COOPERATION IN INTERNATIONAL WATERS IN AFRICA

ANNUAL REPORT 2022

CIWA

THE WORLD BANK
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COVER PHOTO:

A woman walks during a sandstorm in Sudan.

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CREDIT LIST

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Abbreviations

AFD	Agence Française de Développement
ANBO	African Network of Basin Organizations
CBA	Community-Based Association
CIWA	Cooperation in International Waters in Africa
COM	Council of Ministers
COVID-19	Coronavirus Disease 2019
CMU	Country Management Unit
CSO	Civil Society Organization
CUVECOM	Cuvelia River Commission
DAS	Data Analytics Services
DRC	Democratic Republic of the Congo
ECMWF	European Center for Medium-range Weather Forecasting
ECPG	Eastern Cape Provincial Government
ELRP	Emergency Locust Response Program
ENTRO	Eastern Nile Technical Regional Office
ESIA	Environmental and Social Impact Assessment
FAO	Food and Agriculture Organization
FCV	Fragility, conflict, and violence
FY	Fiscal Year
GDE	Groundwater-dependent ecosystem
GEF	Global Environment Facility
GEMS	Geo-enabling Initiative for Monitoring and Supervision
GESI	Gender Equality and Social Inclusion
GIZ	German Agency for International Cooperation
GFDRR	Global Facility for Disaster Reduction and Recovery
GW4R	Groundwater for Resilience
HoA	Horn of Africa
HoA-GWI	Horn of Africa Groundwater Initiative
ICPAC	IGAD Climate Prediction and Application Center
IDA	International Development Association
IFAD	International Fund for Agriculture Development
IGAD	Intergovernmental Authority on Development
IPF	Investment Project Financing
LADP	Local Area Development Program
LCBC	Lake Chad Basin Commission
LIMCOM	Limpopo Watercourse Commission
LVBC	Lake Victoria Basin Commission
MoEWR	Ministry of Energy and Water Resources
MTR	Mid-Term Review

NBD	Nile Basin Discourse
NBI	Nile Basin Initiative
NBSP	Nile Basin Support Program
Nile-Sec	Nile Basin Initiative Secretariat
NCCR	Nile Cooperation for Climate Resilience
NCORE	Nile Cooperation for Results
NDF	National Discourse Forum
NEL	Nile Equatorial Lakes
NELIP	Nile Equatorial Lakes Investment Program
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Program Coordination Unit
NFG	National Focal Group
NIP	Nile Investment Program
NRBMP	Niger River Basin Management Project
NWRS	National Water Resources Strategy
OKACOM	Permanent Okavango River Basin Water Commission
ORASECOM	Orange-Senqu Commission
PPP	Public-Private Partnership
RBO	River basin organization
RS	Remotely-sensed data
RVAA	Regional Vulnerability Assessment and Analysis program
SADC	Southern African Development Community
SADC-GIP	SADC Groundwater Information Portal
SADC-GMI	SADC Groundwater Management Institute
SADRI	Southern Africa Drought Resilience Initiative
SAP	Strategic action program
SIIP	Sahel Irrigation Initiative Support
SIWI	Stockholm International Water Initiative
SMAB	Senegalo-Mauritanian Aquifer Basin
TAC	Technical Advisory Committee
TBA	Transboundary aquifer
TDA	Transboundary Diagnostic Analysis
WA+	Water Accounting+
WEFE	Water-energy-food-environment
WICA	Water Information and Communications in Africa
WQTWG	Water Quality Technical Working Group
WRM	Water resources management
WSA	Water Security Assessment
ZAMCOM	Zambezi Watercourse Commission
ZRA	Zambezi River Authority

Foreword

Ai-Ju Huang

Anders Jagerskog

The shocks keep coming—and persisting—in sub-Saharan Africa.

In the last year, the relentless impacts of the COVID-19 pandemic, increasing conflict and fragility, and climate change have dealt an economic blow to the continent. Extreme poverty is rising, economic growth is slowing, and financial risks from high debt levels are jeopardizing human capital and development gains.

Africa is warming at a faster rate than the global average and can expect more intense, variable, and frequent heat waves, droughts, floods, and cyclones, which are fueling fragility, food and water insecurity, loss of income, inequality, conflict, and displacement. In the last 20 years, the frequency of droughts has tripled in Africa. The worst drought in at least 40 years is devastating the Horn of Africa (HoA), killing livestock and crops, driving up poverty and child malnutrition, and forcing one million people from their homes to search for food and water. As a result, over 18 million people in Ethiopia, Kenya, and Somalia are facing acute food insecurity. The Sahel, too, faces severe water scarcity. Sudan is experiencing torrential rains while still recovering from devastating floods in 2020. The economic impacts from weather and climate disasters are profound—the 2021 floods in South Sudan alone caused damage totaling over $US670 million. Water resources are not only critical for sustainable development but also for disease control in Africa, where 300 million people lack access to potable water and 700 million do not have adequate sanitation, hobbling efforts to mitigate the effect and contain the spread of infectious diseases, such as COVID-19.

In the 2022 fiscal year (FY22), the Cooperation in International Waters in Africa (CIWA) worked to mitigate the continent's immense needs. These formidable challenges only strengthen our resolve to help countries collaborate over transboundary waters to share costs and benefits of building resilience, to address drivers of fragility, conflict, and violence (FCV), and to foster green, resilient, and inclusive development (GRID) and recovery from the pandemic.

Given the increasing scarcity of surface water, CIWA redoubled its focus on increasing the sustainable use and management of water beneath the earth's surface. In Botswana and Zimbabwe, we are enhancing groundwater development by supporting the rehabilitation of small-scale infrastructure. In the Sahel region, we are removing constraints on farmer-led irrigation by using groundwater and exploring how best to support cooperative management of the Senegalo-Mauritanian Aquifer Basin (SMAB). CIWA-supported activities in West Africa are leveraging very significant IDA financing, for 3 national and 2 regional projects focused on water resources management and transboundary cooperation. In the Horn of Africa, we are contributing our transboundary waters expertise to the World Bank's US$385 million project, Horn of Africa—Groundwater for Resilience. We are also building capacity and strengthening institutions to improve groundwater management in Southern Africa through CIWA's technical assistance to the Southern Africa Development Community Groundwater Management Institute (SADC GMI).

Helping our partner countries prepare for, and mitigate, climate change is a crucial way to build resilience. We do that through projects such as the Nile Cooperation for Climate

Resilience (NCCR), which promotes collaboration on water resources management and development, builds capacity on dam safety, and improves water quality planning, and through technical assistance such as the Southern Africa Drought Resilience Initiative (SADRI), which addresses cross-border drought risks, improves cooperation, and creates a holistic vision of drought-risk management. We also championed the importance of climate resilience in African transboundary waters at COP26, the United Nations (UN) Climate Change Conference in Scotland, and at the World Water Forum in Senegal.

We are strengthening the link between transboundary water management and freshwater biodiversity conservation by supporting activities to prevent further biodiversity loss, which is key to sustaining livelihoods, spurring sustainable economic development, and mitigating climate change impacts.

Gender inequality in Africa remains high, and progress toward gender equity has stagnated. CIWA is stepping up its work on gender equality and social inclusion (GESI) by conducting trainings, producing learning notes, and launching a Male Champions Initiative developed with the Stockholm International Water Initiative (SIWI) to encourage men to create a favorable enabling environment for women to become leaders in transboundary organizations.

Because countries cannot manage what they cannot measure, CIWA is continuing its support for the Bank-executed technical assistance, Water Data Revolution: Closing the Data Gap for Transboundary Water in Africa, by assessing organizations' data weaknesses that could be mitigated by using satellite-based, remotely sensed (RS) data.

To elevate the importance of transboundary cooperation, we are ramping up our external communications, especially on social media, where we launched CIWA's Twitter account and developed digital campaigns to highlight our work and that of our partners.

We closed two successful grants in the Nile Basin, Engaging Civil Society for Social and Climate Resilience in the Nile Basin and the Nile Basin Support Program, and three in the HoA including Support to Transboundary Water Resources Management (Somalia), Strengthening Resilience in the Horn of Africa, and the Horn of Africa Groundwater Initiative. All three activities informed the new US$5 million CIWA grant, Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands and a new US$385 million International Development Association (IDA)-funded World Bank project, Groundwater for Resilience. Both are part of a regional effort to increase sustainable access to, and management of, groundwater in the region's borderlands.

This last fiscal year was also a time of change and stocktaking for CIWA itself. We are grateful for the excellent leadership of Erwin De Nys, our former program manager who has taken a new role at the World Bank. Anders Jagerskog, senior water resources management specialist and the Bank's transboundary water focal point, is excited to step into this leadership position to oversee the team's impactful work.

As we celebrated 10 years of improved cooperation, management, and development of transboundary waters, we commissioned an external mid-term evaluation of the CIWA program. The final elements of this evaluation are being incorporated into a report, which we look forward to considering in depth with our donors and other stakeholders in the next fiscal year.

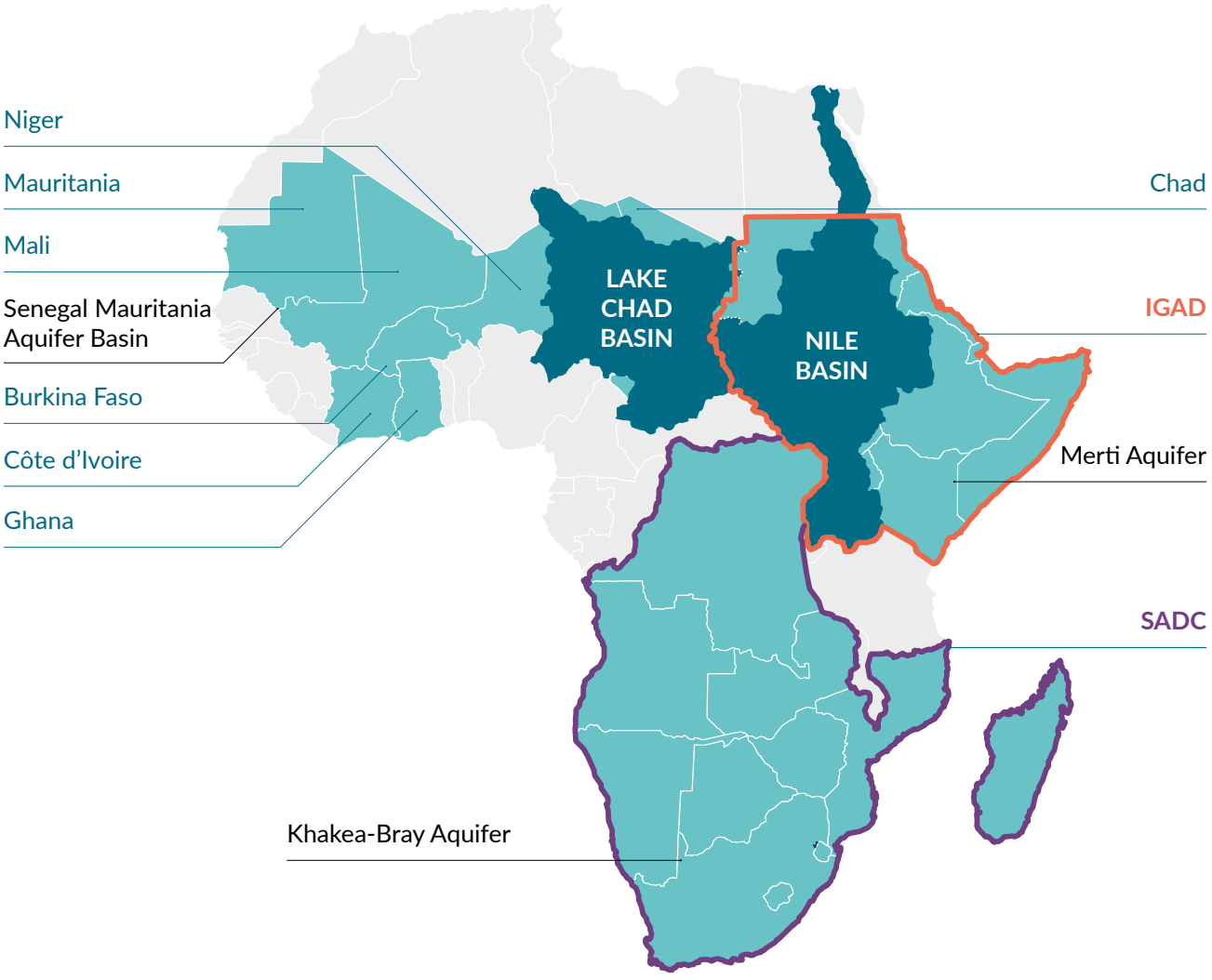
We are grateful for the ongoing support of our donors and for the resolve and dedication of our country partners, without whom Africa's future would be a little less bright.

Ai-Ju Huang

Anders Jagerskog

Program Managers

CIWA IN FY2022: A SNAPSHOT



Sustained support:
Nile River Basin, Lake Chad Basin

Strategic support:
SADC, IGAD, Senegal and South Sudan, Burkina Faso,Chad, Mali, Mauritania, Niger, Ghana and Côte d'Ivoire

— IGAD

— SADC

CIWA'S IMPACT

People who benefit from investments influenced by CIWA

53.89 million people

(from both mobilized and potential investments)

Investments

To manage watersheds, develop groundwater, build storage, etc.

US$18.05 billion

→ **Potential**
US$11.7 billion

→ **Mobilized**
US$6.34 billion

Institutions

To build trust, coordinate planning, and manage shared resources

Transboundary institutions supported with CIWA technical assistance and financing

19

Information

For understanding risks, better decision-making, and monitoring compliance

Strategic analyses and knowledge products used to illustrate the evidence base for cooperation

110

Introduction

With 90 percent of Africa's water falling within transboundary river basin catchments, water resources management and development must be a collaborative endeavor. The heart of CIWA's work is convening countries with the goal of cooperating more effectively and with less friction on projects and infrastructure whose impact crosses borders. CIWA strives to foster cooperation, protect biodiversity, help countries beset by conflict and fragility, and spur climate resilience. It achieves this by advancing technical assistance and projects framed around its three pillars: ***information—to understand risks, make better decisions, and monitor compliance; institutions—to build trust, coordinate planning, and manage shared resources; and investments—to manage watersheds, develop groundwater, and build storage. CIWA's grants support:***

1) **Sustained engagements with priority basins.** CIWA strengthens foundational elements such as data, legal agreements, institutions, and investment and operational plans.

2) **Strategic engagements,** which contribute to high-impact projects through analytical efforts, capacity building, and technical assistance**.**

3) **Knowledge generation and management initiatives,** which strengthen the evidence base to create tools and resources to manage international waters.

CIWA provides a platform to support national governments, regional organizations, and civil society to ensure that stakeholders' concerns are addressed and benefits are equitably distributed.

This report is organized as follows: the introduction gives a whole-of-program description of CIWA's work across core strategic directions: fragility, conflict, and violence (FCV); biodiversity; and resilience. These describe how CIWA is contributing to positive change across multiple, intersecting domains and through its various support mechanisms. This is followed by regional sections that provide deeper dives into each of CIWA's grants. Results are focused on outputs from FY22, with previous years' accomplishments described for context as needed. Whole-of-project narratives and results are provided when a project closed in FY22. Following the regional narratives, this report presents CIWA's progress on cross-cutting themes including Water Data Revolution, GESI, and communications and a summary of CIWA's recently completed external mid-term evaluation. In Looking Ahead, we describe the current trajectories in CIWA's portfolio and how we expect them to be carried forward in the next fiscal year. 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, and (v) a value-for-money analysis of the cumulative portfolio.

Fragility, conflict, and violence

CIWA deepened its support to countries affected by FCV, increasing its footprint from 11 countries in FY21 to 17 in FY22—nearly all the 20 African countries classified as FCV**.** CIWA remains engaged in three priority FCV-affected regions—the HoA, the Sahel, and the Great Lakes. This included monitoring FCV-related events with an impact on transboundary water cooperation, strengthening resilience to climate change, improving water security, and making groundwater more accessible.

In the Horn of Africa (HoA), bank-executed support led to CIWA's new assistance, Untapping Resilience: Groundwater Management and Learning in the HoA's Borderlands, and the complementary World Bank Groundwater for Resilience (GW4R) project, which are strengthening the ability of the Intergovernmental Authority on Development (IGAD) and communities to cope with, and adapt to, climate shocks. They are achieving this through enhanced management and use of transboundary groundwater resources and knowledge-generation efforts about water cooperation. The Sahel Groundwater Initiative is similarly contributing to unlocking groundwater use in the West Africa borderlands affected by FCV. In South Sudan, Sudan, and Ethiopia, the Nile Cooperation for Climate Resilience (NCCR) project is supporting drought and flood forecasting to mitigate climate risks in fragile environments.

In Western Africa, where Sahelian countries are facing unprecedented FCV challenges, CIWA is shifting from its traditional focus on integrated water resource management (WRM) to a more comprehensive regional water security framework. This approach responds to local challenges stemming from social exclusion, marginalization of women and girls, energy and food insecurity, forced displacement, conflict, and climate change. For example, the Improving Water Resource Management in West and Central Sahel technical assistance has a strong focus on supporting decentralized, smaller, and community-managed water infrastructure.

Aligned with the World Bank's FCV strategy, which has a new focus on remaining engaged during conflict situations, such decentralized investments are key for clients to deliver services in FCV zones, including during conflict. The Improving Water Resource Management in West and Central Sahel activity included a mapping of civil society organizations (CSOs) in Western Africa, with the objective of expanding the number of CIWA partners in remote FCV-affected areas and enhancing channels of communications with

communities. The involvement of women in transboundary WRM who are affected by FCV is critical, and CIWA is supporting analytics and research to learn about gender differences that can be targeted to lessen gender inequalities.

In Southern Africa, CIWA supported the rehabilitation of small-scale water infrastructure in Zimbabwe and Botswana to make groundwater more accessible. CIWA also improved information-sharing mechanisms that have enhanced water cooperation among Southern Africa Development Community (SADC) countries. Activities by the Southern Africa Drought Resilience Initiative (SADRI) focusing on energy, livelihoods, and food security have enhanced mitigation measures against droughts while reducing the impact of drivers of fragility and conflict among communities.

With the goal of deepening understanding of fragility and water cooperation at the local level, CIWA collaborated with the Stockholm International Peace Research Institute (SIPRI) to conduct a study on FCV and water cooperation. The SIPRI study draws on three case studies of transboundary basins in cross-border, FCV-affected regions in the HoA (Sio–Malaba–Malakishi Basin, the Dawa River and Aquifer, and the Bahr el Ghazal Basin and the Baggara Basin Aquifer) and provides lessons learned from cooperative initiatives in fragile contexts.[1]

CIWA also produced biweekly FCV newsletters covering key news and launched knowledge products on international waters in three African sub-regions.

Biodiversity

Supporting a range of biodiversity-related activities in Sub-Saharan Africa, CIWA conducted an assessment to better understand the linkages between program activities and biodiversity conservation. The assessment included (i) identifying key benefits of water, rivers, and other freshwater ecosystems in supporting biodiversity and the services and benefits associated with healthy, functional natural systems; (ii) identifying key potential threats to freshwater ecosystems; and (iii) developing a methodology and approach for assessing the contribution of future program activities on biodiversity conservation.

The assessment concluded that CIWA's support of biodiversity-related activities provides both direct and indirect benefits to biodiversity conservation efforts.
Key direct benefits include facilitating integrated, innovative approaches to better understand the linkages between improved ecosystem integrity and river connectivity, the role of climate change adaptation in freshwater resource planning and management, and the provision of ecosystem services.
The assessment also highlighted the opportunity to develop a more structured, integrated approach to embedding biodiversity conservation considerations into the design and implementation of activities and initiatives. CIWA developed a draft conceptual framework for action on transboundary waters and biodiversity conservation.

Specific project interventions that support direct benefits include the development of a Multi-Sector Investment Opportunities Analysis, which is part of a strategy by Okavango River Commission (OKACOM), and the advanced model[2] for Inner Niger Delta ecosystem services. Other key interventions include the implementation of best practice feasibility studies and Environmental and Social Impact Assessments (ESIAs); development of integrated watershed management strategies and plans; support for improved water quality in lakes, river systems, and river-bank restoration projects; and analytical work to facilitate improved understanding of groundwater-dependent ecosystems (GDEs). Key indirect benefits include strengthening river basin organizations (RBOs) and national water management agencies, supporting CSOs to enhance informed decision-making, developing platforms to share information, and supporting improved rural livelihoods to reduce dependency on unsustainable natural resource exploitation practices.

CIWA identified four potential opportunities for enhanced transboundary waters and biodiversity conservation work. They include (i) improvement of the overall environmental, human, and economic health of Lake Victoria and its surrounding communities through a holistic, cost-effective, long-term basin-wide sanitation approach; (ii) increased flood resilience in selected areas of South Sudan and Sudan with a potential focus on nature-based solutions to mitigate flood risk; (iii) resilient investments for pro-poor livelihoods aimed at increasing benefits to men and women that consider gender differences in economic opportunities and access to, and control over, land, biodiversity resources, and other productive assets; decision-making power; and vulnerability to biodiversity loss, climate change, and natural disasters in the Cubango-Okavango River Basin; and (iv) determination of potential options for a sustainable institutional mechanism to support cooperative transboundary management of SMAB.

CIWA also identified four potential thematic focus areas. These include (i) integration of freshwater

1 https://www.ciwaprogram.org/wp-content/uploads/Water_Cooperation_In_Hoa_CIWA_SIPRI.pdf
2 https://www.ciwaprogram.org/blog/enhancing-niger-basins-ecosystem-through-modeling-and-improved-decision-making/

biodiversity into the development planning cycle; (ii) investments in nature-based solutions as a cost-effective approach to WRM, disaster risk reduction, and climate change mitigation; (iii) protection and sustainable management of water towers as important areas that produce relatively large volumes of runoff to sustain downstream lowland areas; and (iv) TFCAs as large conservation and development landscapes that are important for integrated WRM, climate resilience, and food security.

Resilience

CIWA is strengthening the ability of riparian countries to manage water resources and increasing their capacity to recover from, and adapt to, shocks. CIWA projects are at the forefront of local and national efforts to rebound from crises and build back better in their aftermath. Faced with the multiple effects of the global pandemic, climate change, conflict, fragility, supply chain disruptions, and economic downturn, riparian countries must leverage their shared water resources for maximum mutual benefit.

Both regional cooperation efforts and context-specific solutions have been important components of the strategies that CIWA partners are implementing in the HoA, the Sahel, and Lake Chad. They are using water resources to respond to challenges and leverage the opportunities posed by change to enhance access to groundwater, address the causes of fragility, strengthen gender equality, and improve biodiversity conservation.

CIWA continues to pivot to enhancing systematic and sustainable groundwater use to protect water access for food security, which is crucial for communities to cope with, and adapt to, shocks. For example, CIWA's support to the SADC Groundwater Management Institute (SADC-GMI) has enhanced sustainable groundwater development through water supply pilot projects implemented in villages in Botswana (Gobojango and Tsetsebjwe) and Zimbabwe (Dite and Whunga). In a region where at least 11 million people are facing critical food shortages from drought, access to water for domestic and agricultural use (e.g., horticultural gardens) has a crucial impact on resilience. Through the Sahel Groundwater Initiative, CIWA is providing solutions to remove the constraints on the use of groundwater for small-scale and farmer-led irrigation in the Western Sahel.

To understand how poor water quality impacts people in the Lake Victoria region and to strengthen future project design and impact, CIWA's Great Lakes Water Quality technical assistance included a broad analysis of socio-economic indicators, a review of scientific and project literature, and community consultations on gender equality and social inclusion (GESI), focusing on livelihoods. NCCR is building on this work to influence regional water quality improvement. CIWA's Sahel Groundwater Initiative took a similar approach to ensure robust integration of the needs of women and other vulnerable populations including identifying ways to develop groundwater-based irrigation that is more accessible to women.

By strengthening the link between transboundary water management and freshwater biodiversity conservation, CIWA is supporting climate-resilient communities and playing a crucial role in planning for, and mitigating, climate-related shocks; supporting livelihoods; and sustaining health and economic development. In East Africa, for example, CIWA helped governments and RBOs strengthen governance mechanisms and the knowledge base to make more informed and inclusive investment identification decisions about biodiversity, such as in the Nile Equatorial Lakes Investment Program (NELIP) multicriteria analysis supported by Nile Basin Support Program (NBSP). NCCR will also use the multi-criteria analysis to identify opportunities to improve water quality in the Lake Victoria Basin and reduce regional environmental degradation. The Sahel Groundwater Initiative proposed the first typology of GDEs, highlighting their economic importance and identifying how groundwater resource management that considers dependent ecosystems can best contribute to equitable and sustainable development.

CIWA works to enhance water management and cooperation to reduce the root causes of fragility. CIWA's support for transboundary collaboration and enhanced institutional capacity play a role in addressing cross-border tensions over scarce resources, thus mitigating potential conflicts. For example, the HoA borderlands, which are important conduits for trade and pastoralism, have few formal institutions that can regulate and facilitate economic activity, manage conflict, and provide basic services, which deepens inequality and insecurity. Support to the World Bank's new GW4R project, which includes Ethiopia, Somalia, Kenya, and IGAD, involves applied research and a state-of-the-art monitoring system, using the Geo-enabling Initiative for Monitoring and Supervision (GEMS) to track and learn about the role of groundwater in the borderlands, including in reducing fragility and conflict and enhancing resilience.

Nearly every Nile country experiences recurring seasonal floods, which threaten livelihoods and economic growth across the basin. The 2020 rainy season showed how serious the impacts can be—the water level of the Blue Nile in Khartoum, Sudan, was the highest in 100 years, and floodwaters caused tremendous damage in Ethiopia and South Sudan, affecting over 1.5 million people. CIWA's continued support to Nile countries through NCCR leverages the comparative advantages of Nile Basin Initiative (NBI), Nile Basin Discourse (NBD), and Lake Victoria Basin Commission (LVBC) to pivot toward improving flood and drought resilience. NCCR aims to develop and enhance the robustness of early-warning systems for droughts and riverine and flash floods, develop early-warning system dissemination strategies and awareness programs, create a flood management investment road map, and conduct capacity building for national governments.

To strengthen resilience in fragile borderland areas, CIWA supported the development of a framework to improve the design and implementation of resilience initiatives. The Strengthening Resilience in the Horn of Africa initiative used the Transboundary Resilience (T-Res) framework to inform and strengthen the design of GW4R. The approach allowed the identification of linkages between groundwater's role and key 'resilience levers' in the HoA (e.g., livelihoods, markets and trade, local institutions and governance, and social cohesion), which strengthened the identification of project activities to maximize resilience impact in future activities in borderland areas.

CIWA approaches resilience building as a long-term, continual process that occurs across regional, national, sub-national, and community levels and among multiple sectors and stakeholders. To that end, CIWA's work is closely aligned with the World Bank's 2025 Climate Change Targets, including boosting support for adaptation measures and elevating climate action in key sectors. CIWA's contribution to resilience also aligns with the Bank's Climate Change Action Plan 2021–2025, which aims to advance the climate change aspects of its green, resilient, and inclusive development (GRID) approach, acknowledging the vital importance of natural capital, biodiversity, and ecosystems services for mitigation and adaptation.

©Jeremy Bezanger/ Unsplash - Scene on the Nile River, Luxor, Egypt

01

EAST AFRICA

©Yukio Tanaka/ CIWA - Photo Caption: CIWA team's visit to the Rusumo Falls project, Tanzania, April 2022

East Africa faces a multitude of challenges, including food and water insecurity, growing violence and conflict, and climate change impacts. CIWA, which grew out of the progress made by the Nile Basin Trust Fund in water resources management and development in the Nile River Basin, is now working to enhance the region's resilience to worsening climate change and water insecurity, elevating the voices of civil society in decisions about water resources, and providing opportunities for riparian dialogue and hydro-diplomacy.

Engaging Civil Society for Social and Climate Resilience in the Nile

Context

Through the Engaging Civil Society for Social and Climate Resilience in the Nile Basin project, NBD strengthened civil society participation in development processes and programs to ensure that their benefits were equitable, contributed to building communities' climate resilience, and responded to community priorities. The NBD is the only organization in the region with the network, technical expertise, and resources capable of carrying out community-level dialogue. It has mobilized partnerships with governments and regional development organizations to ensure that social concerns shape water investments of transboundary significance.

Through its network of over 640 member organizations across 11 riparian countries, NBD worked closely with communities to elevate their voices; help them adapt to, and manage, risks; promote cooperation; monitor the impacts of investment projects; and share knowledge on resilience-building strategies. The project closed in FY22, but CIWA support to NBD will continue through the NCCR project.

Progress

The project's accomplishments from its creation in 2014 until its closure are summarized below, and the Implementation Completion and Results Report is publicly available.[3]

Capacity building for NBD members to engage with Nile investment projects

NBD's role in transboundary investment dialogue is to provide opportunities for community members to voice their concerns and priorities about proposed projects and bring their perspectives to policymakers and project teams to maximize benefits for residents. The project financed 10 consultations across the following projects:

1. ***Nyimur-Aswa Multipurpose Water Resources Project*** **(between Uganda and South Sudan). NBD supported stakeholder consultations that surfaced community concerns about disruption to lives and livelihoods and the need for a permanent road to facilitate trade between Uganda and South Sudan.** The consultations influenced the location of irrigation facilities and led to the construction of a permanent access road between Uganda and South Sudan to facilitate trade in agricultural products and fish.

2. ***Rusumo Falls Hydropower Project*** **(between Burundi, Rwanda, and Tanzania). The US$470 million project, mainly financed by the World Bank and the African Development Bank, is expected to generate 80 megawatts of hydroelectric power and other livelihood-enhancing outputs.** NBD asked communities for their priorities for projects to be financed under the Local Area Development Program, which agreed to finance piped drinking water, schools, health facilities, trading centers, pumps for irrigation, and activities to protect the watershed.

3 https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099700006172227110/p1324480813fb70608f71033fa872da9fd

©Petr Kapuscinski - Fishing boats on Lake Victoria in Kisumu, Kenya

The consultations also reduced the number of households needing resettlement from an estimated 6,700 (40,000 people) to only 664 (4,000 people). This decision was made after community members voiced strong support for a run-of-river design option instead of an intermediary development scheme that would have generated more energy and involved a water storage reservoir. This helped the governments save money on compensation costs and reduced community disruption.

3. **The *LEAF II Project* (between Uganda and the Democratic Republic of Congo [DRC]). NBD enabled community representatives to voice their priorities to the implementing agency for fisheries infrastructure that could contribute to peace and security in the region.** Decision-makers from the two countries authorized construction of a 223-kilometer road along three axes connecting Uganda and DRC (Mpondwe–Kasindi-Beni: 80 kilometers, Beni–Butembo: 54 kilometers, and Bunagana–Rutshuru–Goma: 89 kilometers), which community members had requested. Recognizing the role of women in the fisheries value chain, NBD also led consultations that improved gender outcomes. At the policy level, gender issues were included in the harmonization of fisheries regulations to ensure a legislative framework that supports gender equity, and, at the operational level, women participated in decision-making about lake and fisheries management.

4. ***The Baro-Akobo-Sobat Multi-Purpose Water Project* (between Ethiopia and South Sudan). The NBD helped communities understand the hydropower potential of the Baro-Akobo-Sobat Basin and related benefits.** The dialogue also enabled communities to present their priorities for project funding, including activities to protect ecosystems and reduce poverty through post-conflict livelihood rehabilitation.

5. ***The Mara River Water Resources Project* (between Kenya and Tanzania). In December 2021, NBD mediated dialogue between Kenya and Tanzania to help communities learn about the project's status and potential benefits and voice their priorities and concerns.** Issues discussed included the development of multipurpose storage reservoirs for irrigation, domestic water supplies, small hydroelectric power plants, and implementation of integrated

watershed management approaches to protect the environment and promote alternative livelihoods.

Overall, nearly 900 people participated in the transboundary dialogues, exceeding the original target by 17 percent. Stakeholders who came to the dialogues were split equally between male and female participants, although the project had anticipated a targeted participation of 65% female participation.

NBD activities directly benefited 4,001 people (1,853 female, 2,148 male).[4] NBD held women-only training sessions to reach more women and tried to ensure that they were well-represented during transboundary dialogues so that decision-makers would address their priorities.

Strengthening NBD Secretariat: delivery of key strategies and measures for the Secretariat's efficiency and sustainability

The project financed a stakeholder mapping[5] exercise in 2015 of 11 Nile countries to understand the organizations, networks, and relationships among stakeholders involved in cooperation and development initiatives. This resulted in the identification of the geographical representation, thematic orientation, and capacities of civil society organization (CSO) members of the National Discourse Forums (NDFs).

In 2016, the project financed the preparation of strategies for communication and outreach, monitoring and evaluation, and financial sustainability and supported the NBD Strategy 2018–2022. The NBD Secretariat implemented many of the strategic recommendations, including measures to strengthen communication and outreach and monitoring and evaluation.

To further guide its efforts toward NBD's financial sustainability, the project financed the NBD Fundraising Plan 2022–2025, whose recommendations the organization is exploring to mobilize funding from development partners and NGOs. NBD has already implemented several measures, including providing fee-based consulting services, training, and provision of data on flood risk collected through citizen science.

NBD has raised funds from three donor partners along with CIWA, although it did not meet its target of four. The Coca Cola Foundation and IHE Delft Institute for Water Education provided funding from 2017 to 2019 and Germany's Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) provided funding in 2022 to implement the Women and Water for Change in Communities project. While CIWA is supporting NBD through NCCR, currently there is only enough funding to maintain the Secretariat for another two years.

Improving communication and outreach to increase member satisfaction

Strengthened communication channels helped build the capacity of CSOs and citizens and enabled coordination among organizations working on related issues, which increases civil society voices in development projects. NBD also raised its public profile through 36 media mentions, including seven in the project's final year.

Next Steps

Despite efforts to raise funds, NBD has struggled to achieve financial sustainability, a critical challenge that requires focused attention. The synergies between NBD and NBI offer opportunities for joint fundraising; however, joint financing arrangements must ensure that NBD remains independent to continue being a trusted interlocutor between communities and investment planners.

NBD's partnership with NBI through NCCR ensures that both organizations can more effectively contribute to cooperation over shared waters. NBI helps identify and prepare transboundary projects that government leaders prioritize, while NBD engages with communities to assess their needs and gain their support for those projects. Given that NCCR funding for NBD will only support two thematic activities and core functions for the next two years, it is imperative for NBD to quickly identify additional resources.

Bringing all Nile countries together around a common growth-oriented goal and leading to tangible benefits for the basin's population

4 Including people participating in training events, workshops, NBD/NDFs governance meetings, and transboundary dialogues.
5 https://nilebasindiscourse.org/e-resource-center/workshop-research-reports/nbd-nile-basin-countries-stakeholder-mapping-of-csos-network-members-and-their-partners,-2015.html

Nile Basin Support Program

From its inception in 2013 to its closure in 2022, the Nile Basin Support Program (NBSP) complemented three projects through a US$1.66 million Bank-executed grant from CIWA—Nile Cooperation for Results (NCORE), Engaging Civil Society for Social and Climate Resilience, and NCCR. NBSP provided opportunities that had not been possible under existing institutional structures including riparian dialogue, innovative and disruptive technology adoption, and investment planning.

The program also provided global expertise and technical support to help NBI and Nile countries advance development of public-private partnerships (PPPs) for investment projects,[6] remote-sensing data applications, environmental and social safeguards, and integration of gender equality into NCCR project design. Highlights of program outcomes include:

Hydro-diplomacy

NBSP conducted international study tours for water resources management staff to learn best practices, provided technical assistance through regional workshops and media training and facilitated consultations. The consultations, which notably included Egypt's participation, focused on approaches to inform joint basin-wide cooperation on reservoir management and flood forecasting. This flexible approach has allowed the Bank to provide support to encourage cooperation and apply new technologies for an improved understanding of the water resources situation in the basin. This support provided access to innovative analytical tools that strengthen capacity to conduct spatial analysis and remote sensing, improve environmental sustainability, and enhance economic and financial benefits through cooperation.

Investment Planning

While NCORE was developing many new potential investments in water resources development, it became clear that a strategic framework was needed for their prioritization. NBSP supported NBI to (i) develop a framework to support cooperation (e.g., to define guidelines for the Nile Investment Program [NIP]), (ii) identify measures to strengthen regional institutions, (iii) prioritize and sequence cooperative regional investment projects, and (iv) contribute to the knowledge base required to underpin priority regional investments. NIP planning is continuing with support from the European Union.

In parallel with NIP, the Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) consolidated independently prepared investment projects by member countries into a single Nile Equatorial Lakes Investment Program (NEL-IP).[7] Both pipelines would be highly visible, country-driven, multi-sector investment projects, bringing all Nile countries together around a common growth-oriented goal and leading to tangible benefits for the basin's population. The pipelines would be an effective response to the region's daunting economic, environmental, and geopolitical challenges through coordinated investments at basin and sub-basin levels that consider the growing water-energy-food-environment (WEFE) nexus.

NELSAP-CU developed and reviewed 15 regional screening criteria for investments with member countries. Using a decision support tool created by NBI, these criteria have been applied to prioritize 128 potential projects. National stakeholders (Technical Advisory Committee [TAC] and Council of Ministers [COM]) compared the pros and cons of various combinations of development options, placing an emphasis on energy security, food security, employment, beneficiaries, investment cost, and revenue. By totaling individual project priorities within each scenario, the food security scenario—with 17 projects and a good balance of country representation—ranked highest.

NBSP also supported NELSAP-CU to help member states (Burundi, DRC, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda) meet challenges in resource mobilization by leading the countries through a PPP screening process to build capacity in pursuing these partnerships. While the activity has not yet led to concrete investments, PPPs are central to NELSAP-CU's approach.

Innovation for Development

Nile Basin countries have an urgent need for improved hydrological data to inform WRM and decision-making processes. Innovative and disruptive technology can help countries improve their understanding of flood events and operation of infrastructure, even in the absence of field data and data-sharing arrangements.

NBSP supported the Eastern Nile Technical Regional Office (ENTRO)

6 https://blogs.worldbank.org/ppps/harnessing-nile-s-potential-through-private-finance
7 https://nelsap.nilebasin.org/index.php/en/media-items/factsheets/36-nelip-program-brief-april-2020/file

in using satellite-based flood area maps of previous events and flood recurrence maps to increase knowledge about flood dynamics and their impact. This helped improve the accuracy of the model and ENTRO's monthly flood bulletins for member states. Successfully piloted in the Eastern Nile, this work is being scaled up to calibrate flood models for the Nile Equatorial Lakes (NEL) region under NCCR.

The NBSP also implemented a pilot of Water Accounting+ (WA+)[8]— a model suite of tools that can assess the sources, availability, and uses of water based on publicly available earth observation technology producing remotely sensed (RS) data and global datasets. This tool enables a modeler to conduct basin water balance assessments without the need for field data, a major cost savings because it requires less primary data. This activity also integrated the Data Cube, an open-source repository and analysis platform of earth observation data, which has the potential to increase the efficiency of WA+ implementation and facilitate scale-up.

Primarily positioned as a planning and usage assessment tool, WA+ can verify impacts and benefits of investments on water availability at the basin or sub-basin level, a requirement of the World Bank's Environmental and Social Framework. The pilot has been implemented in the Mara sub-basin shared by Kenya and Tanzania. WA+ and other knowledge platforms are available at NBI's Integrated Knowledge Portal.[9]

Next Steps

The support provided under this program has been an important catalyst for the recipient-executed NCORE project and the subsequent development of NCCR, as it has brought innovation and new tools and provided an important avenue for maintaining a more basin-inclusive dialogue, especially amid the broader challenging hydro-political situation. The tools deployed with the NBSP have been used in joint decision-making by the Council of Ministers to establish the existing investment and project pipelines. In addition, NCCR has benefitted from the inclusion of additional partners—NBD and the Lake Victoria Basin Commission (LVBC), thus increasing the reach of this support. While NBSP closed in October 2021, a potential new phase is envisioned pending funding.

Alumni from the 2nd NCCR Internship batch and ©ENTRO Team, Addis Ababa, Ethiopia, June 2022

8 https://www.wateraccounting.org/
9 http://ikp.nilebasin.org/

Nile Cooperation for Climate Resilience

Context

Begun in 2021, the NCCR project continues CIWA's longstanding engagement in the Nile River Basin by building resilience to water insecurity and transforming water management infrastructure to mitigate increasingly intense impacts from climate change. The project provides direct support to NBI's three centers (the Nile Secretariat [Nile-Sec], NELSAP-CU, and ENTRO), NBD, and LVBC to collaboratively deliver components in flood- and drought-risk mitigation, dam safety capacity building, water quality investment planning and prioritization, the platform for cooperation, and innovative information services for climate-resilient investment planning. Despite worsening inter- and intra-state violence and conflict, COVID-19 consequences, and food and water insecurity in the region, the project has continued to strengthen inclusive development. CIWA's support to the Nile Basin enhances the iterative processes that build cooperation—such as trust building, social capital, and a common long-term strategic vision.

Progress

Platform for Cooperation

The Platform for Cooperation enables countries to make collaborative decisions on a range of issues (e.g., approving investment pipelines, basin-wide programs, and regional strategies), including basin investment plans and water resource management. It encompasses all of NBI's mechanisms that facilitate cooperation by providing a forum for regional consultation, planning, and decision-making. It also helps communicate the benefits of cooperation to a wider audience. NBI held national stocktaking consultations in the DRC, Burundi, Kenya, and Tanzania to evaluate the efficacy of platforms across the NBI centers and NBD. NBI also participated in the World Water Forum in Dakar, Cairo Water Week, and Uganda Water and Environment Week.

Enhancing NBI's communication with governments and civil society is a priority to improve the organization's position as a valued service provider through NCCR. NBI's NELSAP-CU developed corporate brand communication products (e.g., newsletters, project briefings, and posters), conducted a media briefing in Uganda and media trainings in Uganda and Rwanda, and trained staff on information technology and safeguards. Notably, NELSAP-CU also hosted a workshop for all three NBI centers to develop country-specific reports for DRC and Burundi on the benefits of transboundary water resource cooperation. These activities are envisioned to lead to joint decisions that will demonstrate improved cooperation on water resources management and development as they involve shared policies, systems, and information among member states that form the basis for decision-making around water management and development.

Information Services for Climate-Resilient Investment Planning

A Nile Basin Data and Analytics Services (NB-DAS) activity is underway through NCCR to improve access to a large volume of online data (especially leveraging powerful online services from earth observation and public-domain data from global and regional institutions including the NBI and its members) and cloud analytics. This activity is expected to help fill critical gaps including by providing synoptic, multi-sectoral insights into the Nile Basin and be integrated into customized dashboards, decision support tools and interactive e-documents. DAS needs assessments have been completed for Kenya, Burundi, and Tanzania; some NBI information technology systems have been augmented; and a consultancy is at the final stages of being procured to provide additional technical assistance.

In October 2021, Nile-SEC conducted a hybrid training program for 286 participants on the Group on Earth Observation Global Water Sustainability (GEOGloWS)—European Center for Medium-range Weather Forecasting (ECMWF) Streamflow [10] cloud- and Python-based computing for hydrologic data analysis, Nile-SEC tools and systems (e.g., river flow forecast system, integrated knowledge portal, and drought monitoring and forecasting), and GEOGloWS ECMWF Service Data Access and Bias Correction with Python. NBI disseminated quarterly basin monitoring bulletins and monthly drought monitoring and forecasting bulletins. Nile-SEC also conducted needs assessments on the NB-DAS for Burundi, Kenya, and Tanzania, with more to be conducted next year.

Water Quality Investment Planning and Prioritization

The new Water Quality Technical Working Group (WQTWG) held its first meeting in December 2021 to review and agree on criteria for identifying regional water quality hotspots. The literature review report, the full list of hotspots,

10 https://geoglows.ecmwf.int/

and the screening criteria were finalized in April 2022.[11] Country consultations to collect data for the baseline study for selected water quality/pollution hotspots at the Lake Victoria Basin, lake bays at Kagera/Akagera, and Lake Tana at the confluence between White and Blue Nile are expected to start in early FY23.

Flood and Drought Risk Mitigation

Conflict and instability in the Eastern Nile prevented community and gender assessments from being conducted, but the Bank leveraged Global Facility for Disaster Reduction and Recovery (GFDRR) funding to pilot a community GESI assessment in flood-prone areas of Juba, South Sudan. Pilot results indicated that the primary gender gap is in literacy rates, particularly in certain age groups, which would impact the utility of a future flood early-warning system. The pilot is expected to be scaled up and combined with results from larger assessments to inform the design of improved flood early-warning systems. ENTRO will hold a regional consultation workshop to assess drought-forecasting needs and perform a baseline topographic survey and data collection for improving the flood-forecasting and early-warning system. NELSAP-CU has also commissioned the development of a flash flood early-warning system for the entire basin. NBI provided monthly drought monitoring and forecasting bulletins and three basin monitoring bulletins to its stakeholders.

Dam Safety Capacity Building

ENTRO and NELSAP-CU completed five of the six priority dam safety trainings planned for the project's first year, which focused on overall dam safety management, surveillance, and instrumentation and analysis of potential failure modes. The two major activities under the component have begun to develop a basin-wide (i) dam safety framework and associated guidelines, which is being led by ENTRO, and (ii) inventory of dams and risk management frameworks, being led by NELSAP-CU.

ENTRO is coordinating the Dam Safety Technical Working Group, which met for the first time in March 2022. A complementary Bank-executed grant from the Japan-World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries is also supporting dam-safety capacity building, which will leverage additional expertise and innovative technologies for greater effectiveness and impact of CIWA-funded activities.

Next Steps

NCCR has leveraged funding from the Korean Green Growth Trust Fund, a World Bank-executed trust fund, which will enable the preparation of a regional strategy for Lake Victoria-Wide Inclusive Sanitation. It will explore opportunities for promoting private sector participation and job creation, technology adoption, and improved efficiency in water sanitation and reuse.

In early FY23, NBD will launch a regional grassroots women's network, which will provide a platform for women's engagement in integrated water resources management (WRM) to influence projects under preparation and implementation. Identification of national network representatives and country network meetings are expected to begin in September 2022, followed by the first regional network meeting in February 2023.

The project's ability to achieve its goals hinges on successful collaboration between the implementing agencies. While there has been notable coordination among the agencies across thematic areas, more work is needed to institutionalize such arrangements. The meetings of the technical working groups (which also include a group on floods and droughts) and capacity-building activities have helped improve collaboration between working groups and national counterparts. However, working groups need to embrace the project's objectives and activities so they can work with their respective country systems to achieve project targets.

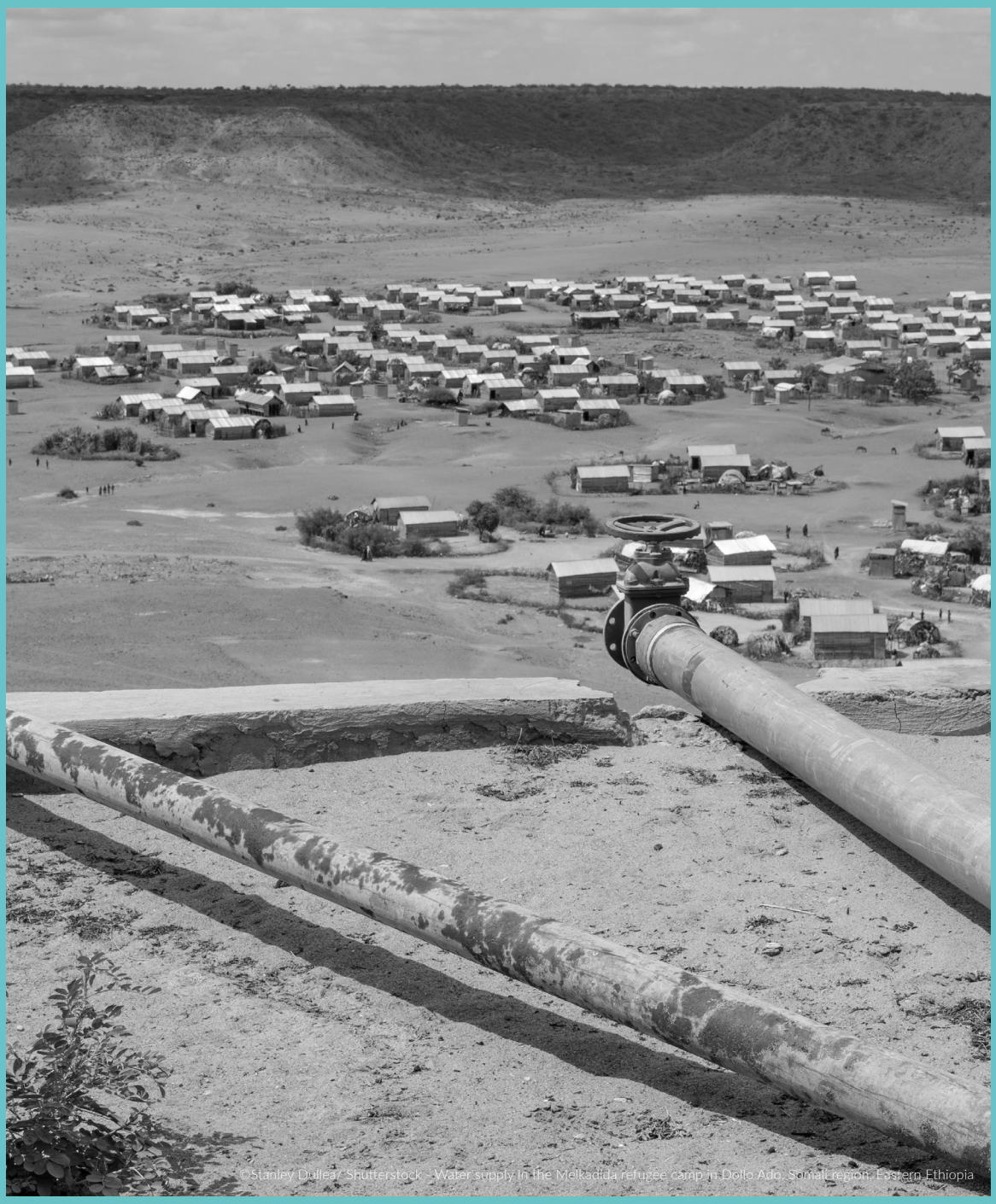
Assess drought-forecasting needs and perform a baseline topographic survey and data collection for improving the flood-forecasting and early-warning system

11 https://www.ciwaprogram.org/wp-content/uploads/CIWA-LVB-Learning-Note-1.pdf

© Bokolmayo - Dollo Ado, Somalia Region, Ethiopia

A View from the Field:

Tackling Water Security and Resilience in the Nile Basin



©Stanley Dullea / Shutterstock - Water supply in the Melkadida refugee camp in Dollo Ado, Somali region, Eastern Ethiopia

Water, food, and energy insecurity. Rapid population growth and urbanization. Political conflict and tension. These stresses, all exacerbated by climate change, affect many parts of the developing world, but no more so than in the Nile Basin.

Just ask Isaac Alukwe, Regional Coordinator for NELSAP-CU, who works closely with the NCCR project. "Most climate change models agree that surface temperatures will rise in the Nile Equatorial Lakes region, which will translate into more demand for water," he says. "Water shortages will be a key constraint in the coming decades to realize both food and energy security and fulfill countries' development plans."

What's more, he says, "critical ecosystems, habitats, and biodiversity assets of world significance will be at risk, if not extinct, if countries do not intervene on time." And while countries must collaborate to secure water resources and safeguard the environment, Alukwe adds, "politics, tensions, and suspicions among Nile Basin states," not to mention armed conflict in Ethiopia and Sudan, are an impediment to cooperation.

That's why NCCR is so critical for the region's water security.

"NCCR is promoting and building trust, confidence, and interaction among countries through joint capacity building," he says.

The project supports regional capacity-building training to build skills and enhance collaboration and encourages dialogue so that when an upstream country experiences heavy rainfall, for example, it will notify its downstream neighbor to expect flooding. Alukwe cites the positive outcome when CIWA (and its predecessor, the Nile Basin Trust Fund) brought together Rwanda, Tanzania, and Burundi, which enhanced cooperation and overcame tensions to develop the Regional Rusumo Falls Hydroelectric Project. CIWA's former NCORE project contributed to the implementation of the investment, which is nearing completion.

Despite the region's challenges, Alukwe is optimistic about the opportunities that will emerge from NCCR's efforts to promote dialogue and cooperation.

"Areas of opportunity for cooperation that will allow Nile Basin states to reach favorable development outcomes for all include management of the environment, watersheds, groundwater, wetlands, dams and dam safety issues; flood and drought forecasting and early warning; and climate change mitigation and adaptation," he says. "If well planned, there are lots of win-win development opportunities with shared benefits at the transboundary level."

NCCR, which is expected to lead to investments in subsequent years, is "a very important funding window supporting collaboration, which will also enhance country preparedness and resilience against shocks from climate change," he says.

The bottom line for Alukwe is that CIWA's efforts to spark transboundary cooperation "will contribute to stability, peace, and prosperity for all riparian countries."

02

WEST AND CENTRAL AFRICA

©Social Income/Unsplash - Men fishing in Lake George, Uganda

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, weak institutions, and political instability. In a region with widespread gender inequality, women are more affected than men by these conditions. CIWA worked to improve water resources management by identifying investments and policy actions and addressing knowledge and capacity gaps. It also conducted a Water Security Assessment in Lake Chad as the first step toward developing a transformative water security framework for addressing the region's challenges.

Improving Water Resources Management in West and Central Sahel

Context

The Improving Water Resources Management in West and Central Sahel technical cooperation is a three-year initiative that identifies pragmatic investments and policy actions and addresses critical knowledge and capacity gaps. It recommends investments and policy actions that can be supported by future operations and fit-for-purpose WRM assessments and technical assistance. While this initiative is focused on WRM challenges, its design recognizes the interdependence of water resources with other sectors. All engagements under this activity proactively account for climate change impacts and specific challenges in FCV environments, such as volatility and violence, low capacity of state institutions, and protracted political crises.

Seven engagements were selected following client and Country Management Unit (CMU) consultations in 2020. These include three country-level engagements (Burkina Faso, Cote d'Ivoire, and Ghana), one regional engagement, and three regional thematic activities. The activities, which were co-financed by the CMUs, focused on Burkina Faso, Cote d'Ivoire, Ghana, and the G5 Sahel.

Progress

Burkina Faso—Mobilizing Water Resources for Development

The "Burkina Faso—Mobilizing Water Resources Policy Note" prepared in FY21 has served as the basis for discussions between the World Bank and the government of Burkina Faso on potential approaches for addressing the major water security challenges. The policy note informed the Performance and Learning Review of the Country Partnership Framework and has inspired a new IDA-financed Program-for-Results (currently under preparation) focused on water security, including its trans-boundary dimensions.

The note also focuses on challenges and opportunities in the management of transboundary waters, especially in the Volta Basin and makes recommendations, including a preliminary costed action plan and prioritized investments. These recommendations have helped conceptualize a new integrated water security lending project to be financed by the World Bank.

Cote d'Ivoire—Gaps Assessment for Water Resources Management

Côte d'Ivoire's challenges in managing its water resources include the need to update the assessment of water resources availability and demand. The national hydromet system suffered serious setbacks during the long period of internal conflict and is now gradually being rehabilitated.

While the country relies heavily on groundwater, it lacks sufficient information on aquifers, sustainable yields, and current levels of abstraction. An initial study, Mobilization of Water Resources for Development in Côte d'Ivoire, provides a framework for addressing challenges such as managing increased demands from water-using sectors, trade-offs between allocations to various sectors, the unequal distribution of water between and within regions, water

quality, and safeguarding water resources for future generations.

The draft report presents a summary of Côte d'Ivoire's geographic and climatic context, work on water resources issues, the physical resource base, and knowledge and institutional issues. It is also shaping the design of the water resources management components for the integrated water security project being prepared for potential World Bank financing.

Ghana—Addressing Critical WRM Challenges

A rapid diagnostic was conducted to inform WRM interventions that sustainably support livelihoods in northern Ghana, recognizing the role of water security in supporting economic growth and reducing migration and conflict. The diagnostic identified seven key challenges[12] to Ghana's management and use of its water resources, especially in the context of climate change and FCV, which provided a framework for discussions between the government and the World Bank on future investment priorities and related policy and institutional actions. The diagnostic also identified the challenges and opportunities in advancing transboundary cooperation in the Volta Basin, focused on opportunities for cooperation with Burkina Faso. This diagnostic has served as the analytical basis and a door-opener for a new operation, focused on water security (including transboundary dimensions) as the basis for rural development and growth in northern Ghana.

West Africa Transboundary Waters Retrospective

The West Africa Transboundary Waters Retrospective report,[13] delivered in 2021, examines the World Bank's engagement in transboundary waters in the region over the past 20 years to derive lessons that can inform future engagement. The report concluded that knowledge generation had focused on technical assessments of water resources and their management but not on detailed economic analysis of the sector's influence and importance in the broader economy and across stakeholders. This was particularly the case for FCV-affected countries, where the linkages between water and conflict are broadly understood but have yet to be analyzed in detail. The report suggested that such work could lead to better integration of these issues in regional and country diagnostics and entry points for further engagement in transboundary waters.

The retrospective found that, while river basin organizations (RBOs) have been the preferred partner to foster collaboration on transboundary waters, past RBO engagements may have limited the Bank, leading it to reexamine both its role and priorities for the region. One alternative approach could be to integrate RBOs, national governments, and civil society and develop clear articulation/sequencing of interventions at the policy, program, or project level to ensure they are creating the most value.

The report led to a new approach in project design (described in the report Strengthening Regional Water Security for Greater Resilience in the G5 Sahel), in which instability and conflict are expected and combating them are central to the approach (the Integrated Problemshed Approach[14]). For new projects, this means moving to smaller, decentralized investments including practices such as soil moisture conservation and subsurface water storage/management.

Strengthening Water Security in the G5 Sahel (Regional)

The World Bank's water portfolio in Africa underwent significant consolidation in 2019-20, which underscored the need to revisit its strategy for the next phase of Bank engagements in the region. The G5 Sahel has an opportunity to improve water security to boost socio-economic development and reduce fragility and conflict. A water security framework, applied at all levels, sometimes is a more appropriate entry point to address these challenges than those presented by a river- or RBO-centric perspective.

This activity completed the water security report[15] in FY22, which expands the scope of water interventions. These measures (i) encompass the whole spectrum of water resources, including groundwater, river, and rain and runoff, instead of focusing solely on transboundary river basins; (ii) improve integration of multiple water uses (urban and rural water supply and sanitation, irrigation, rainfed farming, pastoralism, and fisheries), and (iii) address broader questions of fragility and conflict.

The report presents a high-level analysis of water security challenges and their impacts on socio-economic development and stability and suggests directions for Bank engagement. This report is providing a basis not only for deepening the dialogue with counterparts in the region, but also for conceptualizing the vision for a regional water project in the G5 Sahel area. Discussions are now ongoing to develop a pragmatic vision that responds to needs across various dimensions (e.g., increasing storage, addressing floods and droughts, and providing basic services) by supporting appropriate interventions at local, national and basin/aquifer levels.

Operationalizing Strategic Storage in the Western Sahel (Thematic)

Small-scale and nature-based solutions are critically important for providing reliable water storage to rural communities. With CIWA support, the World Bank has

12 1. Lack of evidence-based decision making 2. Poor basin management 3. Weak transboundary management 4. Poor water supply 5. Poor sanitation services 6. Low access to and inefficiencies in irrigation service delivery 7. Managing risks of water-induced disasters
13 https://www.ciwaprogram.org/wp-content/uploads/CIWA_World-Bank-Engagement-Transboundary-Waters-West-Africa.pdf
14 https://blogs.worldbank.org/water/integrated-problemshed-solution-water-security-g5-sahel
15 https://www.ciwaprogram.org/wp-content/uploads/Strengthening-Regional-Water-Security-for-Greater-Resilience-in-the-G5-Sahel.pdf

collaborated with a consortium of international partners to develop the "Water Harvesting Explorer," a decision support tool for small-scale water storage planning. This tool, with its beta version now operational, provides options for water harvesting at any location, based on the local biophysical conditions including precipitation, slope, and land cover. The tool uses global datasets and draws on the WOCAT Repertory of Sustainable Land Management to suggest intervention options that can be narrowed through community consultations and local validation.

The tool is being deployed to train implementing agencies in Niger and Nigeria on its use for investment identification and community consultations for new investment projects. Currently, its application is limited to the Western Sahel, but other regions would like to use the tool and expand its functionality.

Identifying Partners for CSO Water Dialogue in Western Sahel

The interdependence on limited water resources across national boundaries makes coordination among stakeholders, including civil society, critical. CSOs have the potential to advance a water security agenda and contribute to the region's socio-economic development including ensuring a focus on GESI. A draft report, Mapping Civil Society Organizations in the Sahel, addresses two themes: (i) identification of CSOs and their institutional relationships and analysis of the policy and legal landscapes for CSOs and (ii) generation of tools for leveraging Community-Based Associations (CBAs).

The study, which was completed in FY22, concluded that while the Sahel has many CSOs, the depth and sufficiency of the legal environment in which they operate varies widely and their participation in the development of national and sectoral policies is sufficient only in Burkina Faso. The Niger Basin Authority is CIWA's obvious natural partner, as it has been successful in discrete functions, but it has limited reach in certain countries.

Emulating the NBD model will require a better understanding of CBA needs and collaboration with NGOs to facilitate vertical communication with governments. It is proposed to move closer to operationalizing the model by: (a) working closely with selected CSO/NGO partners in a few countries, and (b) in parallel, initiating dialog with basin-level counterparts (such as OMVS and NBA) for integrating such broad-based engagement in their core agendas.

Next Steps

The analytical work in Burkina Faso, Cote d'Ivoire, and Ghana has led to preparation of new country-level projects, with potential support for transboundary water management (in Burkina Faso and Ghana). New proposals are being prepared for CIWA support including a regional transboundary project in the Niger River Basin/G5 Sahel region and a transboundary project in the Senegal River Basin supporting community development anchored around water infrastructure.

©Basile Ouedraogo/ WaterAid - West African woman noting the water meter reading

Lake Chad Transboundary Water Security

Context

Flooding from shorter, more intense, and less predictable rainy seasons has been wreaking havoc in the Sahel and is likely to intensify. Climate change is fueling fragility and conflict over water resources, with people experiencing a vicious cycle of water insecurity and fragility. Within the Sahel, Lake Chad has significant livelihood, health, and ecological importance, particularly because of its permanent and seasonal freshwater marshes, rivers, and deltas in the lake's wetlands. These support a diverse, abundant socio-ecological system that links people and nature. To address threats stemming from conflict, instability, migration/displacement of populations and climate change, CIWA is supporting a new round of dialogue under the Lake Chad Transboundary Water Security project.

A key deliverable will be the Lake Chad Transboundary Water Security Assessment (WSA), which builds on lessons learned from the past 20 years of regional engagement of national and international institutions, including the World Bank. This assessment will present a transformative water security framework by expanding the scope of interventions to encompass the whole spectrum of water resources, including groundwater, and better integrating multiple water governance systems/layers beyond RBOs, especially in contexts susceptible to fragility and conflict.

Progress

For the WSA, CIWA, in collaboration with the Lake Chad Basin Commission (LCBC), developed a detailed problem matrix to identify key challenges and map organizations and projects to address challenges. In the first quarter of 2022, CIWA held a consultation with several key organizations including Germany's GIZ, the United Nations Development Program, and the UN's World Meteorological Organization, all of which work on water issues in the basin. In addition, some preliminary work began on deep-dive analyses of specific issues and a hydrometric monitoring assessment, which will continue full-throttle next year.

This technical assistance is also providing support to the LCBC to assess its capacity for hydrometeorological monitoring and data management. This work comes in response to client requests for water information to be used for planning, investments, early-warning systems, research, and communication.

Next Steps

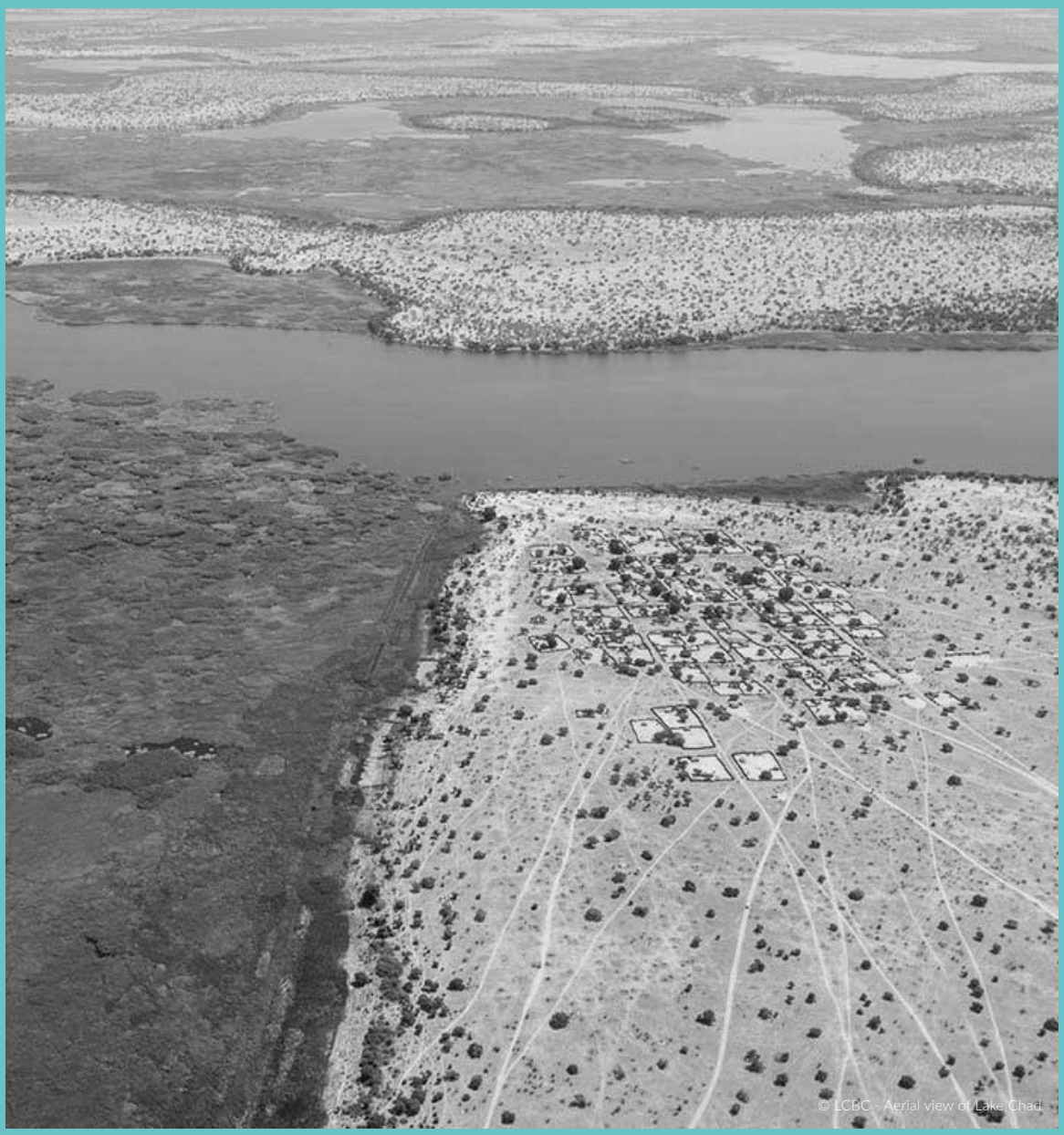
The team planned to complete a short draft of a WSA in July 2022 for discussion among internal and external stakeholders. A full draft, expected in September 2022, will help guide the development of deep-dive analyses of potential solutions to address issues such as groundwater, hydromet systems, and conflicts over water, which will then be shared with stakeholders, during a seminar to be held in October in close collaboration with LCBC, to prioritize recommendations.

The deep-dive analyses and hydrometric monitoring assessment will involve national and CSO consultations later in 2022. The analysis on water and the climate-conflict trap will build on the findings from the Regional Economic Memorandum and focus on the potential of water to contribute to regional development and mitigation of climate and conflict-related risks. The analysis on groundwater will focus on recommendations for activities and on legal and institutional aspects to strengthen implementation of the LCBC's mandate, while the analysis on CSOs will assess the feasibility of a dialogue platform modeled on NBD to empower civil society in discussions about investments. The assessment of hydrometeorological monitoring and data management capacity will involve interviews with national agencies to identify gaps in information gathering and exchange.

A regional stakeholder meeting is planned for late 2022 or early 2023 to review the WSA and deep-dive analyses and develop recommendations for water priorities. A round of more focused workshops to gather feedback from the field and finalize these products is expected in early 2023. The engagement will improve understanding of the perspectives and priorities of countries and overall basin. The workshops will also obtain stakeholder feedback and buy-in to identify key water security needs, improve the model for supporting transboundary waters management, and continue advancing progress toward recipient-executed work.

A View from the Field:

Water Security Is the Way Out of the Conflict-Climate Risk Trap in Lake Chad Basin



© LCBC - Aerial view of Lake Chad

The rich biodiversity of Lake Chad, its wetlands, and watercourses provides important ecosystem services and supports livelihoods, especially those of fishermen, herders, and farmers in the countries that share the lake—Cameroon, Chad, Niger, and Nigeria—and parts of the Central African Republic that are in the lake's active hydrological basin.

Yet this large, productive basin also faces profound challenges, including climate shocks and some of the world's highest concentrations of extreme poverty, conflict, and terrorism that force massive displacement and weaken the economic and social fabric of communities. The basin's population is caught in a conflict-climate risk trap with, on one hand, political, social, and security stressors overwhelming governments and, on the other hand, climate change causing greater climate variability, including changes in rainfall patterns, more uncertainty, and, therefore, more risk of conflict.

Hycinth Banseka, LCBC technical director, who, along with other LCBC staff, is working with CIWA on its assessment to develop a transformative water security approach, explains how climate change, insufficient access to water, and conflict interact to harm local communities. Higher temperatures and evapotranspiration decrease availability of water resources for people's livelihoods and economic activities, leading to conflict. For example, in Cameroon, diminished water quantity has led some fishers to divert water from streams by digging canals to create small ponds for raising fish. But the canals cross plains where grazing cattle fall into the openings and break their necks, jeopardizing herders' livelihoods.

Last year, ethnic violence erupted between herders and fishers in two tribal communities in northern Cameroon that were already plagued by violence from the militant group Boko Haram. The fighting left at least 12 people dead in one week and caused thousands of people to flee their homes. While violence is not new, "escalating impacts of climate change and water scarcity" are likely to provoke more conflict if water access isn't improved, Banseka says.

"We cannot do much about climate change," he says. "What we can do is improve practices" to use water more efficiently and reduce the harm to water resources.

At the same time, conflict and displacement have a negative impact on water security. More than 3.2 million people in the basin have been displaced, including 2.4 million from the Boko Haram insurgency in Nigeria. Displaced women are particularly vulnerable, as the precarious conditions they are forced to work under such as limited water supplies and the use of manual wells expose them to physical hardship and gender-based violence.

The water needs of refugees living in camps put stress on local water resources, causing tension with hosting communities.

"If you have a community that has only one or two boreholes that provide drinking water," Banseka says, "how do thousands of refugees get water? This causes strain and, in turn, more conflict risk with communities."

The key to resilience is improving water resources management and promoting more equitable access.

"We need to develop strategies to ensure that wherever people live, they have access to the water that they need, which will minimize internal conflicts," Banseka says. This will allow people to develop their economic activities and maintain their communal organizations and ties, which will make them more resilient to climate shocks and resistant to extremist threats.

Water security is also the key to sustainable development. "You can't have development in an insecure environment," Banseka says. "The question is: how do we improve security and gradually migrate from emergency response to development?"

CIWA's Lake Chad Transboundary WSA, which is examining the risk factors—especially climate change—that drive vulnerability, water insecurity, and conflict, will contribute to efforts by the World Bank and other donors to help the region prosper.

Sahel Groundwater Initiative

Context

Given water scarcity in the Western Sahel (Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal), the impact of climate change, and the need for sustainable management of groundwater resources at both regional and national levels, this technical assistance has three goals. It aims to: (i) support equitable groundwater-irrigated agriculture (by removing the constraints and limitations on the use of groundwater for small-scale irrigation); (ii) evaluate opportunities for development of groundwater resources by reviewing the status of groundwater assessment and exploration capacity; and (iii) strengthen groundwater expertise and ensure equitable participation of men and women by facilitating regional cooperation on developing the next generation of groundwater experts.

Progress

Improving access to groundwater for irrigated agriculture

Pillar 1 focuses on removing key barriers that limit access to shallow groundwater for smallholder farmers. This component consists of identifying innovative technologies to make groundwater available for irrigation and exploring the technological aspects of shallow drilling and shallow-water abstraction to optimize farmers' investment and operation costs.

Following reviews of groundwater irrigation techniques and gender barriers in FY21, the technical assistance completed a review in FY22 of shallow groundwater irrigation technologies used elsewhere, particularly in Africa and South Asia. The review informed the design of two pilot activities that have been prepared for three regions in Burkina Faso (Hauts-Bassin, Centre, and Centre-Sud) and two regions in Chad (Chari-Baguirmi and Mayo-Kabbe-Est), which contain large areas of groundwater in shallow basement rock and alluvial aquifers. Priority is given to addressing hand-dug well construction and barriers to it through a series of demonstrations at multiple small farm irrigation sites. The main pilot program components focus on so-called agro-wells, standard open wells, low-capacity solar-powered pumping systems and related efforts, and gender-equitable cooperatives.

The activity's gender assessment identified that leaders of the plots should be women and farming systems should include women/mixed gender/youth cooperatives and women farmers who are heads of households or single-family farmers. Technological support to women's cooperatives would address disadvantages that women face in land ownership, recognition by local authorities, financial backing, training, and agricultural techniques.

Assessing opportunities for development of groundwater resources

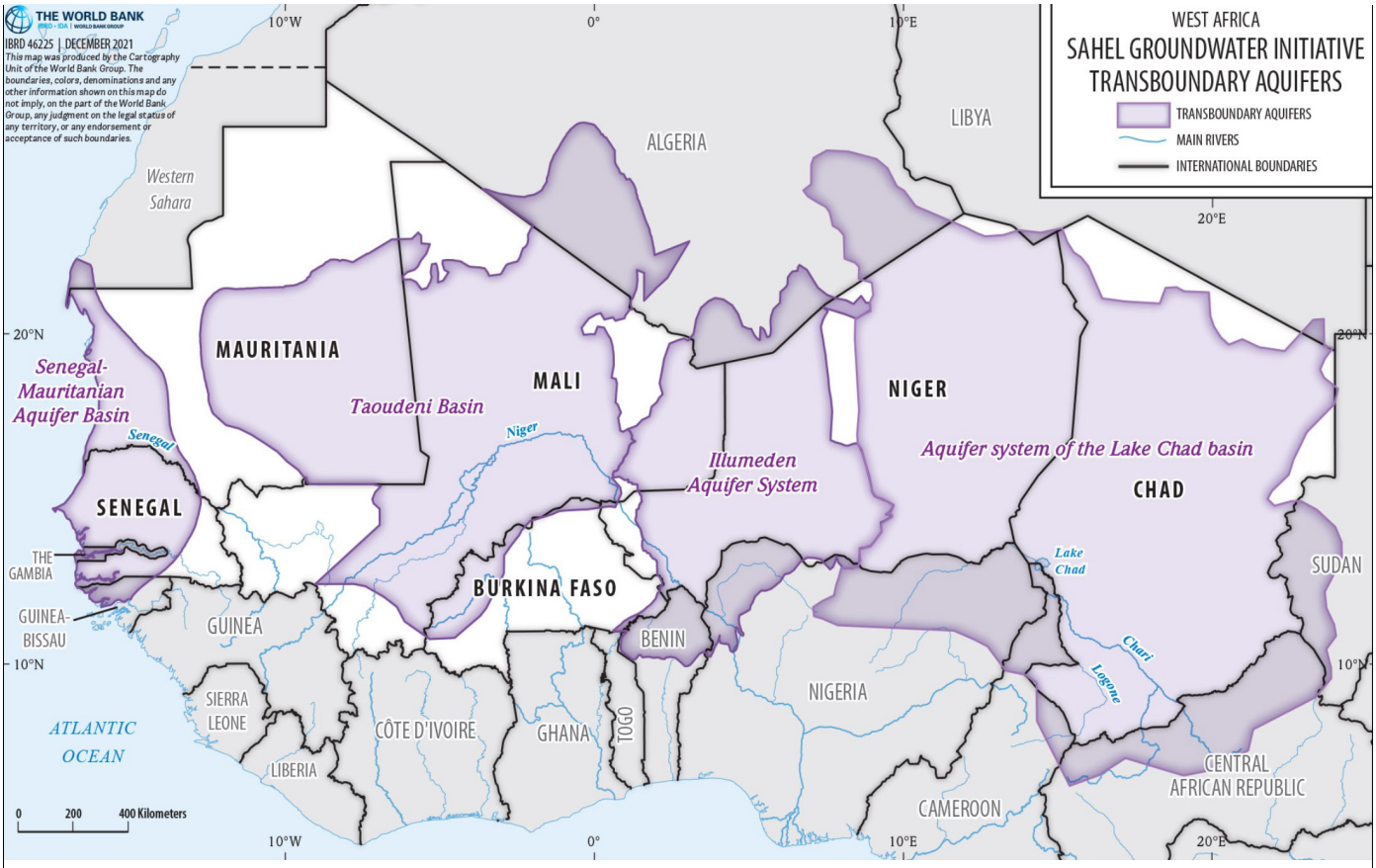
Pillar 2 reviews the status of groundwater and exploration capacity in the Western Sahel by assessing gaps in groundwater resource conceptualization, quantification of sustainable groundwater resources, and scientific cooperation on transboundary aquifer systems. This component will result in an overview of knowledge gaps and governance issues regarding groundwater resources in the Western Sahel, following the main regional hydrogeological units: SMAB, the Taoudeni Basin, the Lullemeden Aquifer System, the aquifer system of the Lake Chad Basin, and the crystalline basement.

Following a gap analysis and typology on groundwater-dependent ecosystems (GDEs) in FY21, the technical assistance in FY22 highlighted the economic importance of these ecosystems and identified how groundwater resource management that considers GDEs can contribute to equitable and sustainable development. The GDE analytics are being extended to Sub-Saharan Africa and will be included in a World Bank groundwater flagship report under preparation.

Industrialization, mining activities, inadequate sanitation and solid waste management, or agriculture can negatively impact groundwater quality in the Sahel, where effluent treatment is insufficient. These activities can release chemical or microbiological contaminants that degrade groundwater quality (decreasing potable water availability), yet major uncertainties over the quality and quantity of groundwater make it challenging to determine where and to what extent groundwater can be used sustainably.

This pillar will also assess opportunities for protecting urban groundwater resources by measuring shallow groundwater contamination in select cities. The team collaborated with the Cotonou-based National Institute of Water, an African Center of Excellence that conducts groundwater research, on pilot studies in Bamako, Mali and Bobo-Dioulasso, Burkina Faso, which will establish a baseline for the quality of shallow urban groundwater.

Strengthening Sahelian groundwater expertise



Pillar 3 included a diagnostic of groundwater expertise in the Sahel, which also considered barriers to women's access to advanced training in groundwater. The diagnostic identified research and academic cooperation mechanisms to train new groundwater experts, while supporting Sahelian groundwater experts to increase cooperation on transboundary aquifers. This component identified regional and national partners and champions for knowledge exchange and capacity building and supported local universities to develop potentially transformative strategies to improve the quality of undergraduate training, retain graduates interested in groundwater studies, and create a common master's degree program in hydrogeology.

Next Steps

Reports will be finalized and disseminated to Sahelian CMUs and stakeholders in the remaining months of this technical assistance, which will close in mid-FY23, and ultimately be incorporated into the preparation of future investments in the region. Some results have already been integrated into the World Bank's Regional Sahel Pastoralism Support Project (known by its French acronym PRAPS2) and to the starting SMAB technical cooperation. Other findings will soon be deployed in ongoing projects such as the pilots for improved farmer-led irrigation under the Sahel Irrigation Initiative Support (SIIP) project and will inform the next regional Water for Climate Resilience and Peace Project focusing on groundwater investments.

Water scarcity in the Western Sahel, impact of climate change, and need for sustainable management of groundwater resources at both regional and national levels, led to this technical assistance.

A View from the Field:

Training the next generation of groundwater specialists in the Sahel

©Jorge Trevino / CIWA - View of the Chari River from the LCBC building, February 2022

As climate change diminishes the availability of surface water in Africa, groundwater has emerged as a vital untapped resource. But, in the Sahel, a global hotspot for climate change and one of the poorest regions in the world, limited knowledge about groundwater resources hampers efforts to develop strategies to cope with water scarcity. Nor are there enough hydrogeologists trained in the sustainable management of this resource.

CIWA is playing a pivotal role by convening stakeholders around the goal of increasing the cadre of Sahelian groundwater specialists and improving their skill level. It supported a weeklong roundtable discussion in March 2022 in Nouakchott, Mauritania, which brought together academics responsible for training groundwater specialists in six countries to identify the main gaps in training and forge solutions.

The countries—Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal—made a potentially transformative decision to both improve the quality of undergraduate training to retain students interested in groundwater studies and to create a common master's degree program in hydrogeology. Because many Sahelians pursuing careers in groundwater must attend universities abroad to obtain advanced degrees and may remain overseas to work, a homegrown master's degree program could reverse that trend and build up regional expertise.

"This roundtable made it possible to deepen the discussions, share experiences from each country, fill in the gaps, and find solutions," said Dr. Seynabou Cisse Faye, a senior hydrogeologist and associate professor who is responsible for hydrogeology training in the Department of Geology at the Cheikh Anta Diop University of Dakar in Senegal.

The challenge of increasing the number of women in the geology department drew Dr. Faye to the field of groundwater. "Geology was not a very attractive subject for women, and there was practically no enthusiasm for training women," she recalls.

"I said to myself, 'Why are there not enough women?' That is what steered me into the field," says Dr. Faye, whose academic research topics include the vulnerability and pollution of aquifer systems in urban, mining, and agricultural areas and the contribution of isotopic tools to the study of pollution. She eventually rose to become head of the geology department from 2017 to 2021 and now leads the master's program in hydrogeology. She is also the scientific manager of the department's hydrochemistry laboratory.

Dr. Faye saw first-hand how hard it has been to recruit students interested in becoming groundwater specialists at her university. "Our big problem right now is training," she says.

Because of limited university resources, about five times as many students apply to the hydrogeology program as can be enrolled—far less than is necessary to meet the region's groundwater resource management needs. And, as became evident at the roundtable, the quality of training opportunities across the Sahel is spotty, leaving some students unable to train in the field of earth sciences and thus acquire basic geology skills or obtain internships or jobs.

Exploring these shared challenges and opportunities across the six countries helped build trust and cooperation. "We share certain basins, the climate, socio-economic contexts, and the unavailability of water resources," Dr. Faye says. "It was in our interest to pool our resources and create a unifying program" that will allow universities to exchange students and skills. . . which can be beneficial for all countries."

She said that CIWA can continue playing "a decisive role in facilitating meetings between training institutions in the field of water resources in different countries, creating frameworks for reflection to improve knowledge, identifying shortcomings, and trying to find solutions together."

Roundtable attendees were enthused about the proposed master's degree program, expected to take three years to develop and implement, to tap into the region's valuable groundwater resources. "It is an extraordinary idea," she says. "It will be something great, really fantastic."

03

HORN OF AFRICA

©SelimBT / Shutterstock - Datoga woman going home with water collected from the well, Lake Eyasi, Arusha, North Tanzania

The Horn of Africa is facing cascading impacts from the worst drought in four decades. CIWA worked to improve access to groundwater as the region's cornerstone of water security. It expanded the knowledge base on groundwater, strengthened the capacity of partners to manage and develop this valuable resource, and improved regional initiatives focused on building resilience. CIWA also supported Somalia in developing its vision and capacity for transboundary water resources management.

Horn of Africa Groundwater Initiative

Context

Groundwater represents the main source of water in the HoA, where 30 percent of the population lives on arid and semi-arid lands. The region faces prolonged and intense drought and conflict from the inequitable sharing of groundwater aquifers. The transboundary nature of groundwater aquifers in the HoA makes assessments and monitoring of water levels and quality particularly challenging.

To reduce the potential for conflicts over sharing groundwater resources, IGAD implemented the Horn of Africa Groundwater Initiative for its member countries of Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda. Now in the process of closing, the initiative worked to strengthen the capacity of countries to manage and develop regional groundwater resources and to expand the knowledge base on transboundary groundwater resources. CIWA supported the feasibility study of the transboundary Merti Aquifer investment for the governments of Kenya and Somalia, which included (i) groundwater data collection and analysis, (ii) regional calibration of the Juba-Shebelle River Basin GeoSFM model,[16] and (iii) hydro-diplomacy training.

Progress

The team held national validation workshops on knowledge management and capacity-building needs assessments in Djibouti, Ethiopia, Kenya, Sudan, Uganda, Somalia, and South Sudan in FY21. This contributed to strengthening the region's groundwater knowledge base and identifying critical gaps to address future investments.

IGAD's Climate Prediction and Application Center (ICPAC) includes a regional hydrological modeling exercise that assesses surface and shallow groundwater potential and spatial and temporal variability and reliability, with a focus on the Juba-Shebelle River Basin GeoSFM model. The regional water resource information database developed by ICPAC contributed to the IGAD geonode[17] (spatial web portal) and to IGAD's East Africa Hazards Watch.

The initiative also supported valuable opportunities for knowledge exchange and learning among the region's groundwater experts and practitioners. The theme of the 2nd IGAD Water Forum, conducted in January 2022 in Entebbe, Uganda, underscored the international community's focus on the unseen yet vital water source, especially in arid and semi-arid areas.

Discussions highlighted the need for member states to prioritize groundwater management in policy development and budgets to gain visibility and attract investments and the importance of proper use of water given worsening climate change impacts. A regional study tour took place in 2022 to promote HoA collaboration and cooperation on transboundary aquifer management, which demonstrated the mechanisms for cooperation between South Africa and Botswana. The initiative also facilitated gender training at IGAD to strengthen project cycle mainstreaming approaches and identify short- and mid-term actions for gender capacity development.

The initiative supported the preparation of a study for the Merti Aquifer investment between Kenya and Somalia to complement current knowledge; established guidelines for groundwater exploration, management, and protection; and provided plans to develop water-related infrastructure. It also included a study for the associated

16 Geospatial Stream Flow Model (GeoSFM) is used for monitoring hydrologic conditions over wide areas and designed to use remotely-sensed meteorological data in areas with sparse data.
17 https://geonode.igad.int/

Environmental and Social Impact Assessments (ESIA). Following delays caused by the local security situation, COVID-19 impacts, and limitations of data availability, the study was completed as the project was closing at the end of FY22 after several validation workshops with Kenya and Somalia.

Next Steps

The initiative provided a valuable foundation and contributed lessons learned for CIWA's new technical assistance, Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands, and for the design and preparation of the World Bank's Horn of Africa Groundwater for Resilience (GW4R) project. A US$385 million IDA-funded regional effort approved in June 2022, GW4R will increase sustainable access to, and management of, groundwater in the region's borderlands.

This initiative laid a foundation for future collaboration among HoA countries and resulted in the development of a concept note to establish an IGAD Groundwater Information Center, which will be implemented by the HoA GW4R project. The center will enable enhanced sustainable groundwater use by making data and information readily available. This will feed into both regional and national planning, decision-making, and project implementation. Lessons emerging from the Merti Aquifer study will inform the project's implementation and scope of investments in transboundary areas.

Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands was launched in April 2022 to support the GW4R's regional learning agenda and subsequent institutional capacity-building objectives. The learning agenda will be crucial to provide institutions with knowledge and capacity on: (i) the role of groundwater in the HoA's regional integration; (ii) sustainable groundwater service delivery; and (iii) groundwater's role in addressing fragility and strengthening resilience in the borderlands. Core activities will include the collection of data emerging from the implementation of activities in participating countries through enhanced supervision and third-party monitoring.

© Amors photo/ Shutterstock - Water carriers are waiting to fill their water tank in Baidoa, Somalia

Somalia Transboundary Water Resources Management

Context

CIWA supported the government of Somalia in articulating its water resources development options for the Juba and Shebelle basins and structuring its transboundary agenda to pursue dialogue with neighboring countries Kenya and Ethiopia. The technical assistance, which ended in FY22, responded to the government of Somalia's request for capacity building in transboundary dialogue, negotiation, trust-building, and information exchange.

The assistance expanded to support water resources management and added new sub-activities including training for water-resources modeling, support for developing the National Water Resources Strategy (NWRS), and data development for stream flow modeling and Data Cube tools. This technical assistance helped lay the foundation for strategic water-sector planning and development of Somalia's vision and priorities for transboundary waters.

Progress

The technical assistance helped staff in Somalia's Ministry of Energy and Water Resources (MoEWR) learn about transboundary water management and hydrological and water resources modeling. Interaction with experts from CIWA and other global organizations at a Nairobi workshop in 2018 and two study tours for water resources staff to learn best practices (to Astana, Kazakhstan in October 2018 and Geneva, Switzerland in May 2019) helped shift mindsets away from zero-sum competition over water sharing toward a broader view of cooperative benefit sharing.

COVID-19 travel restrictions prevented performing hydrologic simulations using the Hydrologic Resource Assessment Model, but trainees acquired knowledge and skills on hydrology, geographic information systems, and data management. The assistance, which included more advanced capacity building, policy dialogue, modeling, and hydro-meteorological data management, served as a foundation for future World Bank assistance.

Enhancing overall MoEWR operations and decision-making, while not an original objective, became a major, if unexpected, outcome. This resulted from the CIWA team providing timely, evidence-based responses to technical queries from the MoEWR on issues beyond transboundary water cooperation, including project management, event organization, and water service delivery.

The nature of some deliverables changed throughout implementation, as it became apparent that the conditions were not ripe for a recipient-executed activity or transboundary dialogue. While the technical assistance was intended to initiate dialogue between Somalia and neighboring upstream countries, Somalia's efforts to begin consultations were not reciprocated. As a result, transboundary engagement activities have not occurred, while the second and third deliverables (a summary report on transboundary engagement activities and draft terms of reference for follow-up recipient-executed activities) were not produced. Instead, the CIWA team adjusted the deliverables to include a high-level assessment of options to produce water-related data and information and development of options for water resources monitoring and information management.

The first deliverable, "Somalia: 21st Century Data and Information Management," is feeding into the World Bank-executed support Somalia: The Economics of Water. Given data scarcity in Somalia, this output will lay the groundwork for a more comprehensive and thorough analysis of water resources in Somalia.

Somalia: The Economics of Water has particularly benefited from this deliverable's analysis of the Juba and Shebelle riverine areas. The Biyoole-II project has benefited from the capacity-building workshops on water resources data management and modeling, as the 12 trained hydrologists are now overseeing the identification of sites for the US$42 million Bank project. These hydrologists are also the main technical experts tasked with preparing the proposed Biyoole-II project.

The second deliverable provided the MoEWR design options for a national program on water resources monitoring and information management. The third revised deliverable lays the groundwork for Somalia to make progress on water resources information as a key element for developing its national and regional transboundary water agendas.

Somalia's NWRS includes a gender component, which notably aims for the development of a water sector gender strategy and plan.

The technical assistance also delivered "Overview and Outcome of Five Water Resources Management Options," which is the first integrated food and water security assessment for Somalia.

Next Steps

The World Bank's ongoing water sector engagement in Somalia benefited from this technical assistance in three main ways. First, its collection of data and information including on water risks and opportunities of the Juba and Shebelle rivers will inform future water sector analytics. Second, findings will shape and underpin the water section of the forthcoming World Bank Country Partnership Framework for Somalia. Finally, recommendations in the NWRS will influence future engagements and a potential project pipeline around service delivery, multipurpose infrastructure along the Shebelle and Juba rivers, and water monitoring. These engagements will include plans to conduct training on hydrological and water resources modeling that were not completed because of Covid-19 travel restrictions.

The NWRS gives Somalia a framework to illustrate and discuss key sector issues and priorities with its development partners, including the World Bank, in the future. It also empowers Somali water experts to voice their opinions and priorities in a context where agenda-setting and implementation have typically been the prerogative of international agencies and NGOs.

©Michael Tsegaye/ UNICEF - Pastoralists travel to Harshim, Ethiopia, from neighboring towns and Somalia in search of water.

Strengthening Resilience in the Horn of Africa

Context

The Horn of Africa is highly susceptible to climate-related risks[18] and concurrent shocks and stressors including conflict, food insecurity, and pest outbreaks. These conditions jeopardize growth and development potential stemming from the strong trade and relational bonds among groups and communities in HoA transboundary areas.

Given the multisectoral nature of these risks and crisis drivers, concerted efforts are needed to enhance the region's preparedness and response. This technical cooperation strengthened key stakeholders and improved the enabling environment for deepening integration efforts and facilitating identification of investments for enhancing resilience.

Building on three interconnected pillars (strengthening information for resilience, strengthening institutions and organizations for resilience, and strengthening the knowledge base for regional resilience investments), activities addressed key areas for the HoA to prepare for, and respond to, shocks.

Progress

Initially, the technical cooperation supported the preparation of products that defined the vision of a resilient HoA, explored potential regional investment opportunities, enhanced data exchange, and improved cooperation platforms. A stocktaking of the World Bank's past regional resilience initiatives contributed to strengthening the knowledge base on resilience building, resulting in the report, "Invisible Bonds: Transboundary Resilience Building in the Horn of Africa."[19] This work introduced a new conceptual framework for improving transboundary resilience (T-Res) for practitioners involved in the design and implementation of resilience-building projects.

Strengthening information for resilience

Pillar 1 of the grant focused on strengthening the information base for resilience through data (e.g., on the natural resource base, movement of people and animals, disease surveillance, and meteorological information) to inform policies, shared management of resources, and joint development planning. This pillar focused on the unfolding desert locust upsurge as a real-time example of a complex, transboundary crisis that requires exceptional coordination and information sharing to successfully manage a response.

The impact of desert locusts has exacerbated the stress felt by vulnerable communities from droughts, floods, food insecurity, and conflict, increasing tensions over scarce water resources. Understanding the interaction among these factors and the capacity of local and national institutions is pivotal to build resilience and ensure the sustainable management and use of natural resources.

The team produced a Rapid Qualitative Assessment of Desert Locust Risk Management in the HoA to analyze the strengths and weaknesses of desert locust management systems at regional and national levels in Djibouti, Ethiopia, and Kenya. The assessment used a risk management conceptual framework consisting of (i) monitoring and early-warning systems, (ii) vulnerability and impact assessments, and (iii) mitigation, preparedness, and response actions. This approach enabled the coordination of distinct phases of the disaster-risk management cycle. For example, monitoring and early warning (Pillar 1) enabled the timely deployment of mitigation, preparedness, and response actions (Pillar 3), which had been identified and designed based on the knowledge of natural and human processes analyzed in vulnerability and impact studies (Pillar 2).

The assessment created recommendations and an opportunity for deeper collaboration between IGAD and other partners, such as the Food and Agriculture Organization (FAO) and the Agence Française de Développement (AFD). The assessment and regional dialogue helped build agreement around a set of actions, several of which are being addressed by the World Bank Emergency Locust Response Program (ELRP) investment projects.

Strengthening institutions and organizations for resilience

Closely connected to Pillars 1 and 3, activities under the Pillar 2 focused on the identification and planning

18 HoA countries fall within the top 20 percent of those ranked as most vulnerable to climate change by the ND-GAIN Index. The index measures vulnerability to climate change and readiness to increase resilience.

19 https://www.ciwaprogram.org/wp-content/uploads/W22000_Invisible-Bonds_Transboundary-Resilience-in-HoA_Accessible.pdf

of four key knowledge products. They include: (i) a diagnostic on the desert locust response, (ii) a Regional Groundwater Management Institutional Assessment, (iii) a synthesis report, "Strengthening Local Institutions for Resilience in the Horn of Africa," and (iv) a Rapid Qualitative Assessment to Strengthen Drought Risk Management in Kenya.

The groundwater institutional assessment provides insights into the role of communities in managing the resource and challenges and opportunities around groundwater in resilience to climate change. The synthesis report[20] presents a typology of stakeholders engaged in promoting resilience and includes guidance for World Bank task teams to implement resilience-building projects.

Strengthening the knowledge base for regional resilience investments

Pillar 3 focused on improving the knowledge base to guide regional investment identification. The activity conducted two virtual workshops for facilitating HoA country dialogues that addressed policies and coordination measures to deepen regional integration around resilience. The team also identified the best ways to incentivize long-term operation and maintenance of rural groundwater boreholes, which resulted in the development of a performance-based grant manual.

The Rapid Qualitative Assessment to Strengthen Drought Risk Management provides insights and recommendations for Kenya's drought intervention activities. The assessment uses the three pillars of the Integrated Drought Management Program[21] to inform Kenya's drought interventions under the World Bank's new GW4R project.

Next Steps

This technical cooperation closed in FY22 with strong progress throughout its three pillars. It will be important to test the results and conclusions developed thus far, which will require continued outreach (through workshops, working groups, and knowledge fora). Further analytical insights will be derived from engaging with task teams across the World Bank, among other development partners and practitioners, to integrate resilience-building aspects and ensure a robust monitoring and evaluation approach.

©Angelica Ospina Parada - Lodwar rural water supply scheme, Turkana County, Kenya.

20 The publication builds on the analytical approach identified in the 'Invisible Bonds' report and other World Bank analytical work including the reports, 'Poverty and Vulnerability in the Ethiopian Lowlands' and 'From Isolation to Integration: The Borderlands of the Horn of Africa.'

21 https://www.droughtmanagement.info/pillars/

04

SOUTHERN AFRICA

©Wynand Uys/ Unsplash - Aerial view of the Okavango River, Shakawe, Botswana

Prolonged drought conditions in Southern Africa are fueling food 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.

Southern Africa Drought Resilience Initiative

Context

Drought is the most costly and deadly climate shock in Southern Africa, affecting livelihoods, economies, and ecosystems.[22] Most of the 16 member states of the Southern Africa Development Community (SADC) suffer from varying degrees of water insecurity because of more frequent and severe droughts. CIWA created the Southern Africa Drought Resilience Initiative (SADRI) technical cooperation, now in its third year, to build resilience to the multi-sectoral impacts of drought and address climate change more broadly.

SADRI's vision is of a drought-resilient region in which governments, institutions, and households can withstand and thrive amid climate change and related economic shocks. The initiative advances a regional integration agenda and priorities (such as the SADC Regional Strategic Action Plan) to address drought risks while promoting cooperative management of shared natural resources. SADRI is embedded in the three key elements of the Integrated Drought Risk Management framework: (i) drought-monitoring and early-warning systems, (ii) drought vulnerability and risk assessments, and (iii) drought preparedness, mitigation, and response. These components form a comprehensive approach to drought-risk management across the WEFE nexus.

SADRI provides technical assistance and analytics along three pillars—cities, energy systems, and livelihoods and food security, with an umbrella pillar for the overall initiative. The Cities Pillar contributes to the effective use of National Hydromet and Drought Risk management systems by developing technical expertise and strengthening early-warning systems and planning through the standardization of tools to assess vulnerabilities and create opportunities to enhance resilience.[23] The Energy Pillar assesses efforts to create more resilient energy systems, fills critical analytical gaps in the WEFE nexus, and improves the decision-making of hydropower dam operators, while the Livelihoods and Food Security Pillar address opportunities for climate-smart agriculture and livelihoods diversification. This pillar also leverages the governance structure of Trans-Frontier Conservation Areas (TFCAs), which approaches biodiversity conservation from a regional perspective.

Progress

Umbrella Pillar

The initiative completed national and regional level Stocktaking and Needs Assessments of member country drought resilience. This exercise, which followed a virtual regional workshop in 2021 (with over 90 participants from 30 institutions), produced 16 Drought Resilience Country Profiles and a Regional Profile[24] that captured commonalities and key opportunities and guided consultation processes.[25] These outputs will be instrumental in identifying potential regional drought-risk management investments.

The team also developed a Knowledge Hub on Drought

22 vis-Reddy, C.L. and Vincent, K. 2017: Climate Risk and Vulnerability: A Handbook for Southern Africa (2nd Ed), CSIR, Pretoria, South Africa & International disasters database (http://www.emdat.be)

23 The Cities Pillar strengthens early-warning systems and planning through the standardization of tools to assess vulnerabilities and build opportunities for enhancing drought resilience. Relevant mitigation measures include guidance notes, emergency response plans, and planning for and/or applying adaptive water management approaches. This pillar is intended to inform the following Bank projects: Emergency Water Security and Efficiency; Eswatini WSSAP; Integrated Land and Water Management; and South Africa Urban RAS II.

24 All available at https://www.ciwaprogram.org/southern-africa/

25 By developing drought resilience profiles for each of the 16 SADC member states and a comprehensive regional profile that captures commonalities and key opportunities, SADRI provides information that supports the identification of regional drought risk management investment opportunities. The drought resilience profiles deepened the understanding of the state of drought-risk management by identifying (i) major stakeholders, (ii) policy and institutional frameworks, and (iii) the availability and operability of key systems for improving drought resilience.

Resilience[26] in 2021 to disseminate the initiative's key learnings, which supported knowledge exchange and fostered stakeholder dialogue. The World Food Program (WFP) integrated the output into its Regional Vulnerability Assessment and Analysis Program (RVAA).[27]

Cities Pillar

This pillar contributed to a draft toolkit, planned for release in FY23, to advance proactive drought-risk management and opportunities to enhance cities' drought resilience. The deliverables included drafts of a City Drought Resilience Toolkit (targeting World Bank task teams) and Regional Notes that provide a conceptual framework, guidelines, methodologies, tools, and data sources to support client engagement, complement ongoing initiatives and projects, and enable new ones. The team is working closely with country task teams to test the documents' applicability by developing rapid analyses and case studies, which will include Dar es Salaam, Tanzania; Toliara, Madagascar; Blantyre, Malawi; Lilongwe, Malawi; Bulawayo, Zimbabwe; Gaborone, Botswana; Windhoek, Namibia; and Cape Town, South Africa. The regional guidance notes will target clients and other external stakeholders, drawing on African and global case studies on improving drought-monitoring and early-warning systems, policy and institutional reform, planning, and investments. They will provide practical recommendations for assessing, preparing for, and coping with the impacts of urban droughts.

Energy Pillar

The Energy Pillar focused on knowledge products that support efforts to secure resilient energy systems for hydropower operators and power utilities. The pillar fills critical analytical gaps in the WEFE nexus, improves operational decision-making for dam operators, and supports the strategic priorities of SADC's Southern Africa Power Pool (SAPP), which comprises national electric power companies.[28] Legal considerations required activities to focus on understanding the behavior of SAPP under stress through modeling of drought impacts. The objective is to help the Bank and clients understand SAPP's resilience to drought and key areas for further investment.

Work on a SAPP Drought Sensitivity and Resilience Assessment has begun in collaboration with the SAPP Coordination Center. The study has three phases: (i) an assessment of drought impacts on SAPP, (ii) an examination of power flows and bottlenecks to resilience through trade, and (iii) identification of priority investments for increasing resilience. SADRI will finance the first phase, but SADRI support for subsequent phases will depend on the timing and availability of funds.

Livelihoods and Food Security Pillar

One activity under this pillar, operationalizing drought-resilient contingency mechanisms within investment operations, was completed in FY22. Two other activities will be completed in FY23: (i) developing agri-food value chain solutions to manage and finance drought-risk mitigation and (ii) filling analytical and knowledge gaps on water usage and options for livelihoods diversification in the Great Limpopo TFCA spanning Mozambique, South Africa, and Zimbabwe. **The development of agri-food value chain solutions for drought risks entails conducting studies to support the Eastern Cape Provincial Government in identifying potential areas for irrigation development to support inclusive horticulture and improve resilience to droughts.** These areas are based on land use suitability, water availability assessments, financial analysis, and beneficiary identification. The study is considering three options: small estates, small riparian farms, and homesteads.[29]

The team also conducted a watershed management scoping study to identify other upstream investments to protect the watershed. The study identified the need for investment in (i) pasture management and related livestock management, (ii) green-preneurs (vetiver grass) and multi-purpose garden establishment, (iii) land restoration, (iv) use of invasive species for biomass value chain development, and (v) community afforestation and agroforestry.

Building on the scoping study, the team is conducting a detailed assessment (to be completed in FY23) of watershed management investment needs in the Umzimvubu watershed (part of the Drakensburg-Maloti TFCA) for a potential public-private investment project. With the International Finance Corporation (IFC), the team is also identifying possible private sector partners for inclusive investment in the beef sector to help expand pasture management improvement initiatives.

The pillar is providing technical support to the Great Limpopo Transfrontier Conservation Area (GLTFCA) to better understand water governance and use of community-level drought mitigation measures. The target community is the Pafuri-Sengwe Node on the borders of Mozambique, South Africa, and Zimbabwe. The target water systems for analysis are the Limpopo River, Mwenezi/Nuanetsi River, Luvuvhu River, and Bubye River. Activities include (i) determining the extent of water availability in groundwater aquifers, wetlands, and river systems; (ii) assessing the current demand and usage of these waters, especially among communities in the Pafuri-Sengwe Node; (iii) evaluating governance practices for managing the waters; and (iv) identifying, developing, and recommending near- and medium-term actions for water management that can build community drought resilience.

26 https://geowb.maps.arcgis.com/apps/MapJournal/index.html?appid=cb0fc8aa450f4b35a018f7e0115867be.
27 https://rvaaatlas.sadc.int/
28 SADRI's pillar on securing more resilient energy systems also responds to the EU Commission's engagement on increasing synergies between water and energy diplomacy.
29 A concept for the development of rainwater harvesting for the homesteads was developed as a basis for a pilot potentially to be funded by Eastern Cape Provincial Government, and potential investors were identified for the development of out-grower arrangements between small estates and homesteads/small farms in cooperation with IFC.

©Katie Archibald-Woodward - Heron and river, Ngorongoro crater, Tanzania

Other activities include (i) mapping and characterizing wetlands within the Pafuri-Sengwe Node; (ii) undertaking a hydro-census for the Limpopo, Luvuvhu, Mwenezi/Nuanetsi, and Bubye River systems to identify predominant water use practices; (iii) characterizing existing water resources management and governance practices; and (iv) identifying potential investment opportunities.

Next Steps

With activities completed or nearing completion, SADRI seeks to leverage new opportunities to partner with the SADC Secretariat and other regional and national partners and development institutions to realize a common vision of a drought-resilient region.

The SADRI-generated knowledge and analytical work will catalyze and inform regional and national investments. To that end, the SADRI team is working to identify and leverage complementarities with individual country lending efforts and link with broader World Bank climate resilience programs.

This initiative has been extended to April 2023 to support collaboration and partnership building with the SADC Secretariat and other development actors through a joint workshop and output dissemination event (tentatively planned for October 2022). This will stimulate collaboration and shared learning among member states and stakeholders to improve the technical knowledge base on drought resilience and position SADC to champion future country and regional drought preparedness and management upgrades.

Sustainable Groundwater Management in SADC Member States—Phase II

Context

SADC member states have worked to reduce risks and promote cooperative management of their 30 transboundary aquifers to ensure their long-term sustainability and potential to enhance livelihoods. CIWA facilitates cooperation efforts for sustainable transboundary groundwater management on shared aquifers by engaging with five RBOs: Orange-Senqu Commission (ORASECOM), Limpopo River Commission (LIMCOM), Cuvelia River Commission (CUVECOM), Zambezi Watercourse Commission (ZAMCOM), and Okavango River Commission (OKACOM) and will engage with the new INKO MAPUTO (for the Inkomati and Maputo River basins), covering Eswatini, Mozambique, and South Africa.[30]

In the first phase of CIWA support to SADC-GMI (closed in FY21), the team completed Transboundary Diagnostic Analyses (TDAs), with a joint strategic action program (SAP) implemented to support project sub-grants to several countries.[31] Activities began with studies to better understand the potential of transboundary aquifer use and management, followed by the TDA and SAP processes. These contributed to the creation of common frameworks for identifying and formulating strategies, programs, and investments in response to transboundary challenges (including GDEs and biodiversity management) and the identification of water security hotspots and water supply options. Initiatives promoting coordinated use of groundwater and surface water were also jointly implemented with the five RBOs.

This assistance is pivoting to further strengthening hydrogeological capacity in regional institutions and unifying disparate information systems for managing groundwater data. The assistance will also support implementation of groundwater management action plans and regulations.

Progress

CIWA is supporting this phase with a US$9 million grant[32] to build capacity and strengthen institutions. Five National Focal Groups (NFGs) were established in Phase I, and eight will be created in Phase II. Once the three remaining NGFs are established through Global Environment Facility (GEF) co-financing, all 16 member states will have focal groups, which play a key role in groundwater management and project implementation. In FY22, the SADC Groundwater Information Portal (SADC-GIP)[33] was updated by linking it to national, RBO, and other stakeholder groundwater databases, with the objective of making SADC-GIP a one-stop platform for groundwater data (now including biodiversity data). SADC-GIP serves national and local authorities and other stakeholders who are involved in groundwater management, development, and research.

The work undertaken on GDEs and biodiversity[34] in transboundary aquifer (TBA) contexts primarily focused on the Khakhea-Bray TBA (shared between Botswana and South Africa). The studies focused on understanding and demonstrating the role of groundwater in sustaining below- and above-ground aquatic ecosystems (e.g., wetlands, rivers, and springs) and anthropogenic impacts[35] on groundwater. The studies aimed to establish thresholds for minimum groundwater levels that can be used to prevent negative impacts on ecosystems.

CIWA prioritized GESI in Phase II because greater inclusion in water resources management can produce substantial economic, social, environmental, and financial benefits and foster effective implementation of groundwater management interventions. CIWA supported the development of a GESI Mainstreaming Strategy for SADC-GMI to be implemented by 2025. The project also aimed to

30 SADC-GMI participated in the launch of INKO MAPUTO in November 2021 and is now negotiating an MOU for a formal collaboration.
31 These included Malawi, Botswana, Zimbabwe, Tanzania, Mozambique, Zambia, Namibia, Eswatini, and Lesotho.
32 In addition to CIWA funds, a US$5 million grant was obtained from the Global Environment Facility (GEF) and a US$500,000 grant from GFDRR.
33 https://sadc-gip.org/
34 This activity began in Phase 1 and was advanced in FY22 jointly by SADC-GMI and a team of independent research scientists from the Aquatic Systems Research Group (ASRG), University of the Free State's Institute for Groundwater Studies (IGS), the University of Mpumalanga, and the University of Venda.
35 Impacts examined included those arising from abstraction of groundwater and reduced groundwater recharge.

promote the role of women and vulnerable populations as principal educators and leaders of home- and community-based water and sanitation practices. Preliminary results from recent research show that biodiversity loss and degraded ecosystems can reinforce gender inequalities and worsen poverty by significantly increasing the time spent by women and girls on unpaid family care and domestic work (e.g., cooking and collecting water), which reduces time for education and economic activities.[36]

Given the indispensable link between biodiversity and community socio-economic activities, GDEs are critical to maintaining biodiversity and supporting livelihoods (by providing water, cooler habitat, and food sources). These findings also highlighted the need for research to develop integrated management interventions for groundwater, biodiversity, and ecosystems that are more sustainable and address the needs and priorities of stakeholders.

Next Steps

In the next year, SADC-GMI plans to reevaluate its existing capacity-building plan to ensure its alignment with emerging regional priorities on groundwater management. It will continue to support its Young Professionals program to ensure more participation of women and introduce them to academic programs at regional universities. SADC-GMI will evaluate the impact of the five original NFGs and capture lessons from their operations, develop management plans for identified hotspot GDEs, and prioritize action steps.

The SADC-GIP will be updated to include data on climate change and associated resilience building. SADC-GMI plans to develop climate adaptation measures for addressing increasingly variable and scarce water resources with support from the International Fund for Agriculture Development (IFAD) for enhancement of water and food security.[37] This work will also include promoting the sustainable use of transboundary groundwater resources and increasing their availability for agricultural productivity and food security to build climate resilience. Target TBAs include Ramotswa Aquifer (between Botswana and South Africa), Limpopo Basin Aquifer (between Mozambique, South Africa, and Zimbabwe), Sand and Gravel Aquifer (between Malawi and Zambia), and Tulikaroo Aquifer (between Botswana, South Africa, and Zimbabwe).

This assistance will support LIMCOM, ZAMCOM, and ORASECOM to establish Groundwater Committees, as was done with other RBOs in the first phase, and create the first Groundwater Strategy for LIMCOM. SADC-GMI is working with RBOs to extend the work to include other TBAs.

The sub-grant manual will be updated to incorporate GESI, the Bank's Environmental and Social Framework, COVID-19 safety, and innovation. A comprehensive stakeholder engagement study is underway to assist in the implementation of the GESI Mainstreaming Strategy in the Khakhea-Bray TBA, including identifying relevant stakeholder categories and their respective priorities. Following the study, stakeholder engagement in the development of management plans will also be undertaken.

Further innovative pilot groundwater infrastructure solutions that can be scaled up through investments will be developed.[38] Solutions will be designed within the national and regional context to implement innovation and synergies with other national programs and maximize impact. Member states will identify and leverage resources for infrastructure investments addressing identified priorities in the TDAs and SAPs at national and transboundary levels.

The CIWA-supported GESI Mainstreaming Strategy for SADC-GMI aimed to promote the role of women and vulnerable populations as principal educators and leaders of home- and community-based water and sanitation practices.

36 Several research papers were presented at regional conferences and published by research teams. Additional dissemination and management of the research results are slated for the SADC Groundwater Conference scheduled in November 2022.
37 CIWA supported proposal and concept note preparation and stakeholder consultation workshops to begin this work.
38 Future interventions may include complementing the expansion of national/regional groundwater monitoring networks and linking them with systems such as the HYCOS program, which monitors surface water, promotes conjunctive surface and groundwater management through managed aquifer recharge schemes, and/or establishes WEFE nexus initiatives that use groundwater information.

© Victor Vasquez/ CIWA - Study tour for the Groundwater Initiative project in Botswana

05

CROSS-CUTTING THEMES

©Ondrej Prosicky/ Shutterstock - Elephant in Murchison Falls National Park, Victoria Nile Delta, Uganda

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

CIWA supported the Water Data Revolution (WDR): Closing the Data Gap for Transboundary Water in Africa—a Bank-executed technical assistance to improve the capacity to collect, store, and use satellite-based (remotely sensed) data for evidence-based decision-making. This initiative helps governments address constraints to cooperative water management by putting RS-derived data tools into the hands of managers at Africa's basin-wide organizations.

Improving the management of transboundary water resources and increasing resilience to hydrological extremes require understanding water resource dynamics at both basin and national levels. WDR takes a user-driven approach to identifying common needs and connects end-users with appropriate solutions, including RS tools, satellite imagery, and custom data products.

The initiative assessed the data use and capacity of 15 RBOs and three regional organizations spanning 37 countries. The assessment revealed the data gaps and priority data needs that could be mitigated through the adoption of RS-based technology, data products, and analytical tools. Organizations prioritized expanding their capacities to acquire, manage, and store free or low-cost RS datasets and use RS data tools and applications for drought and flood analyses. The assessment also provided insights into organizational challenges in adopting digital data platforms, including financial constraints, lack of technical capacity, and staffing shortages.

In the next year, this technical assistance will use the assessment outcomes to provide capacity-building opportunities aligned to the needs and goals of participating organizations. Expected outcomes include improving their use of RS data products and analytical tools while also accounting for constraints in using digital data platforms. WDR will help organizations adopt low-cost technologies for data collection, storage, and analysis while promoting sustained use through workshops and capacity-building sessions.

© Nzewi Confidence/ Wirestock-African farmer using a laptop in a rice field in Uganda

Gender and Social Inclusion

In FY22, CIWA ramped up its work on GESI, with the overall strategy guided by CIWA's GESI Framework.[39] The framework represents a transformative approach that recognizes that countering deep-seated patriarchal norms that exclude women requires a shift from one-off, short-term interventions toward a harmonized and integrated approach that is sustained throughout the life of the project and beyond.

CIWA delivered on its commitment to build capacity on gender by conducting a two-part training for World Bank staff on how to implement GESI in transboundary WRM projects. The training has since been expanded to a World Bank transboundary water program in Central Asia. In the next year, trainings will include partner organizations at regional and national levels.

CIWA produced two Learning Notes and plans to develop more in FY23. The first[40] captures critical findings and recommendations from experiences providing GESI technical assistance at the preliminary phase of CIWA's projects. The second[41] involved collaboration with Nile Basin colleagues in documenting NCORE's successes and challenges in applying a gender lens within the complex basin environment. Some of these findings are expected to appear in a forthcoming book on transboundary water governance.

With CIWA's increasing focus on groundwater management, additional lessons learned have been assembled and shared through communications including blogs[42] and a presentation at an international groundwater conference, "Groundwater: Key to the Sustainable Development Goals."[43] The lessons reflect the experience of applying the GESI Framework to the Sahel Groundwater Initiative by both mainstreaming GESI and developing a stand-alone component that seeks to recruit more women hydrogeologists.

CIWA is excited about its recent launch of the Male Champions Initiative that it developed with SIWI. Building on the transformative approach, the initiative will create a cadre of male champions in transboundary water programs who are willing to promote opportunities for women to become leaders and decision-makers in their organizations. In the next year, CIWA plans to pilot the initiative at local, national, and institutional levels.

©Simone D. McCourtie / World Bank- Land husbandry activity on a steep hill, Nyabihu District, Rwanda

39 https://www.ciwaprogram.org/wp-content/uploads/CIWA-Gender-and-Social-Inclusion-Framework-1-1.pdf
40 https://www.ciwaprogram.org/wp-content/uploads/CIWA_GESI_LEARNING_NOTE_1_March2022.pdf
41 https://www.ciwaprogram.org/wp-content/uploads/CIWA-NBI-Gender-learning-Note.pdf
42 https://www.ciwaprogram.org/blog/forging-ahead-towards-a-more-gender-equal-world-in-transboundary-water-management-in-sub-saharan-africa/
43 http://gw-sdg2022.fr/index.php/en/

A View from the Field:

The Nile Basin's Pioneering Approach to GESI

©PINA - Asia, beneficiary of NBD's Climate Change Resilience Champion training, at work on her farm in Kampala

The Nile Basin is one of the most challenging places in the world to advance gender equality. Patriarchal beliefs, including stereotypes that women can't understand technical issues, and male resistance to sharing power often give women little voice in decision-making processes about water resources, even though water is critical to their livelihoods and families.

Women need to work together "to make decisions about how much water is needed, where to get the water, and how to organize themselves to extract water from a riverbed," says Donald Kasongi, former secretary-general and now chair of NBD's Tanzanian chapter, which has been working with CIWA to transform gender relations in water resources management across the basin.

CIWA's GESI Framework recognizes that most approaches to addressing gender inequality, such as counting the number of women at meetings to demonstrate results, are inadequate to make lasting progress toward equality. Its GESI approach is about shifting mindsets and taking a holistic approach by addressing gender norms and roles; power and decision-making; access to, and control over, resources; and institutional barriers to women's full participation.

Kasongi is doing just that in the Nile Basin.

While working on gender issues for 15 years, Kasongi says, he finds himself "digging deeper and deeper to understand social norms. It's not about how many women are in the room. It's about making sure that women are agents of themselves."

He emphasizes that a one-size-fits-all approach to GESI won't work in such a diverse region. While some eastern and central Nile countries are more open to reconsidering patriarchal norms and values, in countries where women are seen as property of the male heads of households, a different approach is required.

In those countries, NBD, with support from CIWA, works with traditional male leaders to try to instill in them an appreciation of women's contributions to bringing water home to their families and the importance of including them in decisions about managing community water resources. These leaders in turn talk with male heads of households to encourage the same understanding and acceptance of women's water-related roles and the need to involve them in water resource decision-making. NBD also engages influential women from colleges, universities, and the news media to help shift community norms and attitudes.

"They are on the frontlines of their communities and know what's possible, what's not possible, and what are acceptable strategies," Kasongi says.

© NBD_Women Training on Green Jobs and enterprise, Uganda, August 2021

Communications

CIWA takes a multimedia and multichannel approach to its external communications, which are designed to raise awareness about the importance of sustainable management and development of water resources in Africa and CIWA's impact. The communications team captures voices from the field through its 'Across the Pond' podcast series,[44] blogs on CIWA's activities featuring water champions and experts,[45] and videos about the interplay between water and climate change, FCV, disaster risk management, GESI, and natural resources protection. CIWA also keeps stakeholders informed through its quarterly CIWA Bulletin,[46] showcasing editorial and creative content and news about CIWA's activities and impact.

The CIWA communications team nurtured its relationships with Africa's transboundary organizations through the Water Information and Communications in Africa (WICA) community of practice (CoP) it formed in the previous fiscal year. The CoP has built trust and cooperation and enabled cross-promotion of partners' social media and website content.

CIWA enhanced and reorganized its website (ciwaprogram.org and ciwaprogram.org/fr). Enhancements include a new section on the program's focus areas, enriched regional content, an expanded resources section, and a section dedicated to CIWA's 10th anniversary, which includes a special report, "CIWA at 10: A Decade of Building Trust and Improving Water Security in Sub-Saharan Africa."[44]

CIWA launched its presence on Twitter—@CIWAProgram—in September 2021, building its audience with engaging tweets in both English and French and executing four social media campaigns to raise awareness about CIWA's work. This included leveraging social media buzz around UN recognition days and water sector events and promoting CIWA's own milestones.

Campaigns included:

CIWA's 10-Year Anniversary Campaign—February 2022

To mark CIWA's anniversary, the communications team created social media postcards with quotes about CIWA and engaging video vignettes featuring CIWA partners, donors, managers, and World Bank leaders that generated campaign awareness and reached 3.6 million Twitter followers, thanks to partners and supporters sharing our materials far and wide. Blog

International Women's Day and Gender Week—March 2022

This campaign spotlighted women water experts at the World Bank and partner organizations through engaging and informative videos, positioning women as leaders and skilled professionals. The campaign, which also highlighted CIWA's GESI Framework and its new learning notes, reached more than one million Twitter followers. Blog

Sahel Groundwater Initiative Roundtable—February-March 2022

CIWA live tweeted and promoted video interviews with attendees at the roundtable on training the next generation of groundwater specialists in Nouakchott, Mauritania, which was co-sponsored by CIWA and the World Bank and brought together Sahelian university representatives who decided to create a joint graduate degree program in hydrogeology. Video 1 Video 2

World Water Day and 9th World Water Forum—March 20-26

CIWA participated in the three-day Instagram campaign during World Water Day that featured World Bank projects from multiple regions, global practices, and partners highlighting the economic case for investing in water, the role of water in fighting COVID-19 and improving health outcomes, and water's potential to help end poverty and promote shared prosperity. CIWA staff also participated in the 9th World Water Forum in Dakar, Senegal, joining political and economic decision-makers and representatives from multilateral institutions, academia, civil society, and the private sector. The World Bank booth and the African Network of Basin Organizations (ANBO) pavilion, co-financed by CIWA, featured CIWA's 2021 Annual Report and "CIWA at 10." CIWA staff live-tweeted during the forum, including about CIWA-hosted events.

44 https://www.ciwaprogram.org/category/podcast/
45 https://www.ciwaprogram.org/category/blog/
46 https://www.ciwaprogram.org/bulletins/

©Anders Jägerskog/CIWA - One of the panel (here with NBD's Chairman, Ms Nyiramana)) during the World Water Week, Dakar, March 2022

CIWA's Mid-Term External Evaluation

CIWA commissioned a Mid-Term Review (MTR) to build on findings and lessons from its 2015 MTR. The earlier evaluation found CIWA to be highly relevant and fit-for purpose, while also noting challenges and making recommendations to improve performance, pace of implementation, resources, and engagement of development partners. The new MTR reviewed CIWA's implementation and performance, level of ambition, and results in the context of the scale of needs and demands on the ground. The conclusions will guide CIWA's programmatic adjustments to maximize impact until the program's scheduled close in 2026.

The scope of the evaluation includes all three types of CIWA engagements: (i) sustained support in priority basins, (ii) high-impact/ strategic engagements for advancing cooperation outside priority basins, and (iii) knowledge generation and sharing. The MTR also covered CIWA's strategic directions including FCV, biodiversity, and resilience and thematic work including GESI, communications, and data. The evaluation included a review of key documentation, data and other input from 112 stakeholders, and a broad online survey. The evaluation team produced six case studies on CIWA's work in the Nile River Basin, the Niger River Basin, the Zambezi River Basin, the Lake Chad Basin, Southern Africa, and the HoA.

MTR Conclusions

Following the first MTR, CIWA leadership made important changes to the program strategically, geographically, and operationally including delivering its work in close alignment with donors and expanding its approach from working in priority basins to focusing on regions of interest to engage with a broader range of partners and achieve greater impact. To guide its work, CIWA developed three pillars known as the three "Is," which include improving access to information; strengthening institutions; and identifying, preparing, and mobilizing sustainable investments. The three Is framework of engagement mechanisms underpin the current Theory of Change, which captures many of CIWA's strengths in developing regional cooperation.

The current MTR noted the above progress and identified many programmatic strengths including that CIWA is highly relevant to donors and countries and aligns with World Bank priorities. As the only World Bank Trust Fund focusing on transboundary waters in Africa, CIWA has a clear value-add and is complementary to other Bank projects and programs.

The evaluation found that CIWA is effective, contributes to institutional and policy development and investments, is efficient and flexible, and meets Advisory Committee objectives (such as supporting decentralized WRM development in FCV countries, prioritizing biodiversity and gender equality, providing sustained assistance to regional water organizations). CIWA has also improved its visibility both within the World Bank and among external stakeholders, which has been critical for financial resource mobilization, project planning, and implementation purposes. The evaluation also identified areas of program design, structure, implementation, and learning that may merit attention to strengthen impact, discussed below.

Overall, the MTR found that while CIWA has made evident strides, there is room for improvement, both in its programmatic work and especially in financial resource mobilization. The MTR concluded that despite strong alignment with development partners' programs and active engagement with stakeholders, only two of the Advisory Committee institutions have renewed contributions to the program in the past five years. Two key recommendations are to develop greater synergies between CIWA interventions and donor development programs and to improve resource mobilization, particularly to address growing FCV-related challenges. It was noted that, with over 97% of CIWA funds committed to existing projects, it will be difficult for CIWA to utilize the lessons from the MTR without new funds. Some recommendations include: (i) further **strengthening CIWA's culture of learning, (ii) diversifying stakeholders (regional, national, civil society, and community institutions) with whom CIWA works, and (iii) better aligning CIWA's Theory of Change with its Results Framework.** In FY23, CIWA and key stakeholders will meet to review the recommendations and develop a strategy for advancing progress in the years ahead, which will focus on the new vision for the CIWA portfolio and resource mobilization.

©Anders Jägerskog/ CIWA - CIWA Team visiting the Eastern Nile Technical Regional Office (ENTRO) in Addis Ababa, Ethiopia, Avril 2022

Looking Ahead

As Africa's challenges mount amid the global economic downturn, climate change intensifies, and countries become increasingly fragile, CIWA's work in the year ahead is more important than ever.

We will continue our efforts to equip countries beset by these challenges with the knowledge, capacity, tools, and financial resources needed to build back better from economic fragility and the pandemic and to increase resilience to coming climate, food, energy, and health shocks.

Cooperation over joint infrastructure and other development projects is essential for countries not only to share financial costs and benefits during difficult economic times but also to mitigate the drivers of conflict and minimize the potential for tension over how to manage and develop shared waters.

To that end, CIWA plans to create a framework for our engagement in fragile and conflict-affected countries, which will benefit from work conducted for this year's joint report with SIPRI on water cooperation in the HoA.

We will have a laser focus on addressing resilience because of the mutually reinforcing negative impacts from the volatile mix of conflict and climate change, among other stressors. We are increasingly taking a regional water security approach that assesses and then works to mitigate the drivers of conflict, which include food and water insecurity, internal displacement, and climate change.

We plan to deepen our work in biodiversity conservation following our evaluation of the linkages between CIWA's programmatic activities and biodiversity conservation approaches. This may include determining whether to pursue, for example, investments in nature-based solutions to manage water resources or in the protection and sustainable management of water towers, which produce large volumes of runoff to sustain downstream lowland areas.

We will take our GESI work to the next level by launching several pilot projects for our emerging Male Champions Initiative developed with SIWI. The initiative aims to establish a corps of male water experts who promote opportunities for women to become decision-makers and leaders in transboundary organizations.

We will double down on our focus on groundwater, which, if managed sustainably, can be a vital solution for adapting to climate change and FCV challenges. We are exploring options for management of an aquifer basin in Senegal and Mauritania and examining potential new opportunities such as a hybrid groundwater project in Niger.

We are also considering a transboundary project for investments in both small- and large-scale water storage in Senegal and preparing the next phase of our work in the Lake Chad Basin to elevate the voices of community members, modeled after our successful project for stakeholder engagement in the Nile Basin.

Overall, we are developing a pipeline of projects—both new ones and scale-up of existing work—to address the enormous challenges in sub-Saharan Africa. However, these projects cannot proceed without new financing. With all the US$135 million previously raised from our donors fully committed to existing work, it is critical that we secure additional financing for the next several years.

As you have read in this report, the water-related needs of the continent are immense. CIWA has the experience and expertise to meet them, but our vision of a water-secure Africa cannot be realized without the resources required to rise to the challenge. The people of sub-Saharan Africa are counting on us to deliver.

We will continue our efforts to equip countries with the knowledge, capacity, tools, and financial resources needed to build back better from economic fragility and the pandemic and to increase resilience to coming climate, food, energy, and health shocks.

© Arne Hoel/ World Bank - Women by the While Nile (Morada), Khartoum , Sudan

ANNEXES

© Dietmar Temps/ Adobe stock - Colorful scenic sunset with fishing boats in the foreground on Mfangano Island, Lake Victoria, Kenya

Annex 1
CIWA Portfolio

Figure A1.1
Allocations by Grant Type

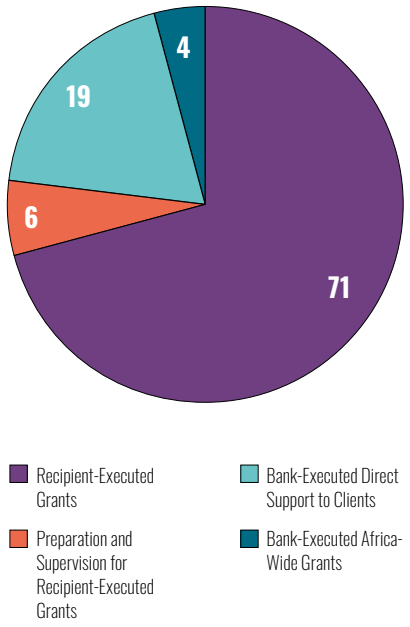
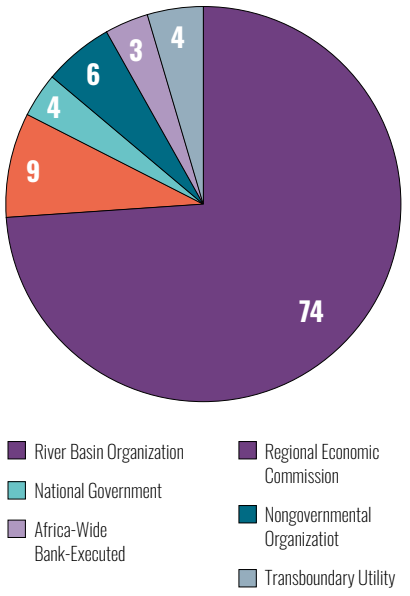


Figure A1.2
Allocations by Partner Type



Annex 1 describes the CIWA portfolio in terms of the proportion of its allocations[1] based on grant types, partner types, engagements (geographical), and primary outcomes. Key points are:

- Over the years, CIWA allocations by grant type largely exhibit a roughly consistent 75 percent of the portfolio going to Recipient-Executed Trust Funds (RETFs). While a dominant proportion of RETFs remains a core aspect of the program, CIWA also has leveraged its advantage to support select FCV situations through Bank-Executed Trust Funds (BETFs).

- Allocations to support regional RBOs remain three-quarters of the portfolio, consistent with previous years. CIWA is also supporting several national institutions, such as in Somalia and South Sudan, but these grant values remain relatively small.

- The Nile River Basin remained a major beneficiary of CIWA allocations in FY22 (approximately 50 percent) despite receiving no new allocations. However, the cumulative percentage of Nile Basin funding decreased because of the significant FY22 active and pipeline allocations to the HoA and West and Central Africa.

- CIWA is pivoting toward small and nature-based infrastructure investments, which is borne out by the trend in primary outcomes. Allocations toward institution building/strengthening and information system support also increased over the period, with a complementary negative trend in large infrastructure.

Figure A1.1 shows that the majority (71 percent) of cumulative CIWA allocations and commitments are dedicated to recipient-executed grants. As described in greater detail in Annex 5, the average use of funds for preparation and supervision of these grants remains at 6 percent.

While RETF grants still dominate the portfolio, they have gradually decreased (from 78 percent in FY21 to 71 percent in FY22) as a fraction of the CIWA portfolio when each year is considered as cumulative values. The fractional increase in BETF grant support to clients corresponds to the decrease in RETFs. Including pipeline grants, CIWA has allocated $US10 million to new BETFs in FY22. While preparation and supervision grants remain at about 6 percent, the fraction of Bank-executed grants for Africa-wide technical assistance has been decreasing over the years.

Figure A1.2 shows that CIWA's cumulative portfolio includes a wide diversity of regional institutions; however, the majority (74 percent) of RETF clients and technical assistance partners are regional RBOs. In FY22, a regional economic commission, IGAD, received a new BETF grant in the HoA, Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands; however, this grant will also support specific national

1 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 be influential as well.

Figure A1.3
Allocations by Engagement

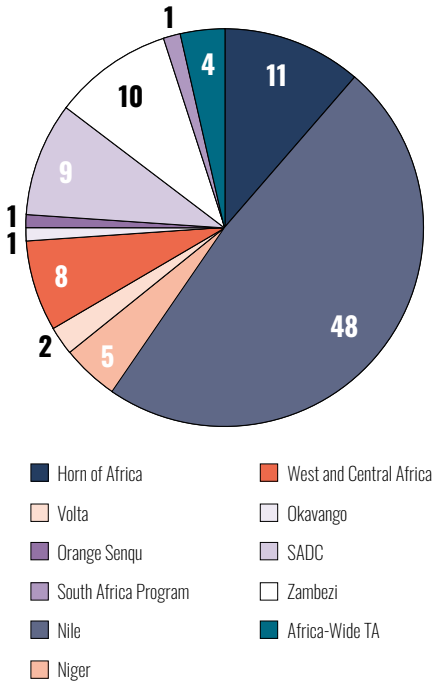
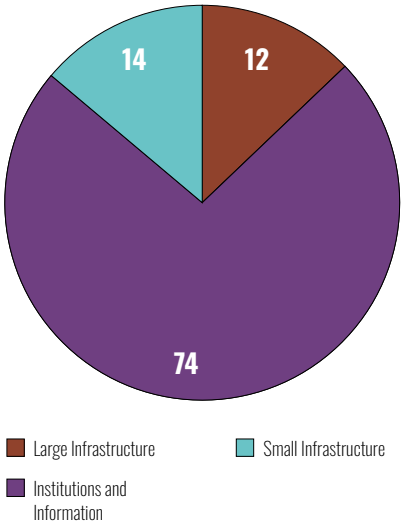


Figure A1.4
Allocations by Primary Outcome



governments. Pipeline grants are attributed to national governments (Sudan and South Sudan) and NGOs (through the West Africa BETF). The cumulative distribution of these categories is broadly consistent from FY21 to FY22.

Figure A1.3 includes all cumulative allocations. CIWA has engagements in all Africa regions: the Nile Basin fraction roughly doubled when US$30 million was allocated in FY20; since then, the Southern Africa allocations increased from 2 percent to 9 percent, HoA allocations rose from 4 percent to 11 percent, and West and Central Africa allocations increased from 4 percent to 7 percent. Other engagements including Zambezi, Volta, and Niger decreased, as no new allocations were made since the close of these projects in the last two years. CIWA is currently actively rebuilding the priority basin engagements as funds become available.

Figure A1.4 plots the cumulative primary outcome of CIWA allocations (including pipeline). CIWA allocations underwent an incremental but distinct trajectory away from large infrastructure (decreased from 29 percent to 13 percent), which was at one time the dominant aspect of the portfolio. This is matched by increases in small and nature-based investments (increased from 10 percent to 14 percent) and institutional and information systems support (increased from 61 percent to 74 percent). A limited number of active and pipeline allocations in FY22 are currently linked to large infrastructure investments.

Annex 2
Results Framework

CIWA reports against its Results Framework targets each year. This provides both quantitative and qualitative reporting on achievements from CIWA-funded activities. While indicator results and targets are broadly cumulative, qualitative narratives in the main report and in Annex 2 explain how specific projects contribute to achieving each of the targets. The indicators for the Program Development Objective (PDO) and the Intermediate Results areas are defined at the program level and calculated as an aggregate of outcomes from projects funded by CIWA. 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 leveraged and (ii) the number of people expected to directly benefit from investments. Table A2.1 lists the potential investment projects influenced by the program, where preparation studies enable estimations of investment values and project beneficiaries. Table A2.2 lists those investment projects influenced by CIWA that have thus far mobilized resources. Investments are tracked cumulatively and updated annually. A brief narrative describes both the cumulative and annual results for each indicator. CIWA had originally defined 10-year targets for indicator results that it aimed to achieve by 2020. Since 2020, CIWA has provided targets for upcoming years based on the known pipeline. Topline targets and aggregate values are presented in Table A2.3. FY23 and subsequent year targets will be defined following the incorporation of Results Framework revisions proposed by CIWA's recently completed midterm review.

Overall, CIWA exceeds its target for the number of beneficiaries from influenced investments but falls short of targets for the leveraged value of investments. The intermediate results also show that CIWA met its target of 45 investments influenced, with several added in the past fiscal year and more to come. When CIWA projects complete the work needed to estimate investment values and beneficiaries, program results will climb. Targets for other intermediate indicators are met.

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 FY22, Sahel Groundwater Initiative. Influenced PRAPS2 project investment.	0.01	Not yet available	Not yet available
Senegalo-Mauritania Aquifer Basin investment	Added FY 22, Sahel Groundwater Initiative	Not yet available	17	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
Khakea-transboundary Aquifer (Botswana and South Africa)	Management plans provided; SADRI project (added FY 21)	Not yet available	Not yet available	Improved biodiversity protection and sustainable groundwater management
Nile Basin Investments (14) from NCORE	Supported NBI through NCORE and the Nile Basin Support Program to facilitate cooperative activities such as improved IWRM 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	Explored costs and benefits of water transfer and incentivize cooperation	0.8	2	Increased water supply, additional revenues

Potential Investment	CIWA's Role	Estimated Current Investment Value (US$ Billions)	Estimated Number of Potential Beneficiaries (Millions)	Anticipated Benefits
Cubango-Okavango Livelihood Enhancement Program	Supported for the Multisector Investment Opportunities Analysis to develop long-term investment and livelihood improvement programs; ongoing support for developing the next phase following 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	Explored potential cooperative legal and institutional arrangements for a future Luapula River Authority; updated in FY21	2.17	8.42	Increased power generation
Total		$US11.7 billion	34.43 million people	

Table A2.2. Mobilized Investments Influenced[3] by CIWA

Mobilized Investment	CIWA's Role	Estimated Current Investment Value (US$ Billions)	Estimated Number of Potential Beneficiaries (Millions)	Anticipated Benefits
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)	Supported development of Action Plan to execute the investments within Climate Resilience project	0.17	0.213	Rural livelihoods, climate resilience
Lake Chad Basin Sustainable Development Program (PRODEBALT)	Provided project study and analytics	0.021 total (0.0094 from World Bank)	0.022	200 rural livelihoods micro-projects, improved WRM
Biosphere and Heritage of Lake Chad (BIOPALT)	Provided 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$6.34 billion	19.46 million people	

2 The number of beneficiaries is based on the projected production of 4,420 GWh/yr mean annual generation and based on average consumption in SSA and domestic demand around 35%.

3 ***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.

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

Indicator 1: US dollar financing mobilized for cooperative management and development of international waters projects supported by CIWA

FY22 Target[4]:	**FY22 Actual**:	
US$14 billion financing for cooperative management and development of potential transboundary waters investments influenced by CIWA/US$7 billion financing for cooperative management and development of mobilized transboundary waters investments influenced by CIWA	**Total**	US$18.05 billion
	Potential	US$11.7 billion
	Mobilized	US$6.34 billion

While there was no change to the mobilized investments influenced by CIWA, of the potential investments, the Merti Aquifer investment has completed the feasibility studies to determine the value (Table A2.1). Studies for other investments influenced by CIWA are still in progress, and, therefore, these values are an underestimate. The value of potential investments is 16 percent lower than the FY22 target. The value of mobilized investments is 10 percent lower than the FY22 target.

Indicator 2: Number of people directly benefiting from improved water resources management and development in target basins through projects supported by CIWA

FY22 Target:	**FY22 Actual**:	
35 million people will directly benefit from improved water resources management and development projects influenced by CIWA	**Total**	53.89 million people
	Potential	34.43 million
	Mobilized	19.46 million

PDO indicator 2 saw no change to the mobilized investments influenced by CIWA but, of the potential investments, the Merti Aquifer investment is projected to benefit roughly 30,000 people. Seventeen million beneficiaries were added in FY22 from the addition of the potential SMAB investment through the Sahel Groundwater Initiative. Studies for other investments influenced by CIWA are still in progress and, therefore, these values are an underestimate. The total value of the number of FY22 investment beneficiaries exceeds the target by 65 percent.

Intermediate Result 1. Regional Cooperation and Integration Strengthened

Indicator 1: Number of relevant transboundary institutions strengthened to improve regional cooperation (non-cumulative)

FY22 Target: 12 transboundary institutions in at least five basins have strengthened regional cooperation and integration

FY22 Actual: 19 relevant regional institutions in roughly 11 basins.

4 Refer to the FY21 CIWA Annual Report for FY22 indicator target justification. https://www.ciwaprogram.org/rcv1/2021-ciwa-annual-report/

CUVECOM, ECOWAS, IGAD, LCBC, LVBC, LIMCOM, NBA, NBI, NBD, OKACOM, ORASECOM, SADC-GMI, SAPP, VBA, ZAMCOM, and ZRA have had projects or activities in operation since CIWA began. In FY22, SADRI added the Pafuri-Sengwe Joint Park Management Committee and GLTFCA Joint Management Board while the Sustainable Groundwater Management in SADC Member States Phase-2 project added the SADC Secretariat.

CUVECOM, GLTFCA Joint Management Board, IGAD, LCBC, LVBC, LIMCOM, NBI, NBD, OKACOM, ORASECOM, Pafuri-Sengwe Joint Park Management Committee, SADC-GMI, SADC Secretariat, and ZAMCOM have projects or activities in operation. These institutions work in the Nile River Basin, Lake Victoria Basin, Lake Chad Basin, and groundwater basins in Southern Africa, West and Central Africa, and the Horn of Africa.

Indicator 2: Number of strategic analyses and knowledge products used to illustrate the evidence base for cooperation, needs, and challenges

FY22 Target: 20 new strategic analyses (SAs) used to illustrate the evidence base for cooperation

FY22 Actual: CIWA-supported activities delivered an additional 30 new SAs. Overall, 110 cumulative SAs have been delivered; the cumulative total of the previous year was 82. These analyses illustrated the evidence base for cooperation by providing scenarios for climate resilience, legal harmonization, groundwater resources, regional flood and drought awareness, power production, and other issues.

From SADRI:

- Four reports detailing key findings of analytical work to fill knowledge gaps in water production, use, and governance in the Pafuri-Sengwe Node of Great Limpopo Transfrontier Conservation Area (GLTFCA). Key deliverables are (i) Situational Analysis Report, (ii) Hydro-census Report, (iii) Wetland Systems and Aquifer Mapping, and (iv) Final Report & Investment Strategy.

- Two reports, a toolkit, and Regional Notes advanced, and 10 cities consulted for case studies and presentations.

From HoA GWI:

- Two national baseline reports on the status of groundwater capacity building (Somalia and South Sudan).

- One assessment of groundwater challenges and opportunities including socioeconomic, aquifer mapping, and water balance and demands for the Merti Aquifer investment.

From Strengthening Resilience in the Horn of Africa:

- Consolidated recommendations paper for HoA governments on desert locust and other transboundary threats

- Rapid Qualitative Assessment to Strengthen Desert Locust Risk Management

- Case study—Ex-post diagnostic on the Desert Locust Response

- Regional groundwater management institutional assessment

- The Role of Institutions in Strengthening Resilience Outcomes in the Horn of Africa

- Rapid Assessment—Drought Risk Management in the Water Sector in Kenya

From Improving Water Resources Management in West and Central Sahel:

- Water Security report for Cote d'Ivoire

- Mapping CSOs in the Sahel

- Strengthening Regional Water Security for Greater Resilience in the G5 Sahel
- Burkina Faso—Water for Development to 2030: Policy Note
- Diagnostic: A Pathway to Water Security in Ghana

From the Sahel Groundwater Initiative:

- Report on constraints and limitations of the use of shallow groundwater for farmer-led irrigation (document to be finalized and shared with SIIP TTLs for implementation of pilots)
- Brief on Groundwater Dependent Ecosystems (document to be finalized)
- Brief on groundwater quality in urban context
- Brief on groundwater and pastoralism (document to be finalized and used for the preparation of PRAPS2 project on regional pastoralism)
- Report on the status of groundwater resource assessment and exploration capacity
- Report on groundwater expertise and related training in the Sahel (document to be finalized and discussed in international conferences)
- Brief on South-South cooperation in groundwater science (document to be finalized and discussed in international conferences)
- Brief on the opportunities for improved groundwater training: result of the Nouakchott roundtable

Intermediate Result 2. Water Resources Management Strengthened

Indicator: Number of relevant transboundary institutions using improved analytical tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination.

FY22 Target: 11 institutions in at least five basins using improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination.

FY22 Actual: Cumulatively, 13 relevant institutions across at least seven distinct basins—ECOWAS, IGAD, GLTFCA Joint Management Board, LCBC, LVBC, NBA, NBI, NBD, OKACOM, Pafuri-Sengwe Joint Park Management Committee, SADC-GMI, SAPP, and ZRA have or had projects in operation that contribute to strengthening climate risk management or investment operation coordination.

In FY22, six regional institutions used improved analytical tools, knowledge products, data, and forecasting, and/or had improved data capacity with CIWA's support—IGAD, GLTFCA Joint Management Board, LVBC, NBI, Pafuri-Sengwe Joint Park Management Committee, and SADC-GMI.

Intermediate Result 3. Water Resources Development Strengthened

Indicator 1: Number of investment opportunities with regional benefits that have been advanced through CIWA support.

FY22 Target: 45 investment opportunities with regional benefits that have been advanced through CIWA support.

FY22 Actual: 44 investment projects are being advanced by projects in operation (42 reported in FY21). LCBC, NBA, NBI, OKACOM, SADC-GMI, SAPP, and ZRA have projects in operation that contribute to advancing investment opportunities. In FY21, the Merti Aquifer and Khakea transboundary aquifer investments were added as new potential investments and in FY22 the Sahel Boreholes and Wells and the Senegalo-Mauritania Aquifer Basin were added (see Table 1

for new potential investments) and the Sahel boreholes and wells and the Sengalo-Mauritania Aquifer Basin..

Indicator 2: Number of relevant transboundary institutions with an improved approach to sustainable investment planning, which includes consideration of poverty, gender, climate change, and other social and environmental considerations, and bankable investment preparation.

FY22 Target: Six relevant transboundary institutions with an improved approach to sustainable investment planning and bankable investment preparation.

FY22 Actual: Cumulatively, 10 regional institutions (IGAD, LCBC, NBA, NBI, Pafuri-Sengwe Joint Park Management Committee, GLTFCA Joint Management Board, SADC Secretariat, SADC-GMI, SAPP, and ZRA) have projects in operation that contribute to improving the approach to sustainable investment planning and bankable investment preparation.

Intermediate Result 4. Stakeholder Engagement and Coordination Strengthened

Indicator 1: Number of basins with improved engagement of civil society, private sector, and academia; percentage of engagements where improved stakeholder engagement explicitly supports the incorporation of gender issues into the design and implementation of water management and development activities.

FY22 Target: Seven basins with improved engagement with civil society, private sector, and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity.

FY22 Actual: Eight basin institutions and one REC (Great Limpopo Transfrontier Conservation Area, Limpopo River, Merti Aquifer, Nile River, Niger River, Volta River, Lake Chad Basin, and Zambezi River) have projects in operation that contribute to strengthening stakeholder engagement and coordination. The Pafuri-Sengwe Joint Park Management Committee, GLTFCA Joint Management Board, NBA, NBI, NBD, SAPP, ZRA, and VBA have explicit communication, stakeholder engagement, gender equality, and/or other strategies that aim to improve gender equality through mainstreaming women's empowerment into all water management, capacity building, training, and development activities.

Indicator 2: Number of basins with increased water resources management and development information in the public domain.

FY22 Target: Six basins with increased information in the public domain.

FY22 Actual: CIWA's engagements in six basins—the Nile, Niger, Lake Chad, Lake Victoria, and Zambezi basins and SADC region—have contributed to increased water resources management, climate data, and water development information in the public domain. In FY22, SADC-GMI and NBI contributed to this result.

Table A2.3 CIWA'S Results Framework and Monitoring as of September 2022[5]

IMPACT: Strengthen sustainable climate-resilient growth in Sub-Saharan Africa

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Program Development Objective: To strengthen cooperative management and development of international waters in Sub-Saharan Africa to aid sustainable climate-resilient growth.							
i) $ investment finance for cooperative management and development of international water resources projects influenced by CIWA **Baseline: $0 billion (value of projects influenced by CIWA)**	**Target**						
	$8 billion (value of potential projects influenced by CIWA)	$9 billion (value of potential projects influenced by CIWA)	$9 billion (value of potential projects influenced by CIWA)	$10 billion (value of potential projects influenced by CIWA)	US$10 billion investment finance for cooperative management and development of international waters projects influenced by CIWA	$12 billion (value of potential projects influenced by CIWA); $6 billion mobilized investments influenced	$14 billion (value of potential projects influenced by CIWA);$7 billion mobilized investments influenced
	Achievement						
	$5.6 billion potential investments influenced; $4.3 billion mobilized investments influenced	$7.9 billion potential investments influenced; $5 billion mobilized investments influenced	$10.6 billion potential investments influenced; $6.4 billion mobilized investments influenced	$11.2 billion potential investments influenced; $6.2 billion mobilized investments influenced	$10.5 billion potential investments influenced; $6.34 billion mobilized investments influenced	$11.7 billion potential investments influenced; $6.34 billion mobilized investments influenced	$11.7 billion potential investments influenced; $6.34 billion mobilized investments influenced

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Program Development Objective: To strengthen cooperative management and development of international waters in Sub-Saharan Africa to aid sustainable climate-resilient growth.							
ii) Number of people who will directly benefit from improved water resources management and development in target basins through projects supported by CIWA **Baseline: 0 people directly benefiting**	**Target**						
	15 million (potential direct beneficiaries of projects influenced by CIWA)	20 million (potential direct beneficiaries of projects influenced by CIWA)	30 million (potential direct beneficiaries of projects influenced by CIWA)	40 million (potential direct beneficiaries of projects influenced by CIWA)	50 million people will directly benefit from improved water resources management and development projects influenced by CIWA	30 million people will directly benefit from improved water resources management and development projects influenced by CIWA	35 million people will directly benefit from improved water resources management and development projects influenced by CIWA
	Achievement						
	37 million potential direct beneficiaries 10.8 million direct beneficiaries of mobilized investments influenced	41.2 million potential direct beneficiaries 11.5 million direct beneficiaries of mobilized investments influenced	4.7 million potential direct beneficiaries 12.15 million direct beneficiaries of mobilized investments influenced	10.8 million potential direct beneficiaries 16.1million direct beneficiaries of mobilized investments influenced	9.5 million beneficiaries in potential investments 19.46 million beneficiaries of mobilized investments influenced	17.4 million beneficiaries in potential investments 19.46 million beneficiaries of mobilized investments influenced	34.4 million beneficiaries in potential investments 19.46 million beneficiaries of mobilized investments influenced

5 FY23 and subsequent year targets will be defined following the incorporation of Results Framework revisions proposed by CIWA's recently completed midterm review.

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Intermediate Result 1. Regional cooperation and integration strengthened							
i) Number of relevant transboundary institutions strengthened to improve regional cooperation **Baseline: 0 institutions strengthened**	**Target**						
	6 relevant institutions with projects or activities in operation	8 relevant institutions with projects or activities in operation	8 relevant institutions with projects or activities in operation	8 relevant institutions with projects or activities in operation	8 transboundary institutions in at least five basins have strengthened regional cooperation and integration	12 transboundary institutions in at least five basins have strengthened regional cooperation and integration	12 transboundary institutions in at least five basins have strengthened regional cooperation and integration
	Achievement						
	8 relevant institutions with projects in operation	8 relevant institutions with projects in operation	9 relevant institutions with projects in operation	11 relevant institutions with projects in operation	11 relevant institutions with projects in operation	12 relevant institutions with projects in operation	19 relevant institutions with projects in operation
ii) Number of strategic analyses and knowledge products used to illustrate the evidence base for cooperation, needs, and challenges **Baseline: 0 strategic analyses conducted by CIWA**	**Target**						
	5 strategic analyses conducted	18 strategic analyses conducted	20 strategic analyses conducted and used	20 strategic analyses conducted and used	20 strategic analyses used to illustrate the evidence base for cooperation	20 new strategic analyses used to illustrate the evidence base for cooperation	20 new strategic analyses used to illustrate the evidence base for cooperation
	Achievement						
	16 strategic analyses conducted	23 strategic analyses conducted	26 strategic analyses conducted and used	36 strategic analyses conducted and used	49 strategic analyses conducted and used	33 new strategic analyses conducted and used	30 new strategic analyses conducted and used

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Intermediate Result 2. Water resources management strengthened							
i) Number of relevant transboundary institutions using improved analytical tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination **Baseline: 0 institutions using tools, data and capacity improved with CIWA support**	**Target**						
	5 relevant institutions with projects in operation that improve water and climate risk management and/or investment operation coordination	7 relevant institutions with projects in operation that improve water and climate risk management and/or investment operation coordination	7 relevant institutions with projects in operation that improve water and climate risk management and/or investment operation coordination	7 relevant institutions with projects in operation that improve water and climate risk management and/or investment operation coordination	7 institutions in at least four basins using improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination	11 institutions in at least five basins using improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination	11 institutions in at least five basins using improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination
	Achievement						
	7 relevant institutions have projects in operation that contribute to strengthening water resources management	8 relevant institutions have projects in operation that contribute to strengthening water resources management	9 relevant institutions have projects in operation that contribute to strengthening water resources management	11 relevant institutions have projects in operation that contribute to strengthening water resources management	10 relevant institutions have projects in operation that use improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination	11 relevant institutions have projects in operation that use improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination	13 relevant institutions have projects in operation that use improved analytic tools, knowledge products, data, forecasting, and/or capacity for improved water and climate risk management or investment operation coordination

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Intermediate Result 3. Water resources development strengthened							
i) Number of investment opportunities with regional benefits that have been advanced through CIWA support **Baseline: 0 investment opportunities with regional benefits advanced by CIWA**	**Target**						
	6 investment opportunities with regional benefits influenced by projects in operation	31 investment opportunities with regional benefits influenced by projects in operation	35 investment opportunities with regional benefits influenced by projects in operation	35 investment opportunities with regional benefits influenced by projects in operation	35 investment opportunities with regional benefits that have been advanced through CIWA support	42 investment opportunities with regional benefits that have been advanced through CIWA support	Target:45 investment opportunities with regional benefits that have been advanced through CIWA support
	Achievement						
	31 investment projects are being advanced by projects in operation	32 investment projects are being advanced by projects in operation	31 investment projects are being advanced by projects in operation	37 investment projects are being advanced by projects in operation	40 investment projects are being advanced by projects in operation	42 investment projects are being advanced by projects in operation	44 investment projects are being advanced by projects in operation
ii) Number of relevant transboundary institutions with an improved approach to sustainable investment planning and bankable investment preparation **Baseline: 0 basins supported by CIWA**	**Target**						
	4 institutions with projects in operation that improve the approach to sustainable investment planning and bankable investment preparation	5 institutions with projects in operation that improve the approach to sustainable investment planning and bankable investment preparation	5 institutions with projects in operation that improve the approach to sustainable investment planning and bankable investment preparation	5 institutions with projects in operation that improve the approach to sustainable investment planning and bankable investment preparation	5 relevant transboundary institutions with an improved approach to sustainable investment planning and bankable investment preparation	6 relevant transboundary institutions with an improved approach to sustainable investment planning and bankable investment preparation	6 relevant transboundary institutions with an improved approach to sustainable investment planning and bankable investment preparation
	Achievement						
	5 institutions have relevant projects in operation	5 institutions and four national governments have relevant projects in operation	5 institutions and four national governments have relevant projects in operation	6 institutions and four national governments have relevant projects in operation	6 institutions with an improved approach to sustainable investment planning and bankable investment preparation	6 institutions with an improved approach to sustainable investment planning and bankable investment preparation	10 institutions with an improved approach to sustainable investment planning and bankable investment preparation

Indicator	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Intermediate Result 4. Stakeholder engagement and coordination strengthened							
i) Number of basins with improved engagement with civil society, private sector, and academia; percentage of engagements where improved stakeholder engagement explicitly supports the incorporation of gender issues into the design and/or implementation of water management and development activities **Baseline: 0 engagements with improved stakeholder engagement and incorporation of gender considerations**	**Target**						
	5 basins with projects or activities in operation; 50 percent of which include organizations representing interests of women and/or the poor	5 basins with projects or activities in operation; 50 percent of which include organizations representing interests of women and/or the poor	5 basins with projects or activities in operation; 50 percent explicitly supports incorporation of gender issues into design and implementation of the activity	5 basins with projects or activities in operation; 50 percent explicitly supports incorporation of gender issues into design and implementation of the activity	5 basins with improved engagement with civil society, private sector, and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity	7 basins with improved engagement with civil society, private sector, and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity	7 basins with improved engagement with civil society, private sector, and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity
	Achievement						
	5 basin institutions have projects in operation that contribute to strengthening stakeholder engagement; 20% of which have an explicit linkage with organizations representing the interests of women	7 basin institutions have projects in operation that contribute to strengthening stakeholder engagement; 50% explicitly supports incorporation of gender issues into design and implementation of the activity	7 basin institutions have projects in operation that contribute to strengthening stakeholder engagement; 50% explicitly supports incorporation of gender issues into design and implementation of the activity	7 basin institutions have projects in operation that contribute to strengthening stakeholder engagement; 50% explicitly supports incorporation of gender issues into design and implementation of the activity	7 basins with improved engagement with civil society, private sector and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity	7 basins with improved engagement with civil society, private sector and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity	8 basins with improved engagement with civil society, private sector and academia; 60 percent explicitly supports incorporation of gender issues into design and implementation of the activity
ii) Number of basins with increased water resources management and development information in the public domain **Baseline: 0 basins**	**Target**						
	3 basins with increased information in the public domain	4 basins with increased information in the public domain	4 basins with increased information in the public domain	5 basins with increased information in the public domain	5 basins with increased information in the public domain	5 basins with increased information in the public domain	5 basins with increased information in the public domain
	Achievement						
	4 basins have increased information in the public domain	4 basins have increased information in the public domain	4 basins have increased information in the public domain	5 basins have increased information in the public domain	5 basins have increased information in the public domain	5 basins have increased information in the public domain	6 basins have increased information in the public domain

Annex 3
Risk Analysis

Risk Description	Mitigation Applied	Notable Status Updates
1. Global risks. The COVID-19 pandemic is a powerful reminder of the large-scale, far-reaching impacts of global risks such as health crises, catastrophic climate events, wars, and trade disputes. These societal and environmental risks can prevent CIWA staff and beneficiaries from carrying out their duties and, under exceptional circumstances, result in the delay or cancellation of funds for the project or technical assistance.	Mitigation measures for global risks are aligned with the broader approach of the World Bank and its Water Global Practice (GP). The Water GP's COVID-19 approach provides a model for fast, flexible response to support country partners to address the pandemic's immediate and secondary impacts. Project teams routinely use technology to continue stakeholder engagement for all aspects of work, including providing technical support, activity and project design, community engagement, RBO governance meetings, and large-scale fora such as the NBDF. This ability to carry out hybrid and virtual meetings and missions will help mitigate risks arising from travel restrictions during future health crises. In some projects, mitigation against global risks also included no-cost extensions to sub-grantees and adjusted workplans that leveraged online interfaces.	COVID-19 continued to affect almost every community in the world in FY22, either directly or through secondary effects on the economy and supply chains. COVID-19 has sometimes had tragic impacts on Bank staff and beneficiaries but, overall, CIWA has largely been affected by operational delays and transition to virtual platforms. Stakeholder dialogues conducted virtually, especially in locations with poor internet connectivity, may be less effective than in-person consultations, but people with whom CIWA works demonstrated flexibility and ability to deliver under challenging circumstances. While travel restrictions have been lifted and face-to-face meetings resumed, CIWA remains vigilant given the highly volatile global situation.
2. Challenging political context. All work on 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 beyond the scope of CIWA or the influence of partners.	CIWA has a diversified portfolio geographically (projects or TAs in the Horn and East, West, Central, and Southern Africa); in type of support (focus on strengthening information, institutions, and investments) and in type of clients (e.g., RBOs, RECs, and Ministries). Portfolio diversification helps mitigate political risks at the program level. CIWA mainstreams political economy analyses in CIWA project planning, which helps 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 FCV situations, it works with many partners in fragile and conflict-affected situations to reduce certain drivers of FCV, especially water insecurity. As stated throughout the report, enhancing water security improves livelihoods, health, and governance and strengthens communities.	Political challenges that CIWA encounters range from short-term bilateral tensions to regional dispersal or even conflict and violence. FCV has been a major barrier to project implementation. Political changes in East Africa have delayed engagements in Sudan but provided an opportunity to improve transboundary water management in South Sudan. Continued insecurity in West Africa limited the scope and ambition of some engagements; however, CIWA remains vigilant and ready to scale up its work should the volatile political situation improve. Overall, CIWA has an excellent track record of providing impactful support for transboundary WRM in FCV-affected situations, principally through high-quality technical and project management expertise provided by World Bank task team leaders. CIWA's HoA projects are good examples.
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 activities. Project and CIWA leadership engage in dialogue to disseminate the benefits of shared development and counter the narrative that water resources management is a zero-sum game. All CIWA projects include a significant dedication of effort to convening dialogue and riparian trust building (e.g., hydro-diplomacy). CIWA works to develop and encourage strong cooperative working relationships including by creating a Basin Support Plan for all basins or regions in which it is engaged long-term. The plan outlines CIWA's vision for support and development in the basin including alignment of CIWA-supported projects with broader objectives of each basin organization, potential synergies, and overlaps or gaps and ways to overcome them. CIWA also works to facilitate learning across basins.	In some basins, not all countries are active in the RBO, and in all basins, some members are less active than others. The most common reasons for weak commitment include lack of awareness 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. 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 incorporation of gender considerations. Stakeholders may not fully engage in the project cycle, resulting in inadequate participation in decision-making, raising the potential of subsequent protest or pushback that could jeopardize or delay projects. Insufficient stakeholder engagement is also a risk to the quality of project outcomes.	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 encompasses the four results areas. During preparation and implementation, CIWA mainstreams gender, poverty, and stakeholder engagement considerations as standard actions.	The diverse cultural and political landscapes in Africa result in a wide variety of stakeholder participation. In several transboundary basins, the amount of stakeholder engagement remains constant or shows a positive trajectory. But in CIWA's work with other RBOs, the stakeholder engagement strategy has not been fully realized. In FY22, CIWA supported project design to elicit greater stakeholder engagement through new activities and began to adapt the successful NBD model to West Africa to enhance stakeholder engagement including that of civil society and marginalized people. CIWA's recent Gender Equality and Social Inclusion Lessons Learned illustrates several examples, and its GESI Framework is elevating efforts for transformative change by promoting women's engagement and participation in decision-making. New projects in SADC, the Sahel, and the Nile Basin have included major efforts to improve the explicit incorporation of GESI into activities that originate from client demand. Additionally, the preparatory studies for all investments supported by CIWA follow World Bank procedures and include environment and social impact assessment and management plans, including stakeholder engagement activities and measures that take social issues, including gender, into account.

Risk Description	Mitigation Applied	Notable Status Updates
5. Inadequate implementation capacity and readiness can cause short- to medium-term delays. Some basin organizations may have insufficient capacity or experience to effectively engage in basin management and development, causing delays in project implementation, which could affect the overall pace of progress.	During project preparation, Bank experts assess implementation capacity and readiness of the recipient organization and adjust the scope and complexity of CIWA's engagement accordingly. The Bank provides support for financial management, procurement, and project management. Project approval may hinge on project-supported capacity enhancement. 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 institutional support and capacity-building components. CIWA can also deploy Bank-executed programming as an initial financing modality to strengthen recipient implementation capacity and readiness.	Many CIWA projects are designed to create or strengthen implementation capacity. Despite mitigation measures, this has significant risks and, as detailed in CIWA's FY19 Annual Report, the risk manifested in multiple projects that closed in FY20 (Volta, Zambezi, and Niger). Much of CIWA's new work in the HoA includes enhancing implementation capacity to avoid delays. Readiness is often an issue that manifests on both sides—client and Bank project teams. In FY20 and FY21, CIWA supported new project design with assistance from experts in cross-cutting themes including gender, FCV, biodiversity, and resilience. The added support from CIWA contributed to stronger project starts.
6. Unexpected changes in donor contributions and priorities. Insufficient or unreliable financing can cause backsliding of gains in cooperation, investment planning, and institutional capacity. Participating donors may be slow to commit resources relative to the demand for engagement by recipient basin organizations.	CIWA continues to fundraise, but demand from current and potential clients and partners will continue to greatly exceed current funding expectations given the breadth and depth of need across Africa. CIWA carefully manages its pipeline of projects 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, biodiversity, climate resilience, and GESI, which remain key areas of focus for CIWA's donors. The economic impact of COVID-19, the war in Ukraine, and inflation may affect CIWA's fundraising efforts. The current level of funding covers CIWA's pipeline, but increasing CIWA activities, particularly in FCV contexts, requires more resources to sustain high-quality program implementation and supervision. CIWA regularly assesses its financial position and adjusts 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 ensuring delivery of member state financial commitments to their RBOs and by leveraging co-financing and partner contributions.
7. Sustainability of the results.	CIWA is demand-driven and responds to the requests of clients and 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 client organizations and country governments and its own political economy analysis. Sustainability measures are included in project design. For example, capacity building for resource mobilization accompanies preparatory project 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 (for demand for its engagement) 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 project implementation.	While sustainability of results remains a key area of risk, the program is further enhancing its approach to ensure lasting results. A majority of CIWA's support is delivered through RETF activities, which strongly favor recipient ownership and sustainability.
8. Fraud or funds not being used appropriately.	CIWA projects use World Bank procedures to ensure that funds are used appropriately and that anti-corruption guidelines are followed. In circumstances where there are not enough guarantees that funds will be used appropriately, CIWA finances Bank-executed activities to ensure that Bank systems are used for procurement and financial management.	While no issues were reported, this risk remains relevant and CIWA continues to follow World Bank guidance and best practice in relation to appropriate utilization of resources and financial reporting.

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, 2022.

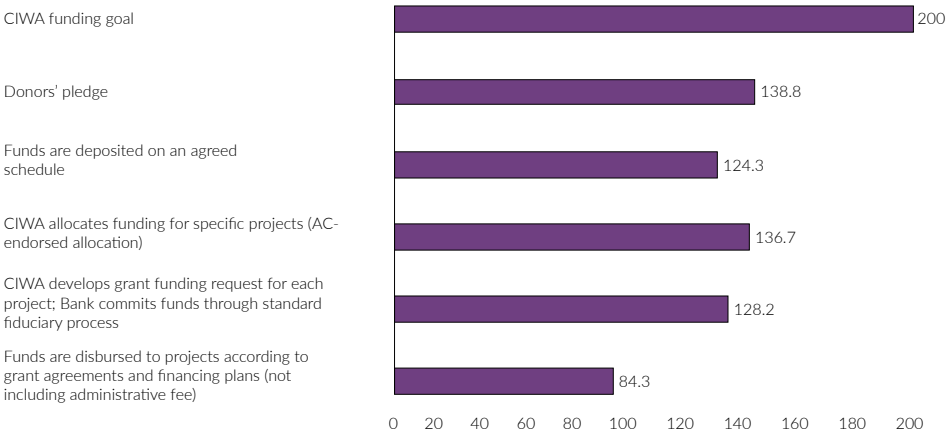
The CIWA program is supported by a Multi-Donor Trust Fund (MDTF) and administered by the World Bank on behalf of contributing development partners. CIWA's ongoing donors include Denmark, the European Commission, the Netherlands, Norway, Sweden, and the United Kingdom. The MDTF is known as a "Programmatic 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 those executed by the World Bank.

Funding Process and Disbursement

Consistent with standard World Bank Trust Fund practices, donors pledge funding for CIWA (total pledge was US$138.8 million) and funds are deposited on an agreed schedule (deposits thus far totaled US$124.3 million). Under CIWA's strategic planning efforts, it allocates funding to specific projects and technical assistance (current allocations total US$136.7 million) around the broad themes and areas endorsed by the CIWA Advisory Committee (AC). Additional details on pledges, deposits, allocations, commitments, and disbursements are presented in this section.

After the funds are allocated to specific activities, CIWA works with clients to develop Grant Funding Requests (GFRs) 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$128.2 million). Funds are disbursed according to grant agreements and financing plans (disbursements reached US$84.3 million). Figure A4.1 presents the overall status. Most of CIWA funds (98 percent) are allocated to existing projects and technical assistance. Any significant future activities will depend on the availability of new financing.

Figure A4.1. Overview of Donor Pledges, Deposits, Allocation, and Disbursement



Donor Pledges, Deposits, and Allocations

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

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	41.052.581	14.500.000
Sweden (SIDA)	SEK	434.000.000	51.986.655	51.986.655	-
United Kingdom (FCDO)	GBP	14.500.000	21.592.060	21.592.060	-
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	-
Total			138.812.346	124.312.346	14.500.000

As of June 30, 2022, US$136.7 million has been indicatively allocated to CIWA projects and activities.[6] Most of CIWA funding has been assigned to activities under preparation or implementation. Unallocated funds amount to US$2.8 million, and current demand for support far exceeds current resources. Given the centrality of shared waters to Africa's economic, social, and environmental progress, we anticipate that this demand will continue to grow (see Table A4.2).

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

Allocation of Funding	USD
Pledges in signed Administration Agreements	138.812.346
Plus current investment interest income	4.240.820
Less administrative cost recovery fee on TF071597	-1.460.856
Less administrative cost recovery fee on RETF on TF072642	-1.950.000
Less estimated administrative cost recovery fee on RETF pipelines (Sudan)	-100.000
Funds available for projects/activities	139.542.311
Less allocation to projects/activities (agreed with AC)	136.728.701
Unallocated funds	2.813.610
% Allocated	98,0%

Of the US$136.7 million indicative allocation, 93 percent (US$126.8 million) is allocated to CIWA's sub-programs such as the Horn of Africa, Nile Basin, West and Central Africa, Southern Africa, and Africa-wide analytical work (see Table A4.5 for breakdown). In some instances, CIWA has allocated funding for follow-up effort on current projects, based on project and organizational performance and riparian states' commitment. By the end of FY22, the program committed a cumulative US$128.2 million in grants, of which projects and activities disbursed US$84.3 million (66 percent). 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.

6 These allocations included actual grants and notional allocations endorsed by the CIWA Advisory Committee as of June 30, 2022, which may be subject to further changes after July 1, 2022.

Table A4.3. Allocated, Committed, Disbursed and Pipeline Amounts (USD)[7]

"Basin/ Sub-program"		Allocation Agreed with AC	Grant Approved Amount	Disbursement	Commitment Balance	Pipeline
HORN OF AFRICA		14.400.000	10.950.000	6.143.528	4.806.472	3.450.000
NILE		61.159.903	61.159.903	37.251.241	23.908.662	
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/ Sahel	4.806.294	4.806.294	3.173.555	1.632.739	
	Citizens Engagement (NBD model for W/Cen Afr)	2.000.000				2.000.000
	Senegalo-Mauritanian Aquifer Basin	1.500.000				1.500.000
	West and Central Africa Total	18.240.169	14.740.169	13.107.431	1.632.738	3.500.000
SOUTHERN AFRICA	Okavango	995.568	995.568	995.568		
	Orange-Senqu	1.695.822	1.695.822	1.695.822		
	SADC	11.750.000	11.750.000	2.788.425	8.961.575	
	Zambezi	12.316.497	12.316.497	12.316.497		
	So. Africa Programmatic Approach	1.759.882	1.759.882	1.150.897	608.985	
	Southern Africa Total	28.517.769	28.517.769	18.947.209	9.570.560	
CATALYTIC AFRICA WIDE TA		4.521.252	4.521.252	3.438.569	1.082.683	
ENHANCED SUPERVISION		1.560.866				1.560.866
PROGRAM MANAGEMENT		8.328.741	8.328.741	5.411.936	2.916.805	-
GRAND TOTAL		136.728.701	128.217.833	84.299.914	43.917.921	8.510.866

Income, Disbursement, and Funding Balance

By the end of FY22, CIWA received US$128.6 million, including US$124.3 million in donor payments and US$4.2 million in investment income from the CIWA account. Cumulative disbursements total US$87.7 million, including US$84.3 million in projects and US$3.4 million in administrative fees. The pace of disbursement accelerated in FY22 to nearly triple the amount in the previous year. The balance of grant commitments totals US$43.9 million.

Table A4.4 presents the balance available in the CIWA account, which is approximately US$40.8 million, or a balance of US$ negative 3.1 million when the balance of current commitments of US$43.9 million is considered. CIWA expects to commit an additional US$8.5 million in the latter half of 2022 or early 2023.

7 '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 a GFR has been approved by the World Bank trust fund management, 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 a request for specific investments is cleared by the Bank. 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 on-going, subject to change including notional allocations after June 30, 2022.

Table A4.4: Fund Balance[8]

Fund Income vs. Disbursement & Commitment Balance	USD
Total Deposits	124.312.346
Plus current investment interest income	4.240.820
Total Income	128.553.167
Less disbursement (CIWA projects/activities)	-84.299.914
Less administrative cost recovery fee	-3.410.856
Balance	40.842.397
Less commitment balance in approved grants	-43.917.921
Total Balance (when including commitment balance in approved grants)	-3.075.524
Less 2022/2023 pipelines: Sudan and South Sudan (3.5m); Citizens Engagement on West/ Central Africa (2m); Senegalo-Mauritanian Aquifer Basin (1.5m) and Project Supervsion (1.5m), etc.	-8.510.866
Less estimated administrative cost recovery fee on RETF pipelines (Sudan)	-100.000
Expected Balance (when including 2022/2023 commitments/pipelines)	-11.686.390

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

The CIWA Administration Agreement suggests that PMU costs should not exceed 6 percent of total donor contributions. Since the start of the program in 2011, CIWA has spent approximately 3.9 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 established at program inception.

Future Funding Requirements and Resource Mobilization

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

As mentioned, demand for the CIWA program has exceeded the program's current resources, and CIWA has allocated 98 percent of its available funding. In response to the substantial demand from its clients and to expand its impact, 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.

8 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$)[9]

Basin/Sub-program		Executed by	Name	TF#	Grant Closing Date	Project #	Allocation (USD)	Disbursement (USD)
HORN OF AFRICA		IGAD	Groundwater Information and Investments in the Horn of Africa	TF0B0514	11/30/21	P163554	2.700.000	2.498.000
		WB	Groundwater Information and Investments in the Horn of Africa	TF0A8681	11/30/21	P163554	694.313	678.409
		WB	Somalia - Support to Transboundary Water Resources Management (including Juba and Shebelle River)	TF0A7944	LCLS	P167749	1.155.687	1.154.769
		WB	Strengthening Resilience in the Horn of Africa	TF0B2448	05/31/22	P172358	1.400.000	1.397.945
		WB	Untapping Resilience: Groundwater Management and Learning in the Horn of Africa's Borderlands	TF0B8456	01/31/26	P178786	5.000.000	414.405
		WB	South Sudan (New BETF project)	tbd			1.000.000	
		tbd	Sudan Flood Management (New RETF project)	tbd			2.000.000	
		WB	Enhanced Supervision (Sudan RETF)	tbd			450.000	
			HORN OF AFRICA TOTAL				**14.400.000**	**6.143.528**
NILE		NBI (incl NEL, EN)	Nile Cooperation for Results (NCORE) + AF 1 and 2	TF013767	LCLS	P130694	22.854.134	22.854.134
		NBD	Engaging Civil Society for Social and Climate Resilience in the Nile Basin (NBD) + AF 1	TF015834	12/30/21	P132448	4.500.000	4.480.479
		WB	Nile Basin Support Program	TF0A2051	LCLS	P156765	1.657.727	1.657.727
		WB	Enhanced Supervision (NBD)	TF014064	12/31/21	P132448	600.000	595.454
		WB	Enhanced Supervision (NCORE)	TF015335/ TF0A0526	LCLS	P130694	1.098.042	1.098.042
		NBI (incl NEL, EN)	Nile Cooperation for Climate Resilence	TF0B4716	11/30/25	P172848	30.000.000	6.295.718
		WB	Enhanced Supervision (Nile Cooperation for Climate Resilence)	TF0B5495	12/01/25	P172848	450.000	269.687
			NILE TOTAL				**61.159.903**	**37.251.241**
WEST and CENTRAL AFRICA	Niger	NBA	Niger River Basin Management Project	TF018539	LCLS	P149714	4.198.203	4.198.203
		WB	Niger Basin Support Program	TF018616	LCLS	P148889	1.162.140	1.162.140
		WB	Enhanced Supervision (NBA)	TF016609	LCLS	P149714	543.429	543.429
			Niger subtotal				**5.903.772**	**5.903.772**
	Volta	VBA	Volta River Basin Strategic Action Program Implementation Project	TF016611	LCLS	P147202/ P149969	1.979.795	1.979.795
		WB	Volta Basin Support Program	TF015556	LCLS	P132564	499.879	499.879
		WB	Enhanced Supervision (Volta)	TF015557	LCLS	P147202/ P149969	484.563	484.563
			Volta subtotal				**2.964.237**	**2.964.237**
	West and Central Africa	WB	P2.2: WRM in West Africa (ECOWAS)	TF016610	LCLS	P150210	1.065.867	1.065.867
		WB	P2.3: Lake Chad Policy Dialogue (1)	TF0A1005/ TF17506/ TF015878/	LCLS	P144568/ P149275/ P124018	861.694	861.695
		WB	West/Central Sahel-Piloting Innovation Tools for WRM	TF0B2227	12/31/22	P173152	444.600	363.981
		WB	West/Central Sahel-Knowledge Support for Resilience Planning and Investments	TF0B2228	12/31/22	P173152	1.500.000	1.044.122
		WB	Lake Chad (II, BETF)	TF0B5943	06/30/23	P176378	1.000.000	187.219
		WB	Sahel Ground Water Initiative	TF0B3793	06/30/22	P175105	1.000.000	716.538
		WB	Citizens Engagement for RETF (Bringing NBD Model to West/Central Africa, New BETF)	tbd			2.000.000	
		WB	Senegalo-Mauritanian Aquifer Basin (New BETF)*	tbd			1.500.000	
			West and Central Africa subtotal				**9.372.161**	**4.239.422**
			WEST AND CENTRAL AFRICA TOTAL				**18.240.169**	**13.107.431**

9 Pipelines endorsed by AC in blue; * subject to confirmation at the upcoming AC Meeting; and LCLS refers to 'grant legally closed.'

Basin/Sub-program		Executed by	Name	TF#	Grant Closing Date	Project #	Allocation (USD)	Disbursement (USD)
SOUTHERN AFRICA	Okavango	WB	P2.1: Okavango Multi-Sector Investment Opportunities Analysis	TA0A0105	LCLS	P150383	995.568	995.568
		Okavango subtotal					**995.568**	**995.568**
	Orange-Senqu	Botswana	Lesotho Highlands - Botswana Water Transfer	TF016233	LCLS	P144228	1.527.322	1.527.322
		WB	Enhanced Supervision (LH-B)	TF016038	LCLS	P144228	168.500	168.500
		Orange-Senqu subtotal					**1.695.822**	**1.695.822**
	SADC	SADC	Sustainable Groundwater Management in SADC Member States	TF016748	12/31/20	P127086	2.000.000	2.000.000
SOUTHERN AFRICA	SADC	WB	Enhanced preparation (SADC)	TF015336	12/31/20	P127086	300.000	299.996
		SADC	Sustainable Groundwater Management II	TF0B5735	11/30/25	"	P175355	9.000.000
		WB	Enhanced preparation and supervision	TF0B5830	11/30/25	"	P175355	450.000
		SADC subtotal					**11.750.000**	**2.788.425**
	Zambezi	ZAMCOM	Zambezi River Basin Management Project (ZAMCOM)	TF018921	LCLS	P143546	4.000.000	4.000.000
		ZRA	Zambezi River Basin Development Project (ZRA)	TF016238	LCLS	P133380	5.786.277	5.786.277
		WB	Zambezi River Basin Support Program	TF011577	LCLS	P129683	1.001.192	1.001.192
		WB	Enhanced Supervision (ZAMCOM)	TF014926	LCLS	P143546	648.749	648.749
		WB	Enhanced Supervision (ZRA)	TF014927	LCLS	P133380	880.279	880.279
		Zambezi subtotal					**12.316.497**	**12.316.497**
	Southern Africa Programmatic Approach	WB	Southern Africa Drought Resilience Umbrella Program	TF0B3679	09/30/22	P173077	300.000	299.188
		WB	Scoping and Preparation Work for Resilience in So. Afr.	TF0B2156	LCLS	P173077	59.882	59.882
		WB	Southern Africa Drought Resilience Energy System	TF0B3730	09/30/22	P174870	400.000	117.270
		WB	Southern Africa Drought Resilience Cities	TF0B3706	09/30/22	P174856	400.000	288.001
		WB	Southern Africa Drought Resilience - Livelihood and Food Security	TF0B3669	09/30/22	P174871	400.000	386.556
		WB	Prioritizing Resilient Transboundary Infrastructure in Southern Africa	TF0b8090	05/31/23	P177477	200.000	0
		SOUTHERN AFRICA TOTAL					**28.517.769**	**18.947.209**
CATALYTIC	Opportunistic	WB	P2.4: Lake Tanganyika Conference	TF0B6056	LCLS	P149048	0	0
		WB	P2.5: Luapula River Basin Development	TF0A5600	LCLS	P162810	203.877	203.877
	Africa-wide	WB	P1: Strategic Overview of International Waters in Africa	TF011569	LCLS	P129776	280.358	280.358
		WB	P1: Economic Rationale for Cooperation	TF011626	LCLS	P129777	315.659	315.659
		WB	P1: Political Economy Analysis	TF016821	LCLS	P150041	517.035	517.035
		WB	P3: Facilitating Africa Wide Hydromet Services	TF0A0106	LCLS	P151921	97.136	97.136
		WB	P3: Cooperation for Climate Resilience	TF0A1627	LCLS	P156599	174.579	174.579
		WB	P4: Capacity Building and Knowledge Exchange	TF0A0107	LCLS	P149931	260.564	260.564
		WB	P4: Improving Public Access to Basin Data	TF016747	LCLS	P149868	295.077	295.077
		WB	Enhancing Resilience of Water Resources Management	TF0B1074	LCLS	P171931	55.465	55.465
		WB	Great Lakes Water Quality	TF0B1226	LCLS	P172554	296.502	296.502
		WB	Digital Data Initiative	TF0B5148	05/31/23	P176348	1.000.000	223.908
		WB	Biodiversity Conservation and Transboundary Water Cooperation	TF0B6640	12/31/21	P149048	25.000	15.978
		WB	Pipelines (tbd)	tbd		tbd		
		WB	Peer Review/Management	TF019125	06/30/23	PA149048	1.000.000	702.431
		CATALYTIC TOTAL					**4.521.252**	**3.438.569**
			Sub-total (projects)				126.839.094	78.887.978
ENHANCED SUPERVISION		WB	Pipelines (tbd)	tbd		tbd	1.560.866	
		WB	Program Management and Administration	TF011372/ 11377 TF0B1847/ TF0B1846	01/31/2026	P122345	8.328.741	5.411.936
			TOTAL				**136.728.701**	**84.299.914**

Annex 5
Value for Money

Summary Value for Money Statement

The CIWA program design and delivery prominently incorporate Value for Money principles.[10] CIWA operates within 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 the program level objectives and has exceeded its intermediate results targets, thereby achieving a good return on development partners' financial support.

CIWA continues to be positioned within the World Bank to achieve economy of scale and leverage support 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 Bank staffers' strong global technical expertise across a wide range of relevant sectors such as water, agriculture, energy, environment, governance, and poverty, and cross-cutting development challenges including climate change, fragility and conflict, gender, and public-private partnerships;
- Drawing on the Bank's longstanding experience in cooperation over international waters through other programs such as the Nile Basin Trust Fund, South Asia Water Initiative, and Water Partnership Program;
- Tapping into the Bank's deep partnerships with global collaborators to leverage regional experience and networks;
- Leveraging additional sources of financing, such as from GEF for CIWA-supported projects;
- Leveraging multiple sources of follow-up financing such as IDA, AfDB, and other investors for projects where CIWA supports bankable project preparation; and
- Leveraging fund (e.g., co-financing) for new grants from the Korean Green Growth Fund and GFDRR, totaling approximately US$1 million.

10 CIWA evaluates its value for money using the development agency previously known as DFID's 3Es Framework, defined in DFID's Approach to Value for Money, July 2011, as: Economy - Are we or our agents buying inputs of the appropriate quality at the right price? Inputs are things such as staff, consultants, raw materials, and capital that are used to produce outputs. Efficiency - How well do we or our agents convert inputs into outputs? Outputs are results delivered by us or our agents. We or our agents exercise significant control over the quality and quantity of outputs. Effectiveness – How well are the outputs from an intervention achieving the desired outcome? Note that in contrast to outputs, we or our agents do not exercise direct control over outcomes.

Which Measures Can Be Used to Assess Value for Money for CIWA?

The following measures can be used to assess CIWA's economy, efficiency, and effectiveness, which together characterize the program's value for money:

Economy

1. Program Management and Administration. Estimated at 6 percent of contributions to the fund (but only charged against actual costs), this fee covers all management and administration responsibilities of the program management team including developing and implementing program-specific 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 resource planning; budget planning and management; program monitoring and evaluation; program communications and outreach; donor visibility, coordination and meetings; and results reporting.

2. 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 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. 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 6 percent amount noted in the Administration Agreement. 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. CIWA's enhanced supervision costs are lower than standard IDA operation costs.

World Bank Africa Region data show that the average cost to prepare an investment project is approximately US$350,000 and supervision of a project is approximately US$150,000. Costs for preparation and supervision of regional projects under IDA are normally expected to be higher due to additional complexity, yet CIWA achieves lower costs by basing project budgets on a careful assessment of estimated costs and through effective procurement processes, cost-sharing and greater travel efficiencies, using video connection for meetings where possible, convening different CIWA meetings back-to-back where 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.

3. Leverage Ratio. CIWA improves its economy by leveraging additional sources of funding, 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:

$$\text{Leverage ratio} = \frac{\sum \text{Funds leveraged from additional sources for CIWA projects}}{\sum \text{CIWA contributions to co-financed projects}}$$

Table A5.1 shows CIWA's cumulative leverage ratio at the close of FY22, which illustrates CIWA's economy in relation to its contributions.

Table A5.1. Cumulative Co-finance Contributions through FY22

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
Nile Cooperation for Climate Resilience	30	GFDRR	0.1
		GFDRR	0.3
		Korean Green Growth TF	0.65
Nile Cooperation for Results	23.5	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
CIWA Contribution	68	Leveraged Funds	37.5

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 NCORE in partnership with NBTF, and three projects—SADC Groundwater Management phase 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 and added funds from GFDRR and the Korean Green Growth Fund.

Leverage ratio = 1.81, e.g., on average, for every US$1 that CIWA contributed to co-financed projects, CIWA leveraged additional funding sources to provide input of US$1.81 to its projects. This is a small change from FY21's ratio of 1.83.

While it is not included in the economy analysis, it should be noted that the HoA Groundwater Initiative directly led to a US$385 million IDA-funded World Bank project, Groundwater for Resilience, and that CIWA's new BETF, Untapping Resilience, is directly supporting the large project. Had CIWA contributed the money directly to Groundwater for Resilience, then this methodology would allow us to include the US$385 million as a partner contribution, in table A5.1, yielding a total of US$422 million in leveraged funds instead of US$37.5 million.

Effectiveness

CIWA measures its effectiveness, e.g., its ability to achieve its intended program development outcomes relative to its targets, through the program indicators. As in previous years, CIWA partially met its targets in FY22. Overall, CIWA met or exceeded all FY22 indicator targets with the single exception of PDO indicator 1, which measures the value of influenced investments.

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. A vast number 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. Results from CIWA's 2022 mid-term evaluation report will be used to inform a future revision to how CIWA measures its effectiveness.

Currently, total investment value influenced by CIWA (mobilized and potential) is US$18.04 billion. This comprises US$11.7 billion in potential investments influenced and US$6.34 billion in mobilized investments influenced, compared to the FY22 targets of US$14 billion and US$7 billion, respectively. Therefore, the achievement is roughly 85 percent of the target. However, the estimated number of direct beneficiaries of influenced investments is 50 percent greater than its aggregate target of 35 million people (e.g., approximately 54 million people). Similarly, CIWA exceeded all its intermediate result targets.

Efficiency

CIWA estimates the efficiency of the program by calculating the ratio of the two PDO-level outcomes to the value of the overall program:

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

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

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.[11]

The investment influenced ratio = 131, e.g., on average, for every US$1 contributed by CIWA, the program influenced US$131 of investments that led to cooperative, sustainable, climate-resilient growth. The ratio of direct beneficiaries = 0.39 beneficiaries/US$ committed by CIWA, e.g., for approximately every US$3 committed by CIWA, one person will benefit, or has directly benefited, from potential or mobilized investments in transboundary water resources. Both the beneficiary and investment ratio are similar but slightly improved relative to last year when the investment ratio was 126 and the beneficiary ratio was 0.27 (simply, larger is better). It will be interesting to follow these values as CIWA continues to focus on fewer large infrastructure investments in coming years.

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 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, the Bank is responsible for all Bank-executed CIWA activities and carries out procurement of goods, employment, and supervision of consultants in accordance with applicable policies and procedures. Among other things, the guidelines provide specific instructions for use of Bank documents (e.g., standard bidding documents, requests for proposals, and contract forms); conflict of interest; advance contracting; co-financing; mis-procurement; and fraud and corruption.

Availability of Finance

At the end of FY22, CIWA had raised US$138.8 million from Denmark, the European Commission, the Netherlands, Norway, Sweden, and the United Kingdom. Strong client demand for CIWA support, combined with 98 percent of the program's current funding envelope being provisionally allocated, means that CIWA must continue raising funds to expand its impact and ensure sustainability of successes.

11 Note that the accounting for these two indicators has changed from the past years, the difference being that this year the denominator considers the value of 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.

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 may be followed by setbacks and affect the development indicators from time to time. However, the evidence strongly suggests that the CIWA program still represents value for money. Specifically, CIWA partially met its intended PDO targets; numerous CIWA-influenced investments successfully mobilized financing; and CIWA performed well on all three economy and effectiveness metrics in FY22. The CIWA program therefore demonstrated its commitment to the principles of economy, efficiency, and effectiveness and strongly represents value for money.

© Boezie/ Getty Images - African rice farmer working on her rice field in Mozambique

CIWA

The Cooperation in International Waters in Africa (CIWA) was established in 2011 and represents a partnership between the World Bank, its African partners and the governments of Denmark, the European Commission, Norway, Sweden, the Netherlands, and the United Kingdom. CIWA supports riparian governments in Sub-Saharan Africa to unlock the potential for sustainable and inclusive growth, climate resilience, and poverty reduction by addressing constraints to cooperative management and development of international waters.

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