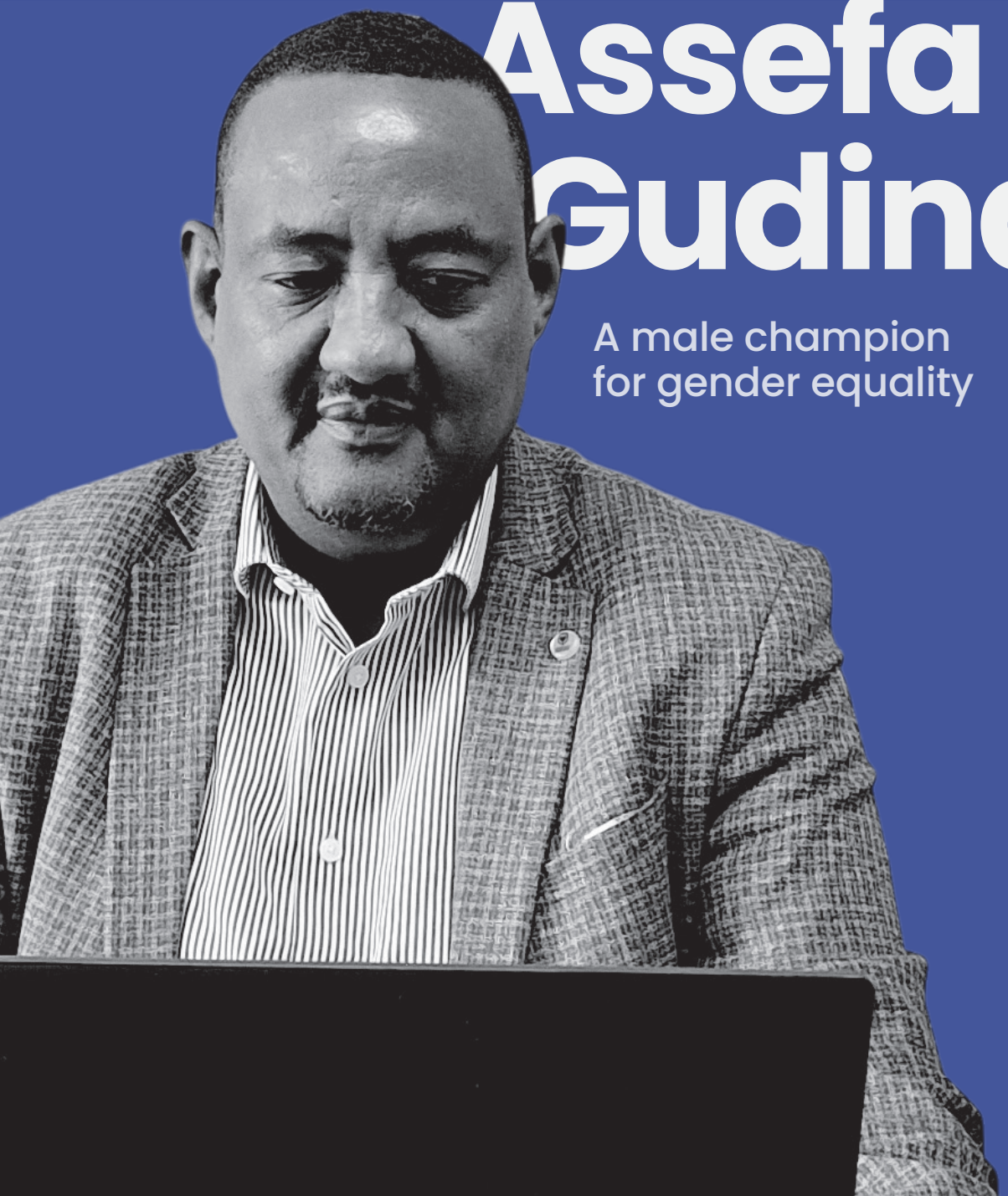
CIWA will continue to increase its focus on ensuring that projects commit the necessary technical expertise to facilitate GESI mainstreaming throughout the project cycle. CIWA's GESI expert has also reviewed and revised the FCV and Biodiversity frameworks to ensure that gender is considered in those areas.

CIWA will host a one-day in-person meeting and a side event to showcase the MCWE at the Waternet Symposium scheduled to take place in Lesotho this fall. Building on findings from the NBI GESI training, CIWA is also planning to co-host a Learning Event with Equal Aqua in 2025, which will focus on actions to make the work environment more gender friendly.

[42] https://www.worldbank.org/en/topic/water/brief/inclusive-water-institutions-platform

View from the Field: Assefa Gudina

A male champion for gender equality



A male champion for gender equality

Assefa Gudina is blunt when it comes to describing why he joined CIWA's new Male Champions for Women's Empowerment initiative. "Leaving half of society out and discouraging them and their participation is a crime."

In the male-dominated transboundary water sector, men who support gender equality are well-positioned to challenge cultural norms about gender roles and advocate with other men to advance women's equality and empowerment in water resources institutions.

That is precisely what the new CIWA initiative seeks to do. It has recruited a group of Male Champions to take actions individually and collectively to spark a reduction in gender inequalities and an increase in women's participation in decision making on WRM.

"Unless males encourage the empowerment of women, the issue of gender will continue as a business-as-usual scenario," says Gudina, 48, ENTRO's regional social and environment officer and gender focal point.

"The Male Champions initiative is a very powerful effort to empower women," he says. "If I as a male talk with another male, the acceptance is more. He can bring about change." But, Gudina adds, it's important for Male Champions to ensure that their advocacy of gender equality doesn't become "another form of male dominance."

Building on progress in the Nile Basin

Gudina says that ENTRO and NBI are more advanced on GESI issues than other workplaces he has experienced. He said that while other organizations have gender plans, "there is always failure in implementation because of the lack of commitment by decision makers" to find the budget resources, allocate staff time, and conduct monitoring and evaluation activities.

For example, he says, gender is rarely considered in procurement for goods and services or in hiring processes and decisions because of a lack of policies, strategies, and directives. Gudina adds that organizations need to do more to create working conditions that are attractive to women, such as having onsite childcare and dedicated spaces for breastfeeding.

"Whenever it came to gender issues, putting women aside was very common," says Gudina, who lives in Addis Ababa with his wife, two daughters, and son.

But at NBI and ENTRO, he says, "the commitment of management is very good," including allocating budgets for gender-related activities and conducting gender training. They are also supporting his proposal to hold a gender forum for eastern Nile countries. The NBI has shifted from a gender-neutral approach to paying close attention to the challenges facing women and girls by mainstreaming gender into its structures, programming, and processes.

"The vision of NBI is to achieve sustainable social and economic development and to benefit from common water resources," he says. "Unless we encourage men and women, boys and girls, to participate, we cannot achieve sustainability."

It's critical to bring others along in the journey toward gender equality. The need is great throughout the region.

"Experts and team leaders working in water-related sectors in Eastern Nile countries have little-to-no understanding of NBI's gender mainstreaming policy and strategy, only a basic understanding of gender equality, and knowledge gaps on gender-responsive planning and mainstreaming," Gudina explains.

CIWA has conducted two GESI training sessions for 30 people in the Nile region to begin to close those gaps and mainstream GESI throughout the organizations and projects it supports. Gudina's role as a Male Champion and gender focal point motivated him to approach CIWA to conduct a training.

Advocating for women at home and in the workplace

Gudina says it's important for men to encourage women to participate in, and speak up at, meetings and to advance women through the ranks of an organization.

"As a Male Champion, you look around and see where are the women in the meeting? How many of them? Are they powerful? At what decision level? I have to tell them they must be very strong."

"Women are our wives, our mothers, our daughters, our sisters," he says. "They should be treated equally. I am encouraging my daughters to be in the front, to do their best to be future leaders."

> **"Women are our wives, our mothers, our daughters, our sisters. They should be treated equally.**

Male Champions for Women's Empowerment Initiative meeting in Vienna, Austria, led by CIWA Senior GESI Consultant Ellen Hagerman, March 2024. ©Baraka Karama / LVBC

Climate Resilience

Transboundary water management is a global public good that is often a prerequisite for other public goods such as access to safe, reliable water and resilience to extreme weather. While it is widely acknowledged that international waters have created opportunities for fostering regional economic and political integration through cooperative development, the added complexity of cooperation in internationally shared river basins can also lead to tension and suboptimal development of shared public goods. Climate change is a conflict multiplier, and water scarcity during droughts has been a direct source of small-scale violent conflicts between pastoralists and farmers throughout SSA, with women and girls facing the most negative impacts.

Since its inception, CIWA has brought climate change mitigation and resilience considerations to the forefront of its work. It is well aligned with the World Bank's Climate Change Action Plan 2021-2025 and Action Plan on Adaptation and Resilience, which prioritize mainstreaming climate change and addressing climate resiliency. Cooperative transboundary WRM is important for a climate-resilient planet and people.

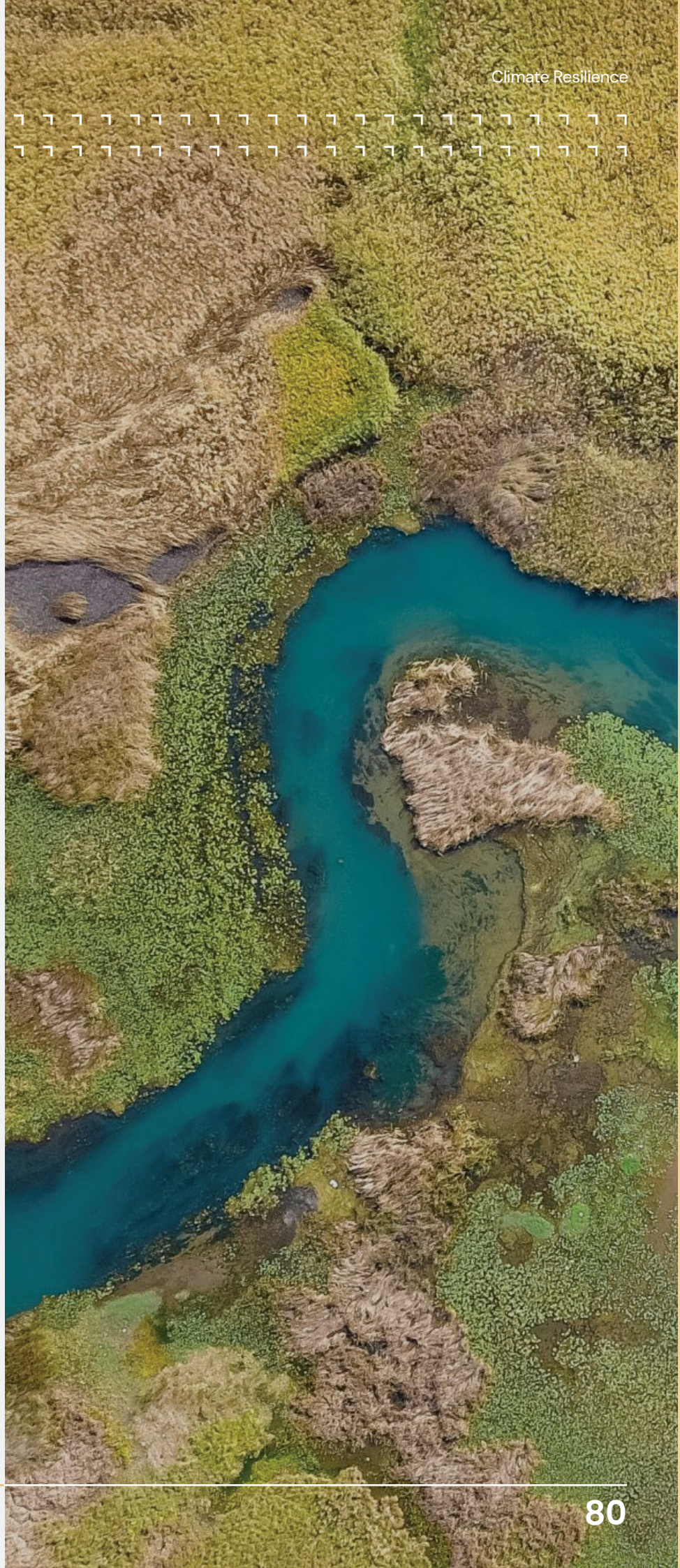
To inform its engagement in international waters, CIWA undertook a strategic assessment of its climate-resilience portfolio to identify the opportunities, value proposition, and risks for moving CIWA's transboundary engagements forward with a new CIWA pipeline and potentially suggest new focus areas for engagement. CIWA prioritizes work to address the consequences and causes of climate change regarding transboundary waters management and development and regional water security more broadly, however, it lacked a systematic view of its climate-resilience portfolio. The stocktaking shows that CIWA has significantly contributed to enhancing climate change resilience and mitigation in transboundary water resource management and development in most, if not all, basins and regions where it works in SSA. Climate resilience has been a core objective of many of its strategies and projects. CIWA facilitated regional climate change scenario planning and included climate risk assessments in the planning and development of water infrastructure. CIWA also supported studies and projects that target water sectors with high vulnerability or adaptation potential such as groundwater, flood and drought management, and agricultural water use. Through collaboration with the World Bank's Environment and other Global Practices and international NGOs, CIWA connects climate change to other regional and global challenges such as gender equity, poverty reduction, biodiversity, migration, and fragility in its work.

The stocktaking and analysis found these key results:

- The predominant mechanism that CIWA contributes to climate change mitigation is through its influence on six major hydropower investments: four mobilized and two potential. Mobilized hydropower investments resulted in greenhouse gas (GHG) mitigation of 23,770 $ktCO_2eq$/year
- On a much smaller scale, multiple CIWA operations also contribute to GHG mitigation through implementation of solar-powered pumps for groundwater use.
- CIWA has influenced the design of additional potential investments that would lead to GHG mitigation (through hydropower, solar-powered pumps, and watershed management) when they are eventually realized, including potential investments from Nile, Niger, and Cubango-Okavango River Basin operations.
- The most prevalent climate resilience actions supported by CIWA operations relate to (i) promotion of regional cooperation on flood-risk reduction, (ii) provision of WRM training and expertise to RBOs to improve the climate resilience of water systems, and (iii) support for the supply side of water management by expanding supplies, reducing water losses, and/or improving cooperation on shared water resources.
- CIWA also contributes to climate resilience through influencing investments in flood protection, water quality, and water supply. Sanitation, including wastewater management and wastewater collection, transportation, treatment, and disposal is the least represented water sub-sector in CIWA's portfolio, with only one occurrence, which was to be expected considering that CIWA focuses on water resources management.

CIWA has contributed to i) influencing investments that are now delivering a significant fraction of SSA's hydroelectric power, ii) delivering core information and institutional inputs that are requisite for climate change adaptation and resilience, and iii) expanding its portfolio to previously lightly-touched sectors that are linked to climate resilience and mitigation such as water quality; dam safety; nature-based storage solutions; groundwater management and sustainable use; and biodiversity, ecosystem services, and conservation. These sectors are critical for resilience to extreme weather but have only minor mitigation benefits that are not linked to the energy sector (e.g., through watershed management). CIWA's active and pipeline projects include multipurpose dams, and future mitigation investments will likely focus on smaller investments such as in carbon sequestration through climate-smart watershed management and rehabilitation plans, solar-pumped groundwater investments, and wetlands and biodiversity protection. CIWA's current portfolio embraces its strong track record of climate resilience through improving regional water resource management and planning while leaning into the trajectory on increased flood- and drought-risk management, dam safety, and water quality actions.

"Transboundary water management is a global public good that is often a prerequisite for other public goods such as access to safe, reliable water and resilience to extreme weather.



CIWA's Impact in GHG Mitigation: Kariba Dam Rehabilitation Case Study

The Kariba Dam Rehabilitation Project (KDRP) has produced a series of climate resilience and mitigation benefits, crucial in the Southern Africa region, which is facing growing water insecurity from prolonged droughts.

The Zambezi River Basin is a rainfed watershed, highly vulnerable to both extreme floods and droughts. While the last major flooding took place in 2013, Southern Africa has more recently been gripped by severe droughts, which reached historic levels in 2024.[43]

The Kariba Dam and Hydro-Electric Scheme is the largest hydropower installation on the Zambezi River, with a combined installed capacity of 2,130 MW. It was built in the 1950s, creating Kariba Lake, the world's largest artificial lake by volume. Located at the border between Zambia and Zimbabwe, the Kariba Dam Hydro-Electric Scheme is jointly operated and maintained by the two countries of the Zambezi River Authority (ZRA). The power stations account for 37 and 42 percent of the total generation capacity of Zambia and Zimbabwe, respectively. After more than 50 years of operation, the Kariba Dam needed time-sensitive rehabilitation of degraded parts of the structure.

From its inception in 2011, CIWA selected the Zambezi as one of its priority basins of engagement. CIWA facilitated dialogue between riparian countries to advance the crucial rehabilitation of the Kariba Dam. In particular, the Zambezi River Development Project paved the way for the subsequent World Bank's KDRP. CIWA's influence on the KDRP was threefold: first, the ZRA had not yet been a client of the World Bank, and CIWA's upstream engagement with it helped build a common understanding. Second, CIWA financed a dam break analysis to evaluate the socioeconomic and environmental consequences of a potential dam failure, which was later delegated to KDRP to become a component of the Bank-financed operation. Third, the CIWA team supported the resolution of a long-term debt dispute between Zambia and Zimbabwe over the Kariba complex. Rebuilding trust and dialogue was a prerequisite for the complex international arrangement around Kariba's rehabilitation.

In terms of climate resilience and mitigation, the dam and lake provide an invaluable source of water storage for human use, fisheries, and agriculture, which is vitally important to mitigate the effects of drought in the region. The dam also ensures a constant flow throughout the year, which is critical during the dry season. Upon completion of the rehabilitation works, it is projected that 3 million people will benefit from reduced disaster risks and US$8 billion of assets will be better protected from extreme flooding. Finally, hydropower can play a key role in reducing the carbon intensity of electricity in Southern Africa, which currently largely depends on coal.[44] The operation of Kariba Hydro-Electric Scheme helps mitigate a total of 10.17 $mtCO_2eq$ annually.

The most important long-term benefit from CIWA's activities might be the improvement of cooperation between Zambia and Zimbabwe through the ZRA. Cooperation over international waters itself contributes to climate resilience, as countries coordinate their response to the changing climate.

[43] NASA Earth Observatory, Severe Drought in Southern Africa https://earthobservatory.nasa.gov/images/152711/severe-drought-in-southern-africa
[44] SADC Energy Pillar. https://www.sadc.int/pillars/energy

Support to FCV-affected regions

In FY24, the World Bank designated 18 countries in SSA as FCV-affected situations; CIWA supported work in eight of these.[45] FCV-affected countries generally have high levels of poverty and limited job opportunities, which contribute to a cycle of fragility and conflict.

FCV-affected countries are significantly impacted by climate variability, which exacerbates food insecurity and economic instability. For instance, increased climate variability has led to more frequent droughts, floods, and pest attacks, further complicating efforts to achieve food security and sustainable development. CIWA continued to deepen its support to countries affected by FCV and remains engaged in four high priority FCV-affected regions—the Horn of Africa, West and Central Sahel, Lake Chad, and the Great Lakes. FCV is one of CIWA's key cross-cutting development priorities, along with GESI, resilience to climate change, and biodiversity conservation. There is direct but complex interplay between FCV, GESI, climate change, and biodiversity that requires un-siloed approaches to development, and transboundary WRM and development exist at the intersection of these. In June 2024, CIWA released its updated FCV Framework,[46] which recognizes that women and other vulnerable populations tend to be more negatively affected in FCV contexts and are often underutilized change agents. The FCV Framework Theory of Change identifies measurable paths to achieving equitable progress in FCV countries and ensuring that regional work does not exclude them. These are incorporated into the new CIWA ToC and Results Framework.

The objective of CIWA's FCV Framework is to enhance the program's effectiveness in contexts affected by FCV by providing key resources and a concise framework to identify the relevant drivers of FCV and their links to project elements, manage and minimize risks throughout operations, and do no harm. It provides guidance to help CIWA specialists develop a strong narrative that showcases a project's contribution to addressing the identified drivers of fragility that have an impact on water cooperation.

While all CIWA grants reach people in FCV-affected countries, some operations are building on and extending long-term support to the most challenging situations in the world. The South Sudan Transboundary Waters Support Program is addressing climate risks in refugee settlements

[45] Burundi, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Eritrea, Guinea-Bissau, Mali, Niger, Nigeria, Somalia, South Sudan, Sudan, Togo, and Zimbabwe
https://thedocs.worldbank.org/en/doc/608a53dd83f21ef6712b5dfef050b00b-0090082023/original/FCSListFY24-final.pdf
[46] https://www.ciwaprogram.org/wp-content/uploads/FCV-Framework-V3-June-2024.pdf

with the aim of designing better, more targeted investments for these vulnerable populations in FCV settings. Untapping Resilience is helping the GW4R program collect original data on local conflicts (often between pastoralists and farmers) and the water-related drivers of conflicts in the HoA borderlands and use their findings to improve investment planning. In FY24, the team released a Policy Brief[47] based on data collected by the Rift Valley Institute.[48] The report concludes that while access to water often exacerbates long-standing disputes between communities, historic competition at the individual, clan, or communal level may be a more significant conflict driver in the HoA borderlands. It provides a series of recommendations to improve water point sustainability and investment planning, and the GW4R-MIS tracks geo-tagged community survey results about conflict drivers and occurrences (cross-referenced with water points).

In FY25, ongoing CIWA operations anticipate delivering core results with FCV-affected communities in South Sudan for flood resilience; groundwater management in the Horn of Africa borderlands, DRC, and Zimbabwe; and WRM planning in Ethiopia and Burundi. New support to West Africa and the DREVE program will likely add Cameroon, Guinea-Bissau, Mali, Niger, and Nigeria to the list of FCV-affected countries with CIWA operations. Lake Chad and the RCRP support will address core water security and climate resilience issues in multiple FCV-affected countries. The support to Lake Kariba to address international tensions over fisheries will be like work that the NBI and NBD completed on Lake Albert and Lake Edward fisheries to coordinate policies and practices for the DRC and Uganda.

CIWA has a comparative advantage for working on water resources management in FCV-affected regions. The World Bank's emphasis on climate resilience and regional public goods puts CIWA at the forefront of improving regional cooperation and water security. However, the costs for working in FCV-affected locations are much higher than average. CIWA operations maximize the use of RS and Earth Observation data, however, third-party monitoring and UN-facilitated transport drive up the costs several-fold. Commitment to these countries must include not only greater efficiency but more funding.

> **In FY24, the World Bank designated 18 countries in SSA as FCV-affected situations; CIWA supported work in eight of these.**

[47] Groundwater Management in the Horn of Africa: Conflict, Scarcity, and Hybrid Governance. http://documents.worldbank.org/curated/en/099631307172477476/IDU1c41077f215c27147db1a37617403f1366522

[48] See the CIWA FY23 Annual Report for a description of the study scope and methods.

Communications

CIWA's outreach and engagement strategy has been shaped by evolving global trends, including a notable decline in engagement on the X platform and the transformative role of artificial intelligence in communications strategies.

Enhancing CIWA's digital presence and driving content engagement through vibrant visuals and a refreshed brand voice

In FY24, the CIWA communications team made significant strides in enhancing CIWA's digital presence, focusing on the development of a visually compelling and highly functional website. This engaging platform hosts the CIWA Bulletin, which compiles the latest information about CIWA's programs and initiatives and regularly publishes updates, new knowledge products, and other content. These efforts aim to attract new supporters and donors and keep partners and stakeholders engaged in today's competitive digital landscape.

While CIWA's X account continued to yield strong results (see metrics on the next page), we saw a compelling opportunity to enhance CIWA's social media approaches by utilizing Hootsuite to refine our content strategy, optimize posting times, and elevate engagement tactics. Given the presence of CIWA's target audience on LinkedIn, we are slowly shifting our focus to this platform, seamlessly integrating AI to tailor our content for maximum impact. To amplify our reach, CIWA promoted successful partnerships with organizations dedicated to water resources management in Africa, actively engaging and tagging partners in our posts.

CIWA's social media efforts flourished in early 2024, as it celebrated reaching 4,000 followers on X. This growth was driven by our daily engagement strategies that aligned closely with CIWA's mission and vision and collaboration with the World Bank's cross-sector communications team to promote our blogs and reshare content across their channels. Creative and meaningful posts along with content on dedicated campaigns, events, and issues (Nile Day, International Woman's Day, Water Day, the Southern Africa Drought Resilience Initiative [SADRI], GW4R, publications on social inclusion, and FCV and GESI frameworks), blog posts, and "View from the Field" voices from partners and collaborators have allowed CIWA to effectively convey key messages and foster engagement with its audience.

A brand refresh is essential to stay relevant and ensure that CIWA continues to resonate with its audiences and reflect its vision and mission. This FY, the CIWA website underwent a design and content refresh. Updated, accessible, and modern typography and an expanded color palette were introduced to align with CIWA's four key thematic areas (climate resilience, biodiversity and conservation, FCV, and GESI), creating a cohesive visual identity that strengthens the program's messaging. All graphics, frameworks, X posts, and publications followed a new color system specific to each CIWA thematic area. These changes, however, are not merely visual upgrades; they are part of a broader strategy to enhance visibility, streamline communication, and help position CIWA as a leader in transboundary waters management. This update demonstrates our commitment to staying up to date and connecting with our stakeholders and partners, highlighting the evolution of our brand while staying true to CIWA's core identity.

Supporting our team projects, partners, and global events

In May, the team supported the Nile Basin's communications teams (the NBI, LVBC, ENTRO, and NELSAP) in their efforts to improve their media engagement and public relations, foster engagement, and promote their initiatives with events and workshops. Throughout the year, the SADC-GMI hosts training and conferences where participants learn about the many aspects of transboundary groundwater management. CIWA regularly supports and promotes these training and other events on X and in the CIWA Bulletin.

CIWA continues to increase its global footprint with participation in events such as the Global Workshop on Funding and Financing Transboundary Water Cooperation and Basin Development in Geneva in December 2023. CIWA Program Manager Anders Jagerskog and NBI Deputy Executive Director Michael Kizza made a joint presentation there on NCCR.

This year's Nile Day held special significance, as the NBI commemorates 25 years of service. We celebrated the NBI with a special social media campaign dedicated to its important work.

At the Women in Water Diplomacy Network Forum in March 2024 in Vienna, Jagerskog and Assefa Gudina from ENTRO presented on CIWA's Male Champions Forum for Women's Empowerment. This session, held as a world café, generated much interest from attendees.

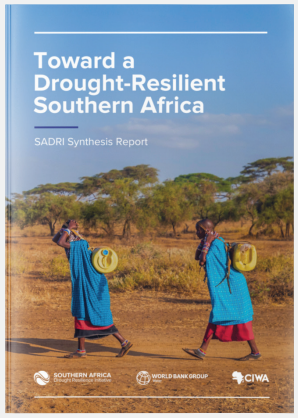
CIWA publications: overview of recent releases

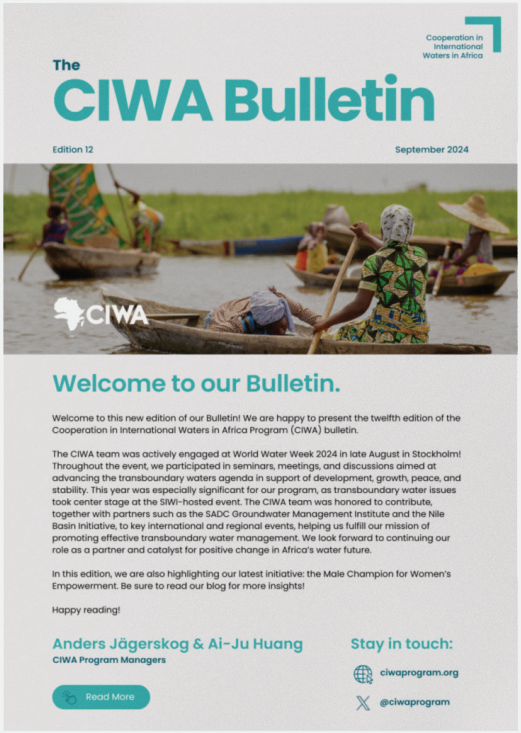
CIWA's communications team designed and promoted the new report, *Toward a Drought-Resilient Southern Africa*,[49] which provides an overview of the challenges posed by drought in Southern Africa and the progress made in recent years by the SADRI initiative to identify and fill knowledge gaps and explore integrated systems and frameworks to build drought resilience in the region.

The team also designed the latest cross-cutting issue framework—the FCV Framework. This provides Task Teams with step-by-step guidance to enhance the effectiveness of CIWA-funded activities in FCV-affected areas. It provides background information on CIWA's engagements in water cooperation for building a relevant project narrative and methodology for systematically applying conflict sensitivity to project design and throughout the project cycle.

Furthermore, the team provided robust communication support for the launch and ongoing development of the Male Champions for Women's Empowerment to engage men to advocate for gender equality and women's empowerment in transboundary contexts. Through these proactive approaches, CIWA continues to strengthen its visibility and impact in the realm of water management and gender equality.

In FY25, CIWA's content strategy will continue to highlight its projects, milestones, and collaborations, showcasing its expertise in helping partners manage international waters across Africa. Additionally, CIWA will leverage LinkedIn to recruit male champions and passionate individuals committed to water management and African development and prosperity, while increasing awareness of CIWA's mission to attract potential donors and supporters. Through a professional and engaging tone, CIWA aims to strengthen connections and drive meaningful outcomes in our outreach efforts.





[49] Toward a Drought-Resilient Southern Africa. 2023
https://www.ciwaprogram.org/rcv1/toward-a-drought-resilient-southern-africa-sadri-synthesis-report/


50,000+
Website visitors
Jul 2023 - Jun 2024
10 +
Publications
Prepared, designed, and published:
Briefs
FCV / GESI / Biodiversity frameworks,
Annual Report 2023 in English and French.
368
Social media posts
1
+
4,036
Followers on X
Since July 2023
3
CIWA Bulletins
46%
Increase* in traffic
to the CIWA program website
3,000+
Bulletin Recipients
Donors, partners, and the public receive updates on CIWA's work in our quarterly bulletin.
78%
increase* in downloads
of CIWA resources and publications
6
Social Media Campaigns
12
Original Blogs
projects, publications, news, and ongoing activities across Africa.
24k
Post views
on average per month on CIWA's posts

Looking Ahead

This Annual Report has showcased the achievements of the CIWA team in the last year along with the collective impact of our partners, governments, donors, and the communities we seek to positively impact. Each success story represents lives improved, conflicts averted, and natural resources preserved for future generations.

Looking ahead, we remain committed to realizing our vision of a continent where transboundary waters are managed cooperatively, sustainably, and inclusively. As you've read on these pages, the challenges are significant but so, too, are the opportunities for progress.

Like the World Bank, CIWA is stepping up its ambitions and efforts to address climate change, biodiversity destruction, and water and food insecurity. We are building the capacity of governments and RBOs to better manage their water resources, generating and sharing knowledge, and paving the way for strategic investments in sustainable water resources management and development. In doing so, we are contributing to the improvement of transboundary water resources as a regional public good, reduction of poverty and increase in prosperity, and adaptation to a warming planet.

Countries simply cannot develop without well-managed water resources. And that cannot happen without cooperation across borders. Since 2011, CIWA has laid the groundwork for countries and RBOs to join forces for the greater common good. That cooperation is more important than ever given growing global challenges such as climate change, conflict, and fragility. We are leaning into promoting groundwater as a sustainable water resource, ameliorating FCV, conserving biodiversity, and building climate resilience. And we will continue our groundbreaking work to engage male champions of women's empowerment in the water resources field.

In the coming year, we plan to launch a new initiative with NBD to engage communities in water and climate data generation to enhance climate resilience, water resources management planning, disaster preparedness, and cooperation. We plan to launch an initiative in the future that will support the World Bank's DREVE program with knowledge generation and other activities through renewed support to the Niger Basin Authority.

As always, we have more projects and initiatives in our pipeline than funding for them, and we will continue our efforts to step up donor support of CIWA.

With your continued encouragement —and hopefully with new donors—we will progress on our journey to unlock the full potential of Africa's shared waters.

Annexes

Annexes

Annex 1

Allocations

Annex 1 describes the CIWA portfolio in terms of the proportion of its allocations[50] according to grant types, partner types, engagements (geographical), and primary outcomes.

The key points are:

Figure A1.1 shows that RETF grants still dominate the portfolio. The two active RETF grants are the NCCR and SADC Groundwater Management Phase 2 projects. RETF grants are 62 percent of the cumulative portfolio, a decrease from previous years. The costs for preparation and supervision of grants remain below 6 percent.

Figure A1.2 shows that CIWA's cumulative portfolio includes a wide diversity of regional institutions. As in previous years, the majority (64 percent) of RETF clients and technical assistance partners are regional RBOs. The breakdown aligns with CIWA's intention to provide long-term sustained support to regional RBOs while also diversifying support to new types of partners.

Figure A1.3 includes all engagements. CIWA has engagements in all Sub-Saharan Africa regions: the Nile Basin share of engagements is roughly 45 percent, the Southern Africa portfolio is 22 percent, HoA is 12 percent, and West and Central Africa allocations are 17 percent (the remaining going to Africa-wide technical assistance).

Figure A1.4 shows the cumulative primary outcome of CIWA allocations (including the pipeline). CIWA allocations to large infrastructure stayed at 12 percent. Small and nature-based investments are 15 percent, and institutional and information systems support is 73 percent.

Figure A1.1: Allocations by Grant Type

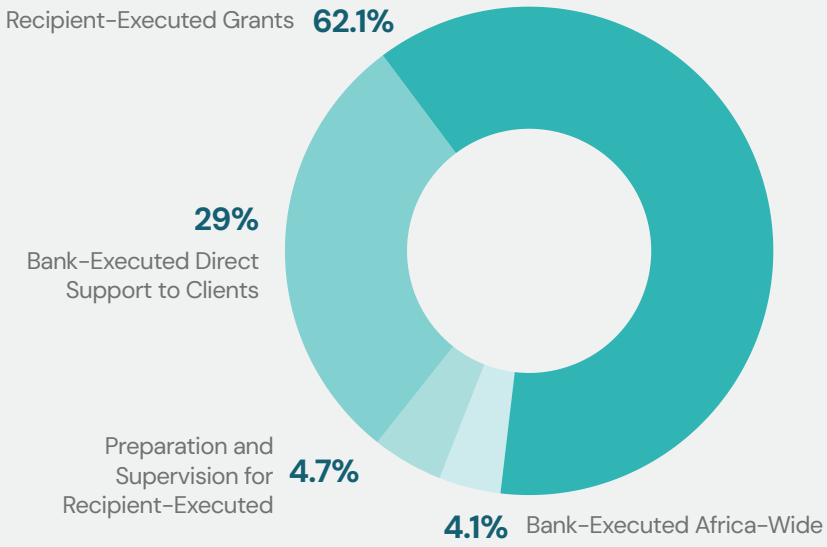
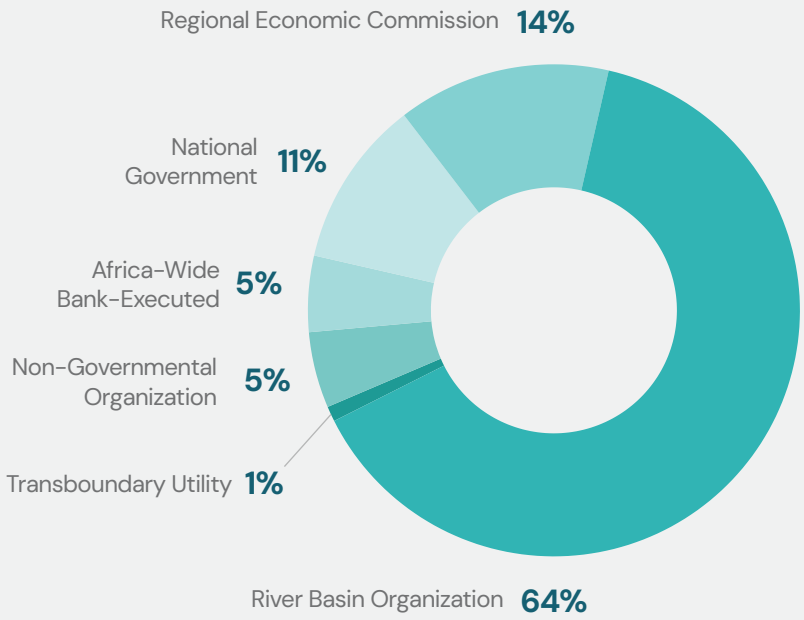


Figure A1.2: Allocations by Partner Type



[50] Every year's allocation analysis is cumulative except where explicitly described otherwise and include pipeline allocations, which are listed in Table A4.5 of the respective CIWA Annual Report. Caveats are present in the longitudinal allocation data because changes can occur in the pipeline (although endorsed by the Advisory Committee) and major country context shifts can also be influential.

Figure A1.3. Allocation by Engagement

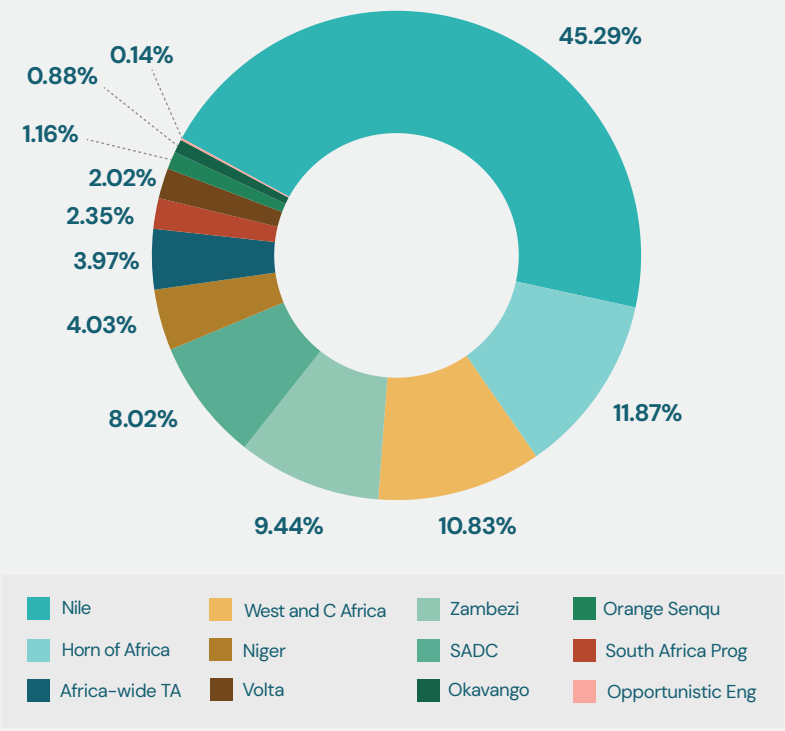
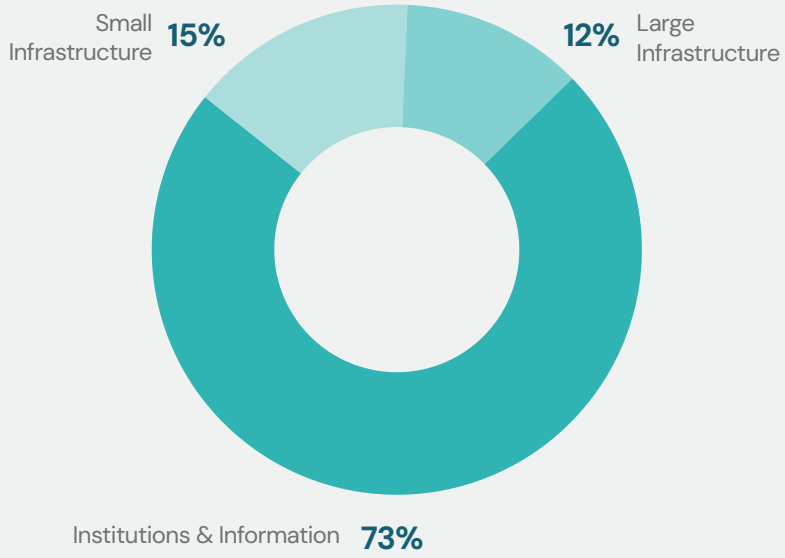


Figure A1.4. Allocations by Primary Outcome (2024)



Annex 2

CIWA 2.0 Results Framework

CIWA reports against its Results Framework annually. This provides both quantitative and qualitative reporting on achievements from CIWA-funded activities. Coinciding with the CIWA 2.0 program formulation, the Results Framework is revised to better align with the shifts in the CIWA 2.0 Theory of Change and measure higher-level outcomes. The CIWA 2.0 Results Framework provides standard operating procedures for all indicator definitions and methodologies. The Program Development Objective (PDO) is unchanged and PDO indicators are only edited for clarification and do not represent a substantive difference from past usage.

Annex 2 explains how specific projects contribute to achieving each annual target. Targets are established for the coming year. Indicators are no longer explicitly cumulative. Cumulative indicator results assessments and whole-of-basin narratives that synthesize results from across many years and several operations are provided through MTRs.

Progress against the PDO (to strengthen the cooperative management and development of international waters in Sub-Saharan Africa to facilitate sustainable climate-resilient growth) is measured by (i) the value of investments influenced and (ii) the number of people expected to directly benefit from investments. Table A2.1 lists all potential investments that operations influenced.

Table A2.2 lists all mobilized investments. Changes in FY24 are the mobilized groundwater investments in Ethiopia influenced by Untapping Resilience (implemented by the GW4R project) and SADC member states. There are no changes to potential investments in FY24.

Table A2.1. Potential Investments Influenced by CIWA

Potential Investment	CIWA's Role	Estimated Current Investment Value (US$ Billions)	Estimated Number of Potential Beneficiaries (Millions)	Anticipated Benefits
Sahel Boreholes and Wells investment	Added 2022; Sahel Groundwater Initiative. Influenced PRAPS2 project investment	0.01	12	Not yet available
Senegal-Mauritania Aquifer Basin investment	Added 2022; Sahel Groundwater Initiative	0.21	36.6	Not yet available
Merti Aquifer pilot project (Kenya and Somalia)	Provided feasibility study; HoA Groundwater Initiative (added FY21)	0.00478	0.0304	Strengthened resilience and economic development
Nile Basin Investments (14) from NCORE	Supported NBI through NCORE and Nile Basin Support Program to facilitate cooperative activities such as improved WRM and the identification and preparation of regionally significant cooperative investments	6.936	7	Increased water supply, increased power generation, improved watershed management, irrigation development
Lesotho Highlands Botswana Water Transfer	Financing study to explore costs and benefits of water transfer and incentivize cooperation	0.8	2	Increased water supply, additional revenues
Cubango-Okavango Livelihoods Enhancement Program	Support for the Multisector Investment Opportunities Analysis to develop long-term investment and livelihoods improvement programs; ongoing support for developing the next phase following the MSIOA	0.9	Not yet available	Increased income; access to water, sanitation, and sustainable energy; actions to address hunger and disease; and promotion of gender equality, education, and environmental sustainability
Luapula Sub-basin Investments	Exploring potential cooperative legal and institutional arrangements for a future Luapula River Authority; updated in FY21	2.17	8.4	Increased power generation
Total		US$11.7 billion	66.0304 million people	

[51] The number of beneficiaries is based on the projected production of 4,420 GWh/year mean annual generation and based on average consumption in SSA and domestic demand of around 35 percent.

Table A2.2. Mobilized[52] Investments Influenced by CIWA

Mobilized Investment	CIWA's Role	Estimated Current Investment Value (US$ Billions)	Estimated Number of Potential Beneficiaries (Millions)	Anticipated Benefits
Groundwater investments in Ethiopia borderlands	Added FY24. Implemented by GW4R. Influenced by Untapping Resilience	0.022	0.164	HoA borderland communities have improved water supply and water quality.
SADC GMI Phase 2 project Subgrants	Added FY24. Includes investments in 12 SADC member states for community groundwater management	0.0016	0.251	Improved groundwater supply and management systems for communities.
Niger Basin Climate Resilience Investment Project	Conducted technical and political consultations to develop investment plan	0.2	4.0	Rural livelihoods, early-warning and climate information systems, climate resilience.
Kandadji Dam	Supported analytical study of resettlement best practices	1.0	1.0	Increased power generation, irrigation development, job creation.
Kariba Dam	Produced studies on rehabilitation of the dam, which led to a decision to invest in safety and reliability improvements	0.294	3.0	Increased power generation, reduced risk, and avoided disaster.
Batoka Gorge Hydro-Electric Scheme (HES)	Analysis of financial implications of the investment and facilitated negotiations to review findings and encourage project renewal, additional engineering studies and investment preparation	4.0	6.0	Increased power generation.
Lake Chad Recovery Project (building on the Lake Chad Development and Climate Resilience Action Plan)	Support for development of Action Plan to execute the investments within the climate resilience project	0.17	0.213	Rural livelihoods, climate resilience

[52] Mobilized refers to all planned and actual investment financing that is incorporated into a formal and public or verifiable financial planning process. CIWA may influence a project by facilitation of investment dialogue, project scoping or identification, any stage of project preparation or contribution to an analysis associated with that stage, transaction negotiation, and/or resource mobilization.

Lake Chad Basin Sustainable Development Program (PRODEBALT)	Provide project study and analytics	0.021	0.022	200 rural livelihoods microprojects, improved WRM
Biosphere and Heritage of Lake Chad (BIOPALT)	Provide project study and analytics	0.0065	3.0	Biodiversity and ecosystem remediation
SADC GMI Subgrants (9)	Provided transboundary diagnostic analysis and joint strategic action planning and convened stakeholders	0.0014	0.155	Nine investments in eight countries; aquifer utilization; boreholes, pumps, and monitoring equipment installation; water storage
Nile Basin Investments (7) from NCORE	Pre-feasibility (reconnaissance assessment) of project profile and coordinated resource mobilization, institutional support and/or facilitation of stakeholder engagement	0.648	2.07	Hydrological and meteorological information; water storage; irrigation; power generation; fisheries
Total		US$6.365 billion	19.875 million people	

Program Development Objective (PDO): To strengthen the cooperative management and development of international waters in Sub-Saharan Africa to facilitate sustainable climate-resilient growth.

PDO Indicator 1: **US dollars influenced for cooperative management and development investments.**

FY23 Baseline:

- **Total**—$17.37 billion
- **Potential**—$11.03 billion
- **Mobilized**—$6.34 billion

FY24 Actual:

- **Total**—$17.4 billion
- **Potential**—$11.03 billion (unchanged)
- **Mobilized**—$6.365 billion

While there was no change to the potential investments influenced by CIWA, of the mobilized investments, Untapping Resilience and phase 2 of Sustainable groundwater management in SADC Member States mobilized community groundwater investments, which increased the value by US$23.6 million. Studies for other investments influenced by CIWA are still in progress, and, therefore, the aggregate values are an underestimate.

FY25 Target:

In FY25, additional updates to mobilized groundwater investments from Untapping Resilience and Sustainable Groundwater Management in SADC member states project phase 2 will accrue in the range of another US$30-40 million. The values and status of the potential investments involving the SMAB and the Regional Sahel Pastoralism Support Project II (PRAPS2) are also expected to change. A watershed management investment on the border of Rwanda and Burundi, which was identified by NCORE, is also being considered for mobilization.

PDO Indicator 2: **Number of people benefiting from improved water resources management and development investments.**

FY23 Baseline:

- **Total**—85.475 million people
- **Potential**—66 million
- **Mobilized**—19.475 million

FY24 Actual:

- **Total**—85.875 million people
- **Potential**—66 million
- **Mobilized**—19.875 million

As for PDO indicator 1, there was no change to the potential investments influenced by CIWA, but of the mobilized investments, Untapping Resilience and phase 2 support for SADC mobilized community groundwater investments, which increased the number of people benefiting by about 310,000. Studies for other investments influenced by CIWA are still in progress and, therefore, these values are an underestimate.

FY25 Target:

The FY25 target includes an additional 300,000 people primarily benefiting through investments influenced by Untapping Resilience support to GW4R project implementation.

1: Institutions strengthened to improve regional cooperation

Previous years counted only regional institutions in the indicator. The current use of this indicator is expanded to include all possible institutions.

FY23 Baseline:

Previous work resulted in 20 regional institutions, cumulatively: BUPUSA Watercourse Commission, CUVECOM, ECOWAS, GLTFCA Joint Management Board, IGAD, LCBC, LVBC, LIMCOM, NBA, NBI, NBD, OKACOM, ORASECOM, Pafuri Sengwe Joint Park Management Committee, SADC-Secretariat, SADC-GMI, SAPP, VBA, ZAMCOM, and ZRA have had projects or activities in operation since CIWA began. In FY23, the SADC-GMI phase 2 project added the BUPUSA Watercourse Commission.

FY24 Actual: See Table A.2.3.

FY25 Target:

NBI governance members will have a Zambezi Basin Experiential learning tour.

Work is expected to continue with all institutions listed in Table A2.3. FY25 will also include the Nile Basin Discourse through the new RETF.

Table A2.3. Institutions Strengthened by CIWA in FY24

Institutions	CIWA Operation	How it is strengthened
IGAD	Untapping Resilience	Groundwater information services
Kenya Water Sector Trust Fund	Untapping Resilience	Groundwater information services
3 Kenya County Governments	Untapping Resilience	Groundwater information services
Somalia Ministry of Water	Untapping Resilience	Groundwater information services
2 Somalia State (FMS) Governments and PIUs	Untapping Resilience	Groundwater information services
SADC-GMI	Sustainable groundwater management in SADC member states	Signed MoUs with LIMCOM, CUVECOM, and INMACOM. Implemented a Biodiversity and Groundwater Dependent Ecosystems project in the Khakhea/Bray TBA project. Baseline data and information were collected and shared, and new knowledge was created, contributing to conservation science in the SADC region. More than 10 academic papers were produced and published.
LIMCOM, CUVECOM, INMACOM	Sustainable groundwater management in SADC member states	Established Groundwater Committees and facilitated integration of groundwater into the conjunctive governance of water resources.
Nile-Sec, NELSAP-CU, ENTRO, and LVBC	Nile Cooperation for Climate Resilience	Revised gender action plans and gender strategy and joined Equal Aqua. Improved WRM information services.

INMACOM and Volta Basin Authority	Water Data Revolution	Strengthened the knowledge and technical capacity of the VBA and INMACOM and its member states on availability and usage of water resources through WA dashboard; institutions have improved access to state-of-art data and tools that allow them to monitor water availability and use. This advancement allows the VBA to make more informed and strategic decisions for optimal water resource management and to promote greater transboundary cooperation among their member states.
South Sudan Ministry of Water Resources and Irrigation, Ministry of Finance, and Ministry of Environment	South Sudan Transboundary Water Program	Improved collaboration and communication established. Strengthened insights into effective climate resilience strategies and financing mechanisms with other countries with similar challenges. Knowledge shared and relationships built to enable better coordination for more efficient implementation of climate-resilience projects. Capacity-building sessions equipped participants with skills to enhance decision making and operational capabilities.

1.a. Institutions with improved engagement of civil society, private sector, and academia

FY23 Baseline:

In FY23, SADRI added the Great Kei, Tsitsa, Mbashe, Mthatha, Umzimvubu, and Mtamvuna river sub-basins in South Africa. Untapping Resilience added the groundwater basins in the HoA borderlands. The Pafuri-Sengwe Joint Park Management Committee, GLTFCA Joint Management Board, NBI, and NBD delivered explicit communication and community stakeholder engagement activities including for investment preparation and conflict mitigation (Untapping Resilience), gender equality (NBD), and research and training activities to support communities' climate resilience (SADRI).

FY24 Actual:

- Sustainable Groundwater Management in SADC member states Phase 2: The project facilitated MoUs between SADC-GMI and three universities (University of Botswana, University of Mzuzu, and University of Namibia) to gather and upload additional records on the SADC-GLA using a cumulative contingent of six academic supervisors (two from each university) and 17 postgraduate students falling within the Young Professionals category.
- Improving WRM in West and Central Sahel: The CSO diagnostic was updated with two additional countries, Guinea and Senegal; Youth Transboundary Water Parliament from Burkina Faso participation in SIWI World Water Week.
- NCCR: ENTRO, Nile-SEC, and NBD hosted internship and YP programs. ENTRO conducted community field surveys in flood-prone areas, including Akobo, Malakal, Pibor, Nasir, Gambela, and Itang, which have been completed and will be used as input for modeling and community awareness. ENTRO also strengthened flood community awareness and preparedness for 17 flood-prone sites—comprising seven locations in Ethiopia (in the sub-basins Tekeze-Setit-Atbara, Lake Tana, Baro-Akobo-Sobat), four in South Sudan (sub-basin Baro-Akobo-Sobat), and six in Sudan (sub-basin Tekeze-Setit-Atbara).
- South Sudan TWP: The project through the National Project Development and Implementation Partners Workshop in South Sudan focused on enhancing South Sudan's National Meteorological and Hydrological services in developing multi-hazard early-warning systems. Academia, notably the University of Juba, played a crucial role by providing scientific expertise and educational resources. Its involvement supported capacity-building initiatives, ensuring that these services and stakeholders are equipped with relevant information about South Sudan's hydrology to manage and use early-warning systems effectively, thereby enhancing resilience to natural hazards. The stakeholder engagement strategy ensures that gender issues are actively integrated into the design and implementation of water management and development activities. For instance, during the planning phase of a study to map humanitarian and development actors in refugee settlements and host communities, specific measures to address gender inequalities were incorporated. The study's Terms of Reference explicitly include provisions to comprehensively track

climate risks, covering hazards, exposure, and vulnerability. The vulnerability assessment evaluates shelter quality, access to water and sanitation, and the resilience of access roads to climate hazards. These efforts address the unique needs and vulnerabilities of all stakeholders, particularly women and marginalized groups.

FY25 Target:

Work from FY24 from NCCR and Sustainable Groundwater Management in SADC Member States Phase 2 will continue, including flood community awareness and preparedness for 17 flood-prone sites in the Nile Basin. Other operations are still in the planning phases but may begin accruing results in FY25.

1.b. Institutions with increased water resources management and development information in the public domain.

FY23 Baseline:

CIWA's engagements in six basins—Nile, Niger, Lake Chad, Lake Victoria, SADC, and Zambezi—have contributed to increased water resources management, climate data, and water development information in the public domain. SADC sub-basins with publicly available data include the Great Kei, Mbashe, Mthatha, Umzimvubu, and Mtamvuna river basins.

FY24 Actual:

In FY24, the Sustainable Groundwater Management in SADC Member States Phase 2 project continued to support the SADC Grey Literature Archive and SADC-Groundwater Information Portal:

- ENTRO produced the EN-FFEWS (https://entro-ffews-dev.westeurope.cloudapp.azure.com) covering 35 forecast locations and rainfall in 55 catchments. Flood hazard maps and flood vulnerability and risk maps have been produced for 16 flood-prone areas.
- NELSAP-CU produced the NB-FFEWS (https://nilebasin.org/nile-basin-flash-flood-early-warning-system-nb-ffews)
- Nile-SEC produces the bi-weekly Monitoring and Forecasting Drought Bulletin. Content includes drought indices tailored for both hydrological and meteorological droughts, using climate data from the 10 major Nile sub-basins and enhancing the Nile River Basin flow-forecasting system in FY25. Nile-SEC also expanded its data and analytics services (NB-DAS) for climate-resilient water resources management and investment planning with new Earth Observation datasets.
- NBI produced the Nile basin water quality database. (https://nilebasin.org/waterqualitydatabase#:~:text=The%20NBI%20water%20quality%20database,water%20quality%20throughout%20the%20basin.)

FY25 Target:

Several results are expected in FY25: An enhanced DSS for climate adaptation and resilient livelihoods in SADC member states and the NILE-DEWS. NELSAP-CU will continue deploying the FFEWS through the NBI portal.

1.c. Institutions using improved analytical tools, knowledge products, data, forecasting for improved water and climate risk management or investment coordination.

FY23 Baseline:

This indicator was not included in FY23.

FY23 Baseline:

- SADC-GMI—Identification of the plans and doing detailed water quality assessments; role of hydrological cycle periods; role of invasive species; climate change; using GIS and RS to do climate change resilience planning.
- ENTRO is using the EN-FFEWS (https://entro-ffews-dev.westeurope.cloudapp.azure.com/) to provide daily flood forecast bulletins.
- NELSAP-CU is using the NB-FFEWS (https://waterdss-wrd-prod.eu.mike-cloud.com/workspaces/6c407e1b-5d25-4d83-b782-b6c81f8648ee) to provide daily bulletins for early warning.
- Nile-SEC is using its data and analytics services (NB-DAS) for climate-resilient water resources management and investment planning with new Earth Observation datasets. This is used for investment prioritization and identification.
- NBI—The Nile River Basin water quality database is used to improve knowledge of water quality and support the process of prioritizing actions to improve water quality.
- INMACOM and Volta Basin Authority are using the Water Accounting tool to support investment planning and preparation.

Several results are expected in FY25: An enhanced DSS for climate adaptation and resilient livelihoods in SADC member states and the NILE-DEWS. NELSAP-CU will continue deploying the FFEWS through the NBI portal.

2. Number of people who participate in CIWA-funded activities.

FY23 Baseline:

This indicator was not measured previously.

FY24 Actual:

- Untapping Resilience: 70 people participated in the regional meetings for the GW4R project (~23 women). The meeting takes place every six months.
- Sustainable Groundwater Management in SADC Member States Phase 2:

39 Young Professionals (15 women) were in the program; the SADC Groundwater Conference attracts approximately 150 participants annually.

- NCCR supported 32 interns (12 women) and YPs; the Nile Basin Discourse Forum hosted a record 1,061 people (328 women); training sessions were conducted during each deliverable review workshop, which included 66 people; there are 264 NB-DAS users, and NB-DAS training included 58 people (13 women).
- Improving WRM in West Africa: 20 people participated in the SMAB RWG (1 woman).
- Water Data Revolution: 128 people participated in the activities of the initiative, of whom 28 were women, two online workshops and one in-person workshop provided participants from 18 institutions working in water resources management with training and knowledge about tools for data and analytics to improve decision making. The in-person workshop, held in Ghana, focused on the launch of the Water Accounting Dashboard developed for the VBA. This workshop offered extensive training on dashboard management and technical aspects related to hydrometeorology. It included specialists from the six VBA member countries—Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Togo—representing 12 institutions across the Volta Basin.

FY24 Total =

- 1,888 people / (440 women)

FY25 Target:

It is expected that the above operations will involve a similar number of people for FY25 activities, other than the Nile Basin Discourse Forum, which is held every three years. New operations (South Sudan TWP and the new support to RCRP in Southern Africa) will likely begin to accrue beneficiaries. The target is 1,000 people (300 women).

2.a.i People trained on GESI in transboundary water resource management and development.

FY23 Baseline: N/A

FY24 Actual:

NCCR supported 90 people (25 women) at the LVBC, ENTRO and NELSAP-CU centers through GESI training.

FY25 Target:

Tailored GESI training is available through CIWA on demand.

2.a.ii Satisfaction that CIWA training is useful and applicable to enable women's increased engagement in WRM.

FY23 Baseline: N/A

FY24 Actual:

The Nile training had a 98 percent self-assessment rating of satisfactory or higher.

FY25 Target:

The target is that future GESI training has at least a 90 percent satisfaction or higher rating.

2.b. Number of women in high- or medium-skilled and/or management positions trained in transboundary WRM data use, information, or decision support systems.

FY23 Baseline:

113 women in high- or medium-skilled and/or management positions participated in training. Untapping Resilience and NCCR contributed to these results.

FY24 Actual:

145 women in high- or medium-skilled and/or management positions participated in technical training. WDR trained 28 women from RBOs, SADC-GMI had 45 women professionals trained, and NCCR had 72 women trained.

FY25 Target:

Training in transboundary WRM data use, information, or DSS is a common activity for CIWA operations, and it is hoped that this indicator will incentivize prioritizing women for limited training opportunities. The target is 150 women participating in high- or medium-skilled and/or management positions participating in technical trainings.

3. Knowledge products used to illustrate the evidence base for cooperation, needs, and challenges.

FY23 Baseline:

18 knowledge products were produced in FY23.

FY24 Actual:

The total is 7: Untapping Resilience produced a salinity guideline, RVI work on conflict and fragility considerations in the provision of groundwater in the borderlands, the regional integration roadmap, UNDP work on reasons for water point failure baseline work (about to be published). Improving WRM in West and Central Africa produced an updated CSO diagnostic with two additional countries, Guinea and Senegal and the Groundwater Legislation Assessment for Nigeria, France, and Spain. Lake Chad finalized the Water Security Assessment.

FY25 Target:

Improving WRM in West and Central Africa: Joint vision and program for long-term cooperation on the SMAB aquifer; assessment to characterize existing infrastructure (boreholes and wells) and to develop population and climate change projections through 2040. Lake Chad: Based on the new studies for Nigeria, France, and Spain and previous studies for other countries, a comparative analysis of countries is expected to be finalized in late 2024. Also, included is the Lake Chad irrigation development plan.

3.a. Improved data and information systems used at the municipal or community level.

FY23 Baseline: N/A

FY24 Actual: 0

This is a new indicator in CIWA 2.0 and projects were not prepared to report.

FY25 Target:

Multiple CIWA operations are anticipated to contribute to these results including the new Nile Basin Discourse project, NCCR, Untapping Resilience, and South Sudan TWP; support to SADC-GMI may also contribute.

4. Activities incorporating explicit actions to challenge gender and social norms that impact women's representation and leadership in technical fields related to transboundary water management and development.

FY23 Baseline: N/A

FY24 Actual: 0

CIWA's Male Champions for Women's Empowerment Initiative launched the Male Champion Forum in June 2023 with 10 male participants in East Africa. The program continued with monthly meetings that facilitated exchanges of best practices and lessons learned.

Sustainable Groundwater Management in SADC Member States phase 2 established the NFGs requiring gender balance and cross-sectoral representation, whose alignment with member states SADC-GMI closely monitors. In addition, the ToRs for all regional groundwater and transboundary studies require the consultant team to include the Environmental and Social expert to address gender inclusion issues during the study and capture them in reports.

FY25 Target:

FY25 will include the Male Champions for Women's Empowerment meeting in Lesotho and participation in the Women in Water Diplomacy seminar.

5. Transboundary water arrangements (basins or aquifer) supported to enhance a) biodiversity and conservation, b) GESI, c) peace, or d) climate resilience.

FY23 Baseline:

Name	Status
Annex 2 of the Niger Basins' Water Charter	Adopted but not yet implemented
Climate Change Policy, Environment and Social Policy, Anti-Corruption Policy, Information Technology Policy, and the Gender Policy	Active
DRC and Uganda fishery legislation	Active
Lake Chad Development and Climate Resilience Action Plan	Implementation of some components
LVBC and NELSAP-CU institutional frameworks and policies on water quality	Active
National policies on climate adaptation	Active
NBA institutional audit	Under-implemented
Policy, Legal, and Institutional Development for Groundwater Management in the SADC Member States (GMI-PLI): Regional Gap Analysis and Action Plan Report	Not yet implemented
Somalia National Water Resource Strategy 2021-2025	Active
Strategic Plan for the Zambezi Watercourse 2018-2040	Implementation of some components
Volta Water Charter	Active
Water law and policies across the Zambezi River	Active

FY24 Actual:

- Review of the SADC Regional Water Policy (2005) to accommodate groundwater and other emerging regional priorities.
- East African Community (EAC) Water Quality policy, which includes GESI and biodiversity considerations.
- Water Quality Management Strategy for the Nile Equatorial Lakes and its Action Plan, which includes climate resilience and biodiversity considerations.

FY25 Target:

SADC-GMI will roll out implementation of the Policy, Legal, and Institutional Framework for sustainable groundwater development in the member states that have developed framework roadmaps.

6. World Bank projects informed by CIWA

FY24 Baseline: (See table A.2.)

FY24 Actual:

Development, Resilience and Valorization of Transboundary Water for West Africa (DREVE) preparation was supported by Improving Water Resources Management in West and Central Sahel but has not yet been approved by the World Bank Board of Governors.

FY25 Target:

The Development, Resilience and Valorization of Transboundary Water for West Africa project has been reported for FY25.

7. Investments with regional benefits that have been advanced through CIWA support

FY23 Baseline:

See Tables A2.1 and A2.2.

FY24 Actual:

CIWA has provided technical advice on the tendering of engineering designs to the first batch of Ethiopian water schemes implemented through the HoA Groundwater for Resilience phase 1 program. This was influenced by work in the Untapping Resilience technical assistance. Sustainable Groundwater Management in the SADC Member States phase 2 project added 12 subgrants for national groundwater investments.

FY25 Target:

Possibly any of the four water quality hotspots in Ethiopia, South Sudan, South Sudan, and Tanzania or through NCCR will be taken up in a near-future project. FY25 will likely have additional investments influenced by Untapping Resilience and Sustainable Groundwater Management in the SADC Member States phase 2 projects.

8. Number of people supported to have better climate change resilience.

FY23 Baseline: N/A

FY24 Actual:

415,653 people, including 164,000 beneficiaries from Ethiopia borderland groundwater investments and 251,653 from groundwater investments. 251,653 benefiting from the Ethiopia groundwater investments are from FCV-affected communities. These numbers are from government population data so are not disaggregated further.

FY25 Target:

Sustainable Groundwater Management of SADC Member States will improve citizen science by conducting participatory research to draw out the knowledge of communities about the value of biodiversity. NCCR will benefit people at risk of flash floods and droughts in the Nile Basin.

9. Climate change mitigation or adaptation benefits from cooperative management and development investments and CIWA activities.

FY23 Baseline: N/A

FY24 Actual:

- Improved water supply and water quality in Ethiopia borderlands.
- Improved groundwater supply and management in SADC member states.
- Enhanced flood early-warning systems in the Eastern Nile.

FY25 Target:

- Additional groundwater investments in the HoA borderlands.
- Implementation of additional groundwater investments through subgrants in the SADC program.
- Enhanced flood early-warning system in NEL.
- Nile Basin drought early-warning system available.

Informed World Bank Project	Value of World Bank Project (million USD)	CIWA operation	How project was informed
Regional Climate Resilience Program for Eastern and Southern Africa	384	NCORE, NCCR, and SADRI	Flood early-warning system in South Sudan. Support to South Sudan Ministry of Water Resources and Irrigation.
Horn of Africa— Groundwater for Resilience Project	385	Untapping Resilience, HoA Groundwater Initiative, Strengthening Resilience in the HoA, Support to Transboundary WRM	See CIWA FY23 Annual Report for full description. Supported Somalia Ministry of Water to take on investment planning and preparation. Supported and communicated fundamental HoA groundwater data. Prepared Merti Aquifer feasibility study.
Promoting Livable and Productive Lake Victoria Basin Communities through Lake Wide Inclusive Sanitation	150	Great Lakes Water Quality and NCORE	Decision support system to support investment planning.
Kandadji Project	408	Niger River Basin Management Project	Project design and planning support. Support to design and implement resettlement action plan.
Regional Rusumo Falls Hydroelectric Project	347	NCORE, Engaging Civil Society for Social and Climate Resilience in the Nile	Support to design and implement resettlement action plan. Provided community engagement and convened stakeholders for resource mobilization.
Kariba Dam Rehabilitation Project	95	Zambezi River Basin Management Project and Zambezi River Basin Development Project	Financed dam break analysis to evaluate the potential socio-economic and environmental consequences of a dam failure in the basin. Supported regional integration.
Irrigation for Climate Resilience Project (ICRP)	170	NCORE	Identification of the Kabuyanda irrigation scheme for investment design.
RECLIMA	300	Okavango Multi-Sector Investment Opportunity Analysis	Preparation of resilience livelihoods investment for Angolans.
Lake Chad Region Recovery and Development Project	170	Lake Chad Dialogue	Supported the preparation of component 1 on citizen engagement.
Burkina Faso Water Security Project	150	Improving Water Resources Management in West and Central Sahel	Supported Burkina Faso's Strategie Nationale de l'Eau (National Water Strategy 2021-2025) and an action plan for the water strategy (PASNE), which contains a three-year investment program.
Western Sahel Water Security Initiative	300	Improving Water Resources Management in West and Central Sahel	Supported the preparation of a series of transboundary projects that would be integrated into the Western Sahel Water Security Initiative.
Cote d'Ivoire Water Security and Sanitation Support Project	250	Improving Water Resources Management in West and Central Sahel	The CIWA-supported study provided a framework for addressing increased demands from water-using sectors, trade-offs, and synergies between allocations to various sectors, the unequal distribution of water between and within regions, water quality, and safeguarding water resources. It was the basis for the preparation of a new integrated multi-phase water security engagement: Cote d'Ivoire Water Security and Sanitation Support Program, with a focus on water security and economic development of the country's northern regions.
Niger Integrated Water Security Platform Project (Niger-IWSP)	400	Sahel Groundwater Initiative	Informed by a report on the status of groundwater resource assessment and exploration capacity.
First Resilient Growth and Capital Building DPF	375	Sahel Groundwater Initiative	Informed by a report on the status of groundwater resource assessment and exploration capacity.
FY23 Total	4,520		

Annex 3 - Risk Analysis

Risk Description	Mitigation Applied	Notable Status Updates
1. Landscape-scale disasters and global catastrophes. Significant disasters are increasingly likely from climate change and other factors.	CIWA's work to improve Africa's water security holds keys to countries' climate adaptation and resilience, access to water and food, and peace and stability. In supporting regional organizations and partners, CIWA activities help strengthen their capacity to deal with climate-related challenges. It has elevated climate resilience as one of the key themes and actively scaled up related programs across the region.	Water insecurity and climate change impacts are rising in Africa. The Horn of Africa is experiencing flooding following a prolonged drought and rising food insecurity. Southern Africa is facing a severe drought, which threatens water supply, crop production, and hydropower generation. Catastrophic floods struck Eastern Africa in 2023 and 2024, particularly in Ethiopia, Kenya, and South Sudan. The current wars in Ukraine and the Middle East are draining global resources.
2. Challenging political context. All work in international waters has an inherent risk that domestic or international political issues (related or unrelated to water issues) may negatively impact the context, resulting in long-term delay or even failure of specific projects. This risk is often inherently beyond the scope of CIWA or the influence of partners.	CIWA has a diversified portfolio geographically (projects in the Horn, East, West, Central, and Southern Africa); in types of support (focus on strengthening information, institutions, and investments); and in types of clients (e.g., river basin organizations, regional economic commissions, Ministries). Portfolio diversification helps mitigate political risks at the program level. Political economy analyses are mainstreamed in CIWA program planning. Projects are informed by political economy considerations, which help better anticipate risks, design projects that balance ambition and risk, and formulate mitigation strategies that enable implementation. While CIWA is not a dedicated World Bank program that supports early response and recovery in situations affected by FCV, it does work with many partners in fragile and conflict-affected situations to reduce some of the drivers of FCV, in particular, water insecurity. As stated throughout the report, improving water security improves livelihoods, health, and governance, which are part of the antidote to FCV.	Political challenges that CIWA encounters range from short-term bilateral tensions to regional dispersal or even links to FCV. FCV has been a major barrier to project implementation. The political situation has deteriorated in Eastern Africa and the Nile region with the intensification of the civil war and humanitarian crisis in Sudan and neighboring South Sudan. The situation on the ground was worsened by massive floods. Meanwhile, eight military coups have occurred on the continent since 2020, mostly in West Africa in what has become known as the "coup belt." Political instability can at times impede CIWA operations. The World Bank has frozen its disbursement in Niger. Overall, CIWA has an excellent track record of providing impactful support for transboundary WRM in FCV-affected situations, principally through mature and high-quality technical and project management expertise provided by World Bank team leaders. CIWA's Horn of Africa projects and West Africa work are examples. This year CIWA also launched the FCV Framework to further help teams working in FCV situations.
3. Insufficient basin-wide commitment. Some countries may not have formal membership in the participating basin organizations, may challenge the basin organization's engagement with CIWA, or may simply be opposed to multilateral water resources development.	CIWA basin engagement strategies and/or project development processes provide a means to engage with various stakeholders around the design of CIWA programs. Project and CIWA leadership engage in dialogue to disseminate the benefits of shared development and counter the narrative that natural resource utilization must be zero sum. All CIWA projects include a significant dedication of effort to convening dialogue and riparian trust building (e.g., hydro-diplomacy). CIWA works to encourage and motivate strong cooperative working relationships. A Basin Support Plan is developed for all basins or regions in which CIWA has a long-term engagement. The plan outlines CIWA's vision for support and development in the basin, including alignment of CIWA-supported projects with the broader objectives of each basin organization, and potential synergies, overlaps or gaps, and ways to overcome them. CIWA also seeks out opportunities to facilitate learning across basins.	In some basins, not all countries are equally active in the RBO. The most common reasons for weak commitment include lack of visibility of the benefits of active participation, insufficient governance capacity or instability, and a small stake in the impact of shared water resource management and development. The challenges in the Nile basin continued this FY. The CIWA-supported technical assistance project NCCR continued its work focusing on technical aspects and emphasizing the benefits of inclusive regional cooperation. CIWA has ramped up its visibility through the now established communication portfolio and will continue to demonstrate the benefits of cooperation to its stakeholders.

4. Inadequate stakeholder voice and explicit incorporation of gender considerations. Stakeholders may not fully engage in the project cycle, resulting in inadequate voice in decision making, raising the potential of public protest and dissatisfaction that could jeopardize or delay development projects. Insufficient stakeholder engagement is also a risk to the quality of project outcomes. The World Bank's position on the importance of gender equality and inclusion is rigorous quantitative and qualitative assessments, lessons learned from many years of working for global prosperity. Economic growth at the expense of large swaths of people is unsustainable and even works against itself by wasting significant human capital.	CIWA prioritizes the involvement of stakeholders and thorough consideration of stakeholder needs and concerns throughout the project cycle. One of CIWA's results areas (the "Platform for Cooperation") aims to strengthen stakeholder engagement in WRM and focuses on opportunities for gender equality in some areas. When starting an engagement in a priority basin, CIWA works with clients to develop a balanced program with support that cuts across the four results areas. During preparation and implementation, CIWA works with teams to mainstream gender, poverty reduction, and stakeholder engagement considerations as standard actions.	Across the diverse cultural and political landscapes in Africa there are differing amounts of space for strong stakeholder voice and participation. In several transboundary basins, the strategy for stakeholder engagement is the same or on a positive trajectory. But often RBOs may have a stakeholder engagement strategy that fails to see full implementation. CIWA actively supported project design to maximally elicit stakeholder engagement through new activities and continued to strengthen the current work stream exemplified by the NBD, and this model is now being assessed for replicability in West Africa to enhance stakeholder engagements, including civil society participation and voices of marginalized people. CIWA's recent Gender Equality and Social Inclusion Lessons Learned paper illustrates several examples, and the updated CIWA GESI Framework is elevating CIWA's efforts for transformative change, allowing women's voices to be heard and to participate in decision making. Projects in the SADC, Sahel, and Nile River Basin have included major efforts to improve the explicit incorporation of GESI into activities that originate with client demand. See the respective sections for details. Additionally, preparatory studies for all investments in CIWA projects include environment and social impact assessment and management plans, including stakeholder engagement activities, and specific steps that take social issues, including gender, into account.
5. Inadequate implementation capacity and readiness can cause short- to medium-term delay. Some basin organizations may have insufficient capacity or experience to effectively engage in management and development, delaying project implementation and affecting the overall pace of achievement of program objectives.	During project preparation, World Bank experts assess implementation capacity and readiness of the recipient organization and plan the magnitude and complexity of CIWA's engagement accordingly. The World Bank provides support for financial management, procurement, and project management. Project-supported capacity enhancement might also be a contingency for project approval. For example, a project may be conditioned on the hiring of an environmental and social expert to provide safeguards support. Many projects address this risk by designating an institutional support and capacity building component. In addition, CIWA can employ Bank-executed programming as an initial financing modality to strengthen recipient implementation capacity and readiness.	Many CIWA projects were designed with a specific goal of supporting a new RBO or strengthening the capacity of an RBO or regional economic entity to implement a World Bank investment. Despite mitigation measures, this has significant risks, and as detailed in CIWA's FY19 Annual Report, the risk was evident in multiple projects that closed in FY20 (Volta, Zambezi, and Niger). Much of the work that CIWA began in the Horn of Africa is meeting this risk head on. Readiness is often an issue that manifests in both client and Bank project teams. CIWA directly supported new project design with direct assistance from experts in cross-cutting themes including gender, FCV, biodiversity, and resilience. The added support from CIWA contributed to stronger starts, however, this cannot compensate for issues on the client side, which often stem from a failure to hire personnel on time.

6. Available CIWA financing is insufficient to meet demand. Insufficient financing can cause risks that raise expectations of potential recipient partners. Participating donors may be slow to commit resources relative to the demand for engagement by recipient basin organizations.	CIWA strives to continue fundraising, but demand from current and potential clients and partners will continue to exceed current funding expectations, given the breadth and depth of need across Sub-Saharan Africa. CIWA conducts regular and careful management of the pipeline to match demand to available resources and set reasonable expectations with our partners.	CIWA's strategic direction entails scaling up support to key issues including FCV hotspots, biodiversity, climate resilience, GESI, and others, and the current funding level is not adequate to support all program ambitions. Also, given the limited fiscal capacity of donor countries in the context of post-COVID-19 public spending cuts and the challenging macroeconomic situation, fundraising has not moved as quickly as wished. The current level of funding covers part of CIWA's pipeline, but increasing CIWA activities, particularly in FCV contexts, will require more resources to sustain high-quality program implementation/supervision. CIWA reviews its financial position regularly and will adjust program activities accordingly to maximize the impact of available resources. Additionally, because there is consistent high demand for CIWA's sustained support to transboundary RBOs, it is critical that this demand is balanced by delivery of member state financial commitment to their RBOs and by leveraging co-financing and partner contributions.
7. Fraud or funds not being used appropriately.	CIWA projects have utilized Bank-executed support projects to help clients implement Anti-Corruption Guidelines.	This year there were no known issues
8. CIWA support for investments in institutions, information systems, and/or infrastructure is not sustained or advanced by riparians. CIWA operates upstream of actual investment and has limited control over country uptake of investment plans or sustained support for institutions. This risk becomes even more relevant as other financiers with more flexible preparation standards play an increasingly prominent role in financing infrastructure in Africa. This risk builds off other risks (for example, insufficient political will or inadequate country buy-in), but it is important to consider because it feeds directly into the objectives, indicators, and targets by which the program evaluates its success.	CIWA is demand-driven and responds to the requests of potential clients. Cognizant of the long timelines, high transaction costs, and nonlinearity of cooperative processes, CIWA carefully assesses the sustainability of potential support through in-depth consultations with the client organization and country governments and its own political economy analysis. Sustainability measures are included in program design. For example, capacity building for resource mobilization accompanies project preparatory activities, and processes for harmonization into national structures are outlined as part of formulating and endorsing regional institutions. Acknowledging that riparian commitments to cooperation can change over time and are driven by perceptions of risks versus opportunities for cooperation, CIWA places a strong emphasis on maintaining and strengthening the perception of opportunity through knowledge and information sharing, analytical evidence, and continued dialogue. However, recognizing that riparian commitment to cooperative development can accelerate or lapse around specific issues, CIWA maintains the ability to provide both long-term systematic and short-term catalytic support and the flexibility of delivering support across the three Is, allowing it to fine-tune delivery of support during program implementation.	Countries will always find it easier to deliver on unilateral rather than regional investments. However, the understanding that sustainable infrastructure solutions are often regional in nature is growing, and CIWA continues to provide the evidence base that promotes this understanding. As with all multilateral development Bank projects, there is a risk of preparing projects at a high standard for equitable and sustainable development but the investment being implemented with a different donor with different implementation standards. In technical capacity, there are competing tools for modeling the basin, and some national counterparts are not able to match the RBOs' technical capacity; therefore, sophisticated tools have less uptake. While some of these issues that challenge the sustainability of CIWA's outcomes are within the program's scope to address, the core issue will remain whether there is sufficient member state commitment to their RBOs and their own capacity building. It is also important to find a way to maintain commitments despite the redirection of resources to pressing issues.

Annex 4

Financial Information

This section provides financial updates on the CIWA program. Unless otherwise noted, the financial information including exchange rates reflects the status as of June 30, 2024.

CIWA is supported by a Multi-Donor Trust Fund (MDTF) and administered by the World Bank on behalf of contributing development partners. CIWA's ongoing donors are Austria, Denmark, the European Commission, the Netherlands, Norway, Sweden, and the United Kingdom. This MDTF is known as a "Programmatic Multi-Donor Trust Fund," in which donors commit funds to support a thematic framework rather than a specific project. Within this framework, CIWA supports projects executed by recipient organizations and operations executed by the World Bank.

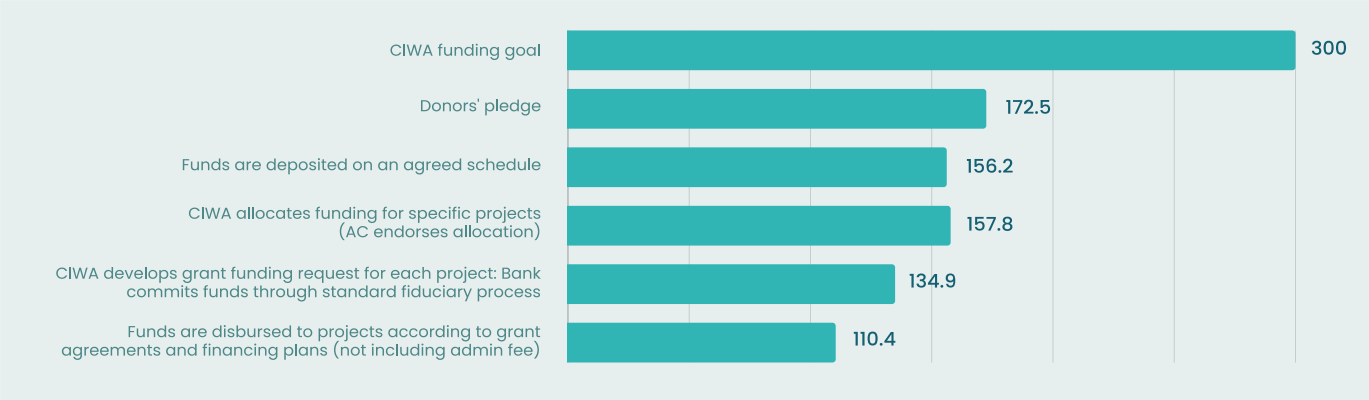
Funding Process and Disbursement

CIWA was initially designed as a US$200 million program over a span of 10 years. In 2021, the program was extended for five years to 2026 (although the fundraising target had not been met). In FY24, CIWA, AC members, and World Bank stakeholders endorsed a new CIWA pipeline to coincide with an extension of CIWA for an additional five years. The new pipeline is valued at US$149.3 million above all previously allocated funds; however, significant fundraising must occur for full implementation. The FY24 CIWA funding goal (Figure A4.1) is the total value of the new pipeline (US$149.3 million) plus the funds allocated to that point (US$152 million), which is rounded to US$300 million. Consistent with standard World Bank Trust Fund practices, donors pledge funding for CIWA (total pledge was US$172.5 million), and funds are deposited on an agreed schedule (deposits total US$156.2 million).

Under CIWA's strategic planning efforts, funding has been allocated to specific projects and technical assistance (current allocations are at US$157.8 million) around the broad themes and areas endorsed by the AC. Additional details on pledges, deposits, allocations, commitments, and disbursements are presented in this Annex.

After the funds are allocated to specific activities, CIWA works with clients to develop Grant Funding Requests to transfer funds into activity accounts. The World Bank follows technical, legal, and fiduciary procedures to approve projects and commits funds through its standard fiduciary processes (commitments totaled US$134.9 million). Funds were disbursed according to grant agreements and financing plans (disbursements reached US$110.4 million). Figure A4.1 presents the overall status. Most of CIWA funds (90 percent) are allocated to existing projects and technical assistance. Any significant future activities will depend strictly on the receipt of new donor contributions.

Table A4.1. Donor Pledges and Deposits



Contributing Partners	Currency	Amount (in Donor Currency)	Amount (USD)	Amount Received (USD)	Outstanding Balance (USD)
The Netherlands	USD	55,552,581	58,767,681	51,374,091	7,393,590
Sweden (SIDA)	SEK	454,000,000	53,803,020	53,803,020	-
United Kingdom (FCDO)	GBP	31,880,000	43,746,810	35,894,585	7,852,225
Austria (ADA)	EUR	6,000,000	6,501,100	5,415,500	1,085,600
European Commission	EUR	4,950,000	5,399,708	5,399,708	-
Denmark (DANIDA)	DKK	18,700,000	3,398,597	3,398,597	-
Norway (NORAD)	USD	882,746	882,746	882,746	-
Total			**172,499,662**	**156,168,247**	**16,331,415**

Donor Pledges, Deposits, and Allocations

Donors deposit funds in the CIWA MDTF account according to an agreed schedule that is detailed in the Administration Agreement or other documents exchanged with the World Bank. This schedule may be revised, if necessary, to meet project disbursement requirements. Table A4.1 provides the status of donor pledges and deposits.

As of June 30, 2024, US$157.8 million has been indicatively allocated to CIWA projects and activities.[53] Most CIWA funding has been assigned to activities under preparation or implementation. Unallocated funds amount to US$17.9 million, and current demand for support far exceeds current resources. Given the centrality of shared waters to Sub-Saharan Africa's economic, social, and environmental progress, we anticipate that this demand will continue to grow (see Table A4.2).

Of the US$157.8 million indicative allocation, 94 percent (US$148 million) is allocated to CIWA's programs in the Horn of Africa, Nile Basin, West and Central Africa, Southern Africa, and Africa-wide analytical work.

CIWA includes recipient-executed projects and Bank-executed support programs that fund technical assistance and analytical work complementing the recipient-executed projects. In some instances, CIWA has allocated funding for follow-up efforts on current projects, based on project and organizational performance and the commitment of riparian states.

Table A4.3 provides a financial overview by sub-program, and Table A4.5 provides details of all CIWA projects and their financial results for which grants have been established since the inception of the program.

Table A4.2. Overview of Availability and Allocation of Funding

Allocation of Funding	USD
Pledges in signed Administration Agreements	172,499,662
Plus Current investment interest income	8,137,758
Less Administrative cost fee on TF071597	-1,460,856
Less Administrative cost recovery fee on RETF on TF072642	-1,950,000
Less Estimate Administrative cost recovery fee on RETF pipelines (Sudan)	-475,000
Less Estimate Administrative cost recovery fee on RETF pipelines (Sudan)	-1,340,674
Funds Available for projects / activities	176,751,564
Less Allocation to projects/activities (agreed with AC)	157,847,077
Less Contingency/Reserve (agreed with AC)	1,000,000
Unallocated funds	17,904,487
% Allocated	90%

[53] These allocations included actual grants and notional allocations endorsed by the CIWA Advisory Committee as of June 30, 2024, which may be subject to further changes after July 1, 2024.

Table A4.3. Allocated, Committed, Disbursed, and Pipeline Amounts[54]

Basin / Sub-program		Allocation Agreed with AC	Grant Approved Amount	Disbursement	Commitment Balance	Pipeline
HORN OF AFRICA		17,380,420	11,880,420	9,330,879	2,549,541	5,500,000
NILE		66,345,256	61,845,256	51,932,524	9,912,732	4,500,000
West and Central Africa	Niger	5,903,772	5,903,772	5,903,772		
	Volta	2,964,237	2,964,237	2,964,237		
	ECOWAS	1,065,867	1,065,867	1,065,867		
	Lake Chad	2,861,695	1,861,695	1,407,631	454,064	1,000,000
	Sahel	11,921,005	4,321,005	3,669,878	651,127	7,600,000
	West and Central Africa Total	24,716,575	16,116,575	15,011,385	1,105,190	8,600,000
Southern Africa	Okavango	1,295,568	1,295,568	1,065,655	1,065,655	
	Orange-Senqu	1,695,822	1,695,822	1,695,822		
	SADC	11,749,344	11,749,344	4,571,440	7,177,904	
	Zambezi	13,816,497	12,316,497	12,316,497		
	So. Africa Programmatic Approach	3,381,777	3,381,777	1,935,445	1,446,332	
	Southern Africa Total	31,939,008	30,439,008	23,198,969	7,240,039	1,500,000
Catalytic Africa-wide TA		4,662,230	4,662,230	4,090,319	571,911	
Enhanced Supervision (Pipeline)		2,870,258				2,870,258
Program Management		9,933,329	9,933,329	6,820,865	3,112,464	
Grand Total (USD)		157,847,077	134,876,816	110,384,861	24,491,954	22,970,261

Income, Disbursement, and Funding Balance

By the end of FY24, CIWA received US$164.3 million, including US$156.2 million in donor payments and US$8.1 million in investment income from the CIWA account. Cumulative disbursements are at US$113.8 million, including US$110.4 million in projects and US$3.4 million in administrative fees. The pace of disbursement continued to stabilize in FY24, with a slight decrease from the previous year. The balance of grant commitments is US$24.5 million. Table A4.4 presents the balance available in the CIWA account, which is approximately US$50.5 million, or a balance of US$4.5 million when the balance of current commitments of US$24 million and an additional US$23 million in the latter half of FY24/early FY25 are considered.

Financial Summary of Program Management

CIWA management costs include expenses incurred by the Program Management Unit (PMU) and the World Bank's technical experts who provide strategic advice and support. In addition to staff and consultant costs, this category includes costs associated with CIWA donor coordination, outreach,

[54] 'Allocation' refers to the endorsement of allocation of funds by the CIWA AC—both moved to actual grants and notional allocations yet to move to grant activity accounts. 'Commitment' refers to recognition by internal World Bank systems that funds have been assigned to a project or activity. Funds are committed when the World Bank trust fund management has approved a grant funding request (GFR), putting in place a contractual or scheduled commitment that leads to actual expenditures in the future. 'Disbursement' refers to the transfer of funds from the grant account to the client's designated account after the Bank clears a request for specific investments. For Bank-executed grants, disbursements are payments made against a purchase order or contract. 'Pipeline' activities in the sub-program are those for which a conditional allocation endorsement was made or subject to the approval of the World Bank project and trust fund systems. Pipeline development is ongoing, subject to change including notional allocations after July 1, 2024.

and communications, monitoring and evaluation, mid-term reviews, reporting, partnership meetings, and dissemination activities including website, brochures, and publications.

CIWA estimates that PMU currently accounts for approximately 6 percent of total donor contributions. Since the start of the program in 2011, CIWA has spent about 4 percent, keeping PMU expenses well within the suggested range. Overall, the program has been cost-efficient in its management, benefiting from the robust financial management and monitoring systems put in place at the program's inception.

Future Funding Requirements and Resource Mobilization

CIWA regularly examines its existing portfolio and plans pipelines to achieve results across SSA. Lessons learned from implementation are integrated into planning future engagements, alongside application of risk management tools in the context of CIWA finance, detailed in Annex 3.

Demand for the CIWA program has exceeded the program's current resources, and CIWA has allocated 90 percent of its available funding. In response to substantial demand from its clients and to expand its impact, as discussed above, the program has identified a pipeline of potential projects that will exceed current resources. CIWA is therefore working actively to explore opportunities for additional sources of funding.

Table A4.4: Fund balance

Fund Income vs. Disbursement & Commitment Balance	USD
Total Deposits	156,168,247
Plus current investment interest income	8,137,758
Total Income	164,306,005
Less disbursement (CIWA projects/ activities)	-110,384,861
Less administrative cost recovery fee	-3,410,856
Balance	50,510,288
Less commitment balance in approved grants	-24,491,954
Total Balance (when including commitment balance in approved grants)	26,018,334
Less selected pipelines endorsed by AC in 2019 - 2024.	-22,970,261
Less estimate administrative cost recovery fee on RETF pipelines (Sudan, NBD, DREVE, etc.)	-475,000
Expected Balance (when including 2019 - 2024 commitments and pipelines)/ [55]	**2,573,073**

[55] Donors to advance their contributions so that CIWA minimizes exposures and risks due to the size of commitments when compared to deposits.

Table A4.5: Financial Details of Projects Funded by CIWA (US$)[56]

Basin /Sub-program	Executed by	Name	TF#	Grant closing date	Allocation	Disbursement (USD)
Horn of Africa	IGAD	Groundwater Information and Investments in the Horn of Africa	TF0B0514	LCLS	2,633,000	2,633,000
	WB	Groundwater Information and Investments in the Horn of Africa	TF0A8681	LCLS	693,788	693,788
	WB	Somalia – Support to Transboundary Water Resources Management (including Juba and Shebelle River)	TF0A7944	LCLS	1,155,687	1,154,769
	WB	Strengthening Resilience in the Horn of Africa	TF0B2448	LCLS	1,397,945	1,397,945
	WB	Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands	TF0B8456	1/31/2026	5,000,000	3,377,899
	WB	Lake Victoria Basin Water Quality Study	tbd		1,000,000	
	WB	South Sudan Transboundary Waters Support Program	TF0C0362	5/31/2025	1,000,000	73,478
	WB	South Sudan Transboundary Waters Support Program (add'l financing)	TF0C0363	5/31/2025	1,000,000	
	TBD	South Sudan Modelling Work (out of Dutch 3.2m, NCCR af)	tbd		3,500,000	
	Horn of Africa total				**17,380,420**	**9,330,879**
Nile	NBI (incl NEL, EN)	Nile Cooperation for Results (NCORE) + AF 1 and 2	TF013767	LCLS	22,854,134	22,854,134
	NBD	Engaging Civil Society for Social and Climate Resilience in the Nile Basin (NBD) + AF 1	TF015834	LCLS	4,438,976	4,438,976
	WB	Nile Basin Support Program	TF0A2051	LCLS	1,657,727	1,657,727
	WB	Enhanced Supervision (NBD)	TF014064	LCLS	597,104	597,104
	WB	Enhanced Supervision (NCORE)	TF015335 / TF0A0526	11/30/2025	1,098,042	1,098,042
	NBI (incl NEL, EN)	Nile Cooperation for Climate resilience	TF0B4716	12/1/2025	30,000,000	14,803,191
	WB	Enhanced Supervision (Nile Cooperation for Climate resilience)	TF0B5495	5/31/2025	1,199,273	1,197,392
	NBD/WB	Engaging Civil Society for Social and Climate Resilience in the Nile Basin (NBD) II	tbd		2,500,000	
	WB	Nile Basin Support Program (II)	tbd		2,500,000	
	Nile total				**66,345,256**	**51,932,524**

[56] Pipelines endorsed by AC in blue; and LCLS refers to 'grant legally closed.'

Basin / Sub-program		Executed by	Name	TF#	Grant closing date	Allocation	Disbursement (USD)
West and Central Africa	Niger	NBA	Niger River Basin Management Project	TF018539	LCLS	4,198,203	4,198,203
		WB	Niger Basin Support Program	TF018616	LCLS	1,162,140	1,162,140
		WB	Enhanced Supervision (NBA)	TF016609	LCLS	543,429	543,429
		Niger subtotal				5,903,772	5,903,772
	Volta	VBA	Volta River Basin Strategic Action Program Implementation Project	TF016611	LCLS	1,979,795	1,979,795
		WB	Volta Basin Support Program	TF015556	LCLS	499,879	499,879
		WB	Enhanced Supervision (Volta)	TF015557	LCLS	484,563	484,563
		Volta subtotal				2,964,237	2,964,237
	West and Central Africa	WB	WRM in West Africa (ECOWAS) (P2.2)	TF016610	LCLS	1,065,867	1,065,867
		WB	Lake Chad Policy Dialogue (1) (P2.3)	TF0A1005/ TF17506/ TF015878/	LCLS	861,695	861,695
		WB	Lake Chad (II, BETF)	TF0B5943	6/30/2023	1,000,000	545,936
		WB	Lake Chad (III, BETF)	tbd		1,000,000	
		WB	West/Central Sahel–Piloting Innovation Tools for WRM	TF0B2227	LCLS	424,771	424,771
		WB	West/Central Sahel–Knowledge Support for Resilience Planning and Investments	TF0B2228	2/28/2025	2,900,000	2,248,873
		WB	West/Central Sahel–Knowledge Support for Resilience Planning and Investments (Reserve for add'l funding)	tbd	tbd	600,000	
		WB	Sahel Groundwater Initiative	TF0B3793	LCLS	996,234	996,234
		WB	Development, Resilience and Valorization of Transboundary Water for West Africa (DREVE)	tbd		7,000,000	
		ECOWAS, Chad, Sahel subtotal				15,848,567	6,143,376
		WEST AND CENTRAL AFRICA TOTAL				24,716,575	15,011,386

Basin / Sub-program		Executed by	Name	TF#	Grant closing date	Allocation	Disbursement (USD)
Southern Africa	Okavango	WB	P2.1: Okavango Multi-Sector Investment Opportunities Analysis	TA0A0105	LCLS	995,568	995,568
		WB	Climate Resilient Livelihoods Enhancement Program for the Okavango Basin	TF0C2629	3/31/2025	300,000	70,087
		Okavango subtotal				**1,295,568**	**1,065,655**
	Orange-Senqu	Botswana	Lesotho Highlands – Botswana Water Transfer	TF016233	LCLS	1,527,322	1,527,322
		WB	Enhanced supervision (LH-B)	TF016038	LCLS	168,500	168,500
		Orange-Senqu subtotal				**1,695,822**	**1,695,822**
	SADC	SADC	Sustainable Groundwater Management in SADC Member States	TF016748	LCLS	2,000,000	2,000,000
		WB	Enhanced preparation (SADC)	TF015336	LCLS	299,344	299,344
		SADC	Sustainable Groundwater Management II	TF0B5735	11/30/2025	9,000,000	3,585,924
		WB	Enhanced preparation and supervision	TF0B5830	11/30/2025	450,000	300,282
		SADC subtotal				**11,749,344**	**4,571,440**
	Zambezi	ZAMCOM	Zambezi River Basin Management Project (ZAMCOM)	TF018921	LCLS	4,000,000	4,000,000
		ZRA	Zambezi River Basin Development Project (ZRA)	TF016238	LCLS	5,786,277	5,786,277
		WB	Zambezi River Basin Support Program	TF011577	LCLS	1,001,192	1,001,192
		WB	Enhanced Supervision (ZAMCOM)	TF014926	LCLS	648,749	648,749
		WB	Enhanced Supervision (ZRA)	TF014927	LCLS	880,279	880,279
		WB	Zambezi River Basin Support Program (II)	tbd		1,500,000	
		Zambezi subtotal				**13,816,497**	**12,316,497**
	Southern Africa Programmatic Approach	WB	Southern Africa Drought Resilience Umbrella Program	TF0B3679	LCLS	450,000	403,666
		WB	Scoping and Preparation Work for Resilience in So. Afr.	TF0B2156	LCLS	59,882	59,882

Basin / Sub-program		Executed by	Name	TF#	Grant closing date	Allocation	Disbursement (USD)
		WB	Southern Africa Drought Resilience Energy System	TF0B3730	LCLS	390,104	390,104
		WB	Southern Africa Drought Resilience Cities	TF0B3706	LCLS	388,036	388,036
		WB	Southern Africa Drought Resilience - Livelihood and Food Security	TF0B3669	LCLS	398,635	398,635
		WB	Prioritizing Resilient Transboundary Infrastructure in Southern Africa	TF0B8090	5/31/2023	230,000	196,690
		WB	Strengthening Transboundary Basin Organizations Through Program Development and Capacity Building in Africa	TF0C4064	21/31/2025	1,500,000	86,978
	Southern Africa Programmatic Approach subtotal					3,381,777	1,935,445
	Southern Africa Total					31,939,008	23,198,969
Catalytic	Opportunistic	WB	P2.4: Lake Tanganyika Conference	TF0B6056	LCLS	0	0
		WB	P2.5: Luapula River Basin Development	TF0A5600	LCLS	203,877	203,877
	Africa-Wide	WB	P1: Strategic Overview of International Waters in Africa	TF011569	LCLS	280,358	280,358
		WB	P1: Economic Rationale for Cooperation	TF011626	LCLS	315,659	315,659
		WB	P1: Political Economy Analysis	TF016821	LCLS	517,035	517,035
		WB	P3: Facilitating Africa Wide Hydromet Services	TF0A0106	LCLS	97,136	97,136
		WB	P3: Cooperation for Climate Resilience	TF0A1627	LCLS	174,579	174,579
		WB	P4: Capacity Building and Knowledge Exchange	TF0A0107	LCLS	260,564	260,564
		WB	P4: Improving Public Access to Basin Data	TF016747	LCLS	295,077	295,077
		WB	Enhancing Resilience of Water Resources Management	TF0B1074	LCLS	55,465	55,465
		WB	Great Lakes Water Quality	TF0B1226	LCLS	296,502	
		WB	Digital Data Initiative	TF0B5148	5/31/2023	1,000,000	356,253
		WB	Biodiversity Conservation and Transboundary Water Cooperation	TF0B6640	LCLS	15,978	15,978
		WB	Pipelines (tbd)	TBD	TBD		
		WB	Peer Review / Management	TF019125	6/30/2026	1,150,000	1,020,816

	Catalytic total			4,662,230	4,090,319
	Sub-total (projects)			145,043,490	103,564,077
Enhanced Supervision	WB	Implementation Fund on RETF Pipelines (tbd)	TBD	2,870,258	
PMU	WB	Program Management and Administration	TF011372 / 11377 TF0B1847 / TF0B1846	9,933,329	6,820,865
Total				157,847,077	110,384,861

Annex 5

Value for Money

Summary Value for Money Statement

The CIWA program design and delivery prominently incorporate Value for Money principles.[57] CIWA operates towards achieving its targets and is guided by its cost-saving measures in program management, administration, project preparation, and supervision. While keeping costs down, CIWA has also made strong progress toward its program-level objectives and results targets, thereby achieving a good return on the financial support from development partners.

CIWA is a World Bank program and is therefore able to achieve economy of scale and leverage support in a way that has a multiplier effect on efficiency and effectiveness. This has been accomplished by:

- Tapping into the World Bank's experience and expertise in managing trust funds, thereby streamlining administration costs.
- Leveraging strong global technical expertise of Bank staff across a wide range of relevant sectors such as water, agriculture, energy, environment, governance, and poverty and cross-cutting development challenges including climate change, FCV, and GESI.
- Drawing on the World Bank's longstanding experience in international waters cooperation through other programs such as the Nile Basin Trust Fund, South Asia Water Initiative, and Water Partnership Program.
- Tapping into the World Bank's deep partnerships with global collaborators to leverage regional experience and networks.
- Leveraging additional sources of financing, such as the Global Environment Facility, Korean Green Growth Fund, and others for CIWA co-financed projects.
- Leveraging multiple sources of follow-up financing such as IDA, AfDB, and other investors to scale up projects where CIWA supports bankable project preparation.

Summary of FY24

- **Economy**: Given the added complexity of regional projects implemented in some countries that are FCV-affected, CIWA has used a notably small amount of its budget for program management, project preparation, and supervision.
- **Efficiency**: For every US$1 that CIWA contributed to a project, CIWA leveraged additional funding sources to provide input of additional US$0.32.
- **Effectiveness**: CIWA is short of its target for dollar value of investments but exceeds the target for number of beneficiaries. For every US$1 contributed by CIWA to operations (funds committed), the program influenced US$129 in cooperative investment value. For every US $1.8 committed by CIWA approximately one person will benefit, or has directly benefited, from transboundary water resources potential or mobilized investments.
- **Equity**: The primary gender gap for the CIWA program is that women are much less represented in WRM technical and decision-making positions. CIWA is addressing this through several grants and through the new Male Champions for Women's Empowerment initiative. The CIWA 2.0 ToC and RF elevates GESI as a core pathway for impact on the three Is.

[57] Beginning in FY24, CIWA updated its value for money methodology according to FCDO's 5 Es Framework. The 5 Es are Economy, Efficiency, Effectiveness, Cost Effectiveness, and Equity. https://www.gov.uk/government/consultations/value-for-money-a-framework-on-metrics-standards-and-disclosures/value-for-money-a-framework-on-metrics-standards-and-disclosures

Measures Used to Assess CIWA's Value for Money

Economy

i) Program Management and Administration. As described in Annex 4, CIWA estimates this at 6 percent of cumulative contributions to the fund, and CIWA has spent about 6 percent (US$9.9 million of US$172.5 million in total pledges), keeping PMU expenses well within the suggested range. This fee covers all management and administration responsibilities of the program management team including developing and implementing management tools, procedures, and systems; negotiating the replenishment and expansion of existing programs; soliciting and evaluating activity proposals and allocating programmatic funds to implementing units; work program planning; program-level resource planning; budget planning and management; program monitoring and evaluation; program communications and outreach; donor visibility, coordination, travel, and meetings; and results reporting.

ii) Enhanced Preparation and Supervision. To ensure high-quality program delivery, World Bank policies require ensuring that implementation of trust fund activities complies with applicable Bank policies and procedures[58] and that all recipient-executed activities are adequately supervised and implemented in line with the terms and conditions of the Administration and Grant Agreements and Bank supervision standards and procedures. Estimated at 6 percent of contributions to the fund (but only charged against actual costs), preparation and supervision costs cover expenses for identifying and scoping possible projects, supporting preparation, undertaking implementation support, and supervision. As specified in the Administration Agreement, the Bank will seek the CIWA Advisory Committee's prior approval in case enhanced supervision costs of CIWA activities increase beyond the amount noted in the agreement and these costs increase beyond 6 percent. CIWA has established norms to maintain enhanced supervision costs under 6 percent of contributions to the fund—one-time identification and preparation cost of US$150,000 per project and implementation supervision cost of US$100,000 per year for three years over the duration of a project.

The World Bank's Africa Region data show that the average cost to prepare an investment project is around US$350,000 and the annual cost for supervision of a project is around US$150,000 (2023 data). Costs for preparation and supervision of regional projects and projects with FCV-affected countries under IDA are normally expected to be higher due to additional complexity, yet CIWA achieves lower costs by basing budgets for projects on a careful assessment of estimated costs and through effective procurement processes, cost-sharing, and greater travel efficiencies, using video connection for meetings when possible, convening CIWA meetings back-to-back when feasible, and linking to other water sector-related meetings to take advantage of synergies. Within the overall 6 percent cap, the program manager has the discretion to allocate additional preparation or supervision funds to individual projects based on need.

Efficiency

Leverage Ratio—CIWA improves its economy by leveraging additional sources of funding for RETF projects,[59] thereby reducing its unit cost of inputs in relation to the overall sum of outputs it mobilizes. CIWA uses the following metric as an indicator of increased economy due to leveraging of funds from additional sources:

$$Leverage\ ratio = \frac{\sum Funds\ leveraged\ from\ additional\ sources\ for\ CIWA\ projects}{\sum CIWA\ contributions\ to\ cofinanced\ projects}$$

Table A5.1. Cumulative co-finance contributions through FY24

Project	CIWA Contribution (US$, Millions)	Co-financier	Partner Contribution (US$, Millions)
Sustainable Groundwater Management in SADC Member States Phase 2	9.0	GEF	4.57
		National funds matching subgrants	0.14
Nile Cooperation for Climate Resilience	30	GFDRR	0.4
		Korean Green Growth TF	0.65
Nile Cooperation for Results	22.8	NBTF	16.5
Southern Africa Development Community Engagement	2.0	GEF	8.2
Volta River Basin Institutional Development and Strategic Action Program Implementation Project	3.5	GEF	7.2
Non-co-financed CIWA RETFs	49.2		
Total CIWA Project/RETF value (million USD)	116.5	Leveraged Funds	37.66

[58] World Bank CFPTO Trust Fund Handbook (revised July 8, 2010).
[59] The Leverage Ratio for CIWA considers the additional funds that cofinance CIWA projects, which are only the RETF grants (see Annex 4 for the full list of CIWA RETFs and BETFs). Funds cofinanced with CIWA BETFs are not computed into the leverage ratio, although many CIWA BETFs are efforts to enhance IDA-funded project impacts through cofinance (e.g., CIWA is the co-financier). This aspect of complementarity and leverage is measured in CIWA's results indicators in Annex 2.

In terms of leveraging additional funds to improve the economy of CIWA-supported projects (by expanding overall output and thus reducing per unit cost of CIWA inputs), CIWA co-financed the NCORE project in partnership with NBTF, and three projects—SADC Groundwater Management phases 1 and 2, and Volta River Basin Strategic Action Program Implementation—in partnership with GEF. NCCR received co-financing for its work on the Flood Early-Warning System in the Eastern Nile from GFDRR and the Korean Green Growth Fund. This was reported previously. In FY24, the in-kind contributions of national funds to support the Sustainable Groundwater Management in the SADC Member States Phase 2 project's subgrants, whereby most countries match $125,000 from the project with $12,500.

Leverage ratio = 1.32: On average, for every US$1 that CIWA contributed to a project, CIWA leveraged additional funding sources to provide input of US$1.32 to its projects. Another way to represent this is to say that the combined value of CIWA contributions to active and closed RETFs (e.g., projects), combined with co-financing totaled US$154.16 million. Seventy-six percent was from CIWA grants and 24 percent was from co-financiers.

Conversely, how much of CIWA funds influence the preparation or implementation of new IDA-funded projects is measured in the Results indicators (Indicator 6, Annex 2).

Effectiveness / Cost Effectiveness

CIWA measures its effectiveness, e.g., its ability to achieve its intended program development outcomes relative to its targets, through the program indicator results (Annex 2). Since CIWA adjusted the formulation of its Results Framework the previous targets were not used in FY24. Moreover, targets are now set and indicator results reported for the respective fiscal year, rather than cumulatively. CIWA will begin tracking results against the new annual targets in FY25. However, for the purpose of this analysis the targets stated in last year's annual report can be used:

PDO Indicator 1:
$14 billion (value of potential projects influenced by CIWA)
$7 billion mobilized investments influenced

PDO Indicator 2:
45 million people will directly benefit from improved water resources management and development projects influenced by CIWA

In FY24 CIWA's total and mobilized investment values increased a small amount, however, both mobilized and potential values are short of targets by nine and 21 percent, respectively. However, the total number of investment beneficiaries (19.875 million people from mobilized and 54.03 million people from potential; a total of 73.9 million people) exceeds the target by 64 percent.

The indicators found in CIWA's Results Framework, however, do not fully capture secondary and tertiary benefits of CIWA support. A transboundary institution strengthened by CIWA, for example, can facilitate a series of subsequent regional cooperation actions. Millions of people receive various levels of benefits as a result of each cooperative action facilitated by the strengthened transboundary institution. These outputs are often counted and reported on at the basin and project level but are too broad and distinct to aggregate at the program level, given the nature of issues supported and the timeframe it takes for such benefits to manifest. In the long run, therefore, CIWA's actual efficiency is likely to be greater than that quantified through the indicators in the Results Framework.

CIWA estimates the cost effectiveness of the program by calculating the ratio of the two PDO level outcomes to the value of the overall programs:

$$Investment\ influenced\ ratio = \frac{\sum Value\ of\ investments\ influenced}{\sum Value\ of\ overall\ program\ in\ operation}$$

$$Direct\ beneficiaries\ ratio = \frac{\sum Direct\ beneficiaries\ from\ investments\ influenced}{\sum Value\ of\ overall\ program\ in\ operation}$$

These metrics are based on CIWA's PDO indicators and the size of the program in operation, or the total allocated amount of the overall program envelope.[60]

Investment-influenced ratio:

Total investment value = $17.4 billion

Funds committed = $134.9million

On average, for every US$1 contributed by CIWA to operations (funds committed), the program influenced US$129 in cooperative investment value.

Total beneficiaries = 73.9 million

Funds committed = $134.9million

For every US $1.8 committed by CIWA, approximately one person will benefit, or has directly benefited, from transboundary water resources potential or mobilized investments.

[60] Note that the accounting for these two indicators has changed, the difference being that this year the denominator considers the value of the overall program in operation (amount allocated out of the overall program envelope) instead of only the funding in operation in the CIWA-supported projects that influenced the investments and beneficiaries. Using program-level values in calculating these indicators provides an improved picture of program-level efficiency.

Commercial Improvement and Value for Money

CIWA maintains economy in its procurement (minimizing costs and ensuring high quality) by requiring that all recipient-executed activities finance goods, works, and services in accordance with the World Bank's guidelines on "Procurement under IBRD Loans and IDA Credits" and the Bank's guidelines on the "Selection and Employment of Consultants by World Bank Borrowers," jointly referred to as the "Procurement and Consultant Guidelines." Similarly, for all World Bank-executed CIWA activities, the Bank is responsible for carrying out procurement of goods and employment and supervision of consultants, in accordance with applicable policies and procedures. Among other things, the guidelines provide specific instructions for use of World Bank documents (e.g., standard bidding documents, requests for proposals, contract forms), conflict of interest, advance contracting, co-financing, mis-procurement, and fraud and corruption.

Availability of Finance

At the end of FY24, CIWA was a program of US$172.5 million co-funded by Austria, Denmark, the European Commission, the Netherlands, Norway, Sweden, and the United Kingdom. Strong client demand for CIWA support, combined with 90 percent of the program's current funding envelope being provisionally allocated, means that CIWA needs to continue raising funds to expand its impact and ensure sustainability of successes.

Equity

CIWA is working for a world with gender equality, which means changing the norms about female and male roles and changing power relations within governments, companies, institutions, and households.

It is also working to improve social inclusion and the dignity of people who are disadvantaged because of their identity so they can participate fully and equally in society. Social inclusion assumes that men and women are not homogeneous but are stratified by age, race, religion, ethnic origin, beliefs and practices, and many other socio-cultural contexts.

This year the CIWA Annual Report is adding this section on Equity to align with the FCDO's methodology on Value for Money. It is a summary of the relevant content from within the Annual Report of examples on GESI integration into CIWA operations and indicators that measure GESI results.

GESI Activities

In recognition of the need to address the male dimension of gender, particularly since water is a male-dominated sector, CIWA launched the Male Champions for Women's Empowerment in June 2023, initially with 10 male participants linked directly and indirectly to transboundary water programs in East Africa.[61] CIWA collaborated with SIWI including by providing input into publications, presenting at meetings, and exploring collaboration on the Male Champions Forum in FY25.

CIWA developed and delivered a two-part online training program on GESI in transboundary waters. Part 1 focused on building a solid foundation of the concepts and key considerations related to GESI and its connection to effective and inclusive transboundary water management at both the institutional and project level. Part 2 focused on how to apply GESI principles throughout the project cycle and within specific water and transboundary water contexts. Training was conducted at ENTRO, NELSAP-CU, and LVBC and with the Central Asia Water Program. In the Nile Basin this resulted in updates to the institutional gender action plans and mentored assessment with the Equal Aqua methodology (which considers the gender gaps in institutional policies and practices that determine the enabling environment for women in the workplace).

In the South Sudan Transboundary Water Program, the stakeholder engagement strategy ensures that gender issues are actively integrated into the design and implementation of water management and development activities. Specific measures to address gender inequalities were incorporated during the planning phase of a study to map humanitarian and development actors in refugee settlements and host communities.

Under the NCCR, the LVBC's regional water-quality management strategy and action plan are being reviewed to ensure they effectively incorporate a gender mainstreaming strategy.

Untapping Resilience delivered a water point gender/gender-based violence (GBV) checklist, which comprises a comprehensive list to comply with before construction begins at selected project sites to ensure a robust integration of gender inclusion aspects throughout implementation. Data collected and used in the MIS include women's experiences with the time and distances to collect water.

Sustainable Groundwater Management in SADC Member States—Phase II supported the creation of 10 national focus groups (NFGs) to liaise with SADC-GMI on groundwater. The NFGs are required to have gender balance and cross-sectoral representation.

Does the CIWA Program Still Represent Value for Money?

The CIWA program operates in a complex space where progress is non-linear. This means that progress and setbacks go together and may affect the development indicators. However, the evidence strongly suggests that the CIWA program still represents value for money. Specifically, CIWA is still short on achieving the target for PDO indicator 1 but exceeds the target for PDO indicator 2. However, across the four categories, CIWA performed very well in FY24.

[61] https://vimeo.com/796953340?share=copy

Annex 6

Midterm Evaluation Recommendations/Actions

Recommendation	Actions Taken by CIWA
Increase resource mobilization, particularly to address growing FCV-related challenges and priorities.	CIWA has prioritized scaling up engagements in FCV settings. It developed an FCV Framework to guide its projects and technical assistance, which includes identifying drivers of fragility, developing mitigation measures, and contributing to peacebuilding. CIWA has also been active in FCV contexts including the Sahel, Lake Chad Basin, and Horn of Africa, and continues to seek additional resources to meet the demands in these challenging environments.
Continue to increase work in priority basins and regions of interest other than the Nile River Basin.	CIWA has strategically expanded its focus to other critical regions, including the Sahel, Lake Chad Basin, and Horn of Africa. In the Lake Chad Basin, for example, CIWA is working on the Lake Chad Transboundary Water Security Project, which was influenced by CIWA's knowledge products that highlighted the need for a different intervention paradigm in the basin. It is anticipated that CIWA will reengage partners in West Africa as well as in the Zambezi basin in the next FY, however increasing work in priority basins requires increased allocations from donors.
Diversify stakeholders with whom CIWA works.	CIWA has been engaging with a broader range of stakeholders beyond traditional water Ministries and RBOs, including the private sector and civil society organizations (CSOs). This diversification is part of CIWA's multi-sectoral and multi-stakeholder approach, which has been especially emphasized in complex environments.
Develop a strategy for knowledge production and partnerships, explicitly aligned with CIWA pathways of influence and change.	CIWA has developed and implemented knowledge-sharing strategies that are integrated into its broader program objectives. CIWA's knowledge activities, including real-time consultations and the creation of strategic documents such as the FCV Framework, have been instrumental in guiding project design and ensuring that engagements are informed by grounded realities and beneficiary needs (see Annex 7). CIWA does not currently have an explicit partnership strategy, however, it is actively fundraising (see Annex 4).
Match partner willingness and capacities with investment opportunities and sustainability planning.	CIWA has aligned its work with the absorptive capacities of its partners by providing capacity-building support or identifying suitable partners where necessary. For instance, in the Nile Basin, CIWA's projects including the NCCR focused on building drought and flood forecasting capacities, which align with the capacities and needs of local institutions.
Further strengthen CIWA's culture of learning.	CIWA continues to embed a culture of learning within its operations by systematically incorporating lessons learned from past and ongoing projects.
Align CIWA's Theory of Change and Results Framework.	CIWA has taken steps to align its Theory of Change and Results Framework with program objectives. The MTR highlighted that while the ToC is generally well-aligned, the Results Framework needed refinement to better capture the diverse impacts of CIWA's interventions. These considerations are now reflected in the CIWA 2.0 Theory of Change and Results Framework presented in this Annual Report.

Annex 7

Results Framework for CIWA Communications

Goal

Enhance stakeholder engagement and awareness of the CIWA program's initiatives in international water resource management in Africa.

Objectives

1. Increase visibility of CIWA's activities and achievements among stakeholders by 30 percent within two years.

2. Increase partnerships with RBOs, donors, and World Bank communications teams through targeted communication strategies by 25 percent within the program period.

3. Improve knowledge sharing among stakeholders (all audiences) through knowledge products (e.g., reports, CIWA Bulletin) by 40 percent within the next year.

Indicators

Number of website visitors in FY24:

- 50,000+ visitors;
- 46 percent increase in traffic
- Top four visitors of CIWA website: 1) USA, 2) France, 3) United Kingdom, 4) Kenya

Social media engagement metrics on X:

Follower growth: CIWA's X account gained 1,016 new followers (33 percent increase), reaching 4,036 total followers by June 30, 2024, reflecting increased visibility and engagement in African water management and development topics.

- **Audience Growth Rate:** CIWA's audience growth rate increased by 2.67 percent, defying global declines in social media engagement.
- **Content Production:** CIWA posted 401 X posts (10 percent increase) with an average of four likes per day, ensuring a continual presence and fostering ongoing engagement with its key messages.
- **Major Campaigns:** The Woman's Day, Nile Day, and Water Day campaigns in 2024 generated a 36 percent increase in impressions compared to 2023, solidifying CIWA's role as a leader in the nexus of gender equality and water resources management.
- **Engagement Metrics:** Campaigns achieved an average engagement rate of 6.17 percent, outperforming the 3.29 percent industry standard for nonprofits, converting engagement into event sign-ups and publication downloads.
- **Top Performing Posts:** Posts for Water Day and Woman's Day were the most successful, leveraging visual storytelling and targeted hashtags to increase visibility and interaction.

Knowledge Sharing:

Number of knowledge products produced and distributed:

- **Three CIWA Bulletins** with more than 3,000 recipients with 600+ views, similar to FY23; 12 original blogs and/or stories (View from the Field) prepared and published on both the CIWA website and World Bank Water website

Engagement metrics for knowledge-sharing platforms (downloads, views):

- **78 percent increase in downloads** of CIWA program resources and publications
- **24,000 views** on average per month on CIWA's posts
- **10 publications** prepared, designed, and published

Strategic Insights

- **Targeted Engagement:** Analysis of follower geography revealed high engagement in Africa and other water-stressed regions, allowing for more targeted content strategies.
- **Content Optimization:** Campaigns aligned with key global observances (e.g., International Women's Day, Africa Day, and World Water Day) demonstrated the importance of timing for enhanced engagement.
- **Hashtag Effectiveness:** Strategic use of hashtags including #NileDay, #WaterDay, and #WomenInWater boosted impressions and engagement by connecting CIWA's content with global conversations.

Strategic Insights

- **Platform Diversification:** CIWA plans to increase engagement on LinkedIn and Instagram, targeting professionals and younger demographics with more frequent, multimedia-rich content to broaden its outreach and engagement.

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