

Global Water
Partnership

YEARS
25

Full Story

Mobilising Change: 10 years of climate resilient water investments



About the Global Water Partnership

The Global Water Partnership (GWP) vision is for a water secure world.

Our mission is to advance governance and management of water resources for sustainable and equitable development.

The Global Water Partnership (GWP) is a multi-stakeholder action network and intergovernmental organisation dedicated to working with countries towards the equitable, sustainable, and efficient management of water resources. We comprise 3,000+ partner organisations in over 180 countries. Our Network of 65+ Country Water Partnerships and 13 Regional Water Partnerships convenes and brokers coordinated action by government and non-government actors. A long-time advocate for integrated water resources management, we draw on implementation experience at the local level and link it across our Network and to global development agendas.

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Cover image: Livestock grazing on an island in the River Niger, as seen off a bridge in Niger's capital, Niamey, 2005

Credit: ILRI / Stevie Mann

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Foreword

In January 2020, the Global Water Partnership (GWP) embarked on its new ambitious and bold strategy towards 2025. 'Mobilising for a Water Secure World' aims to influence more than €10 billion in global water-related investments over the next five years and significantly advance the water-related Sustainable Development Goals (SDGs) for more than 4 billion people living in 60 countries and 20 transboundary basins across four continents: Asia, Africa, Europe, and Latin America and the Caribbean. In Africa, a region most vulnerable to climate change yet contributing less than 3 percent of global greenhouse gas emissions GWP and partners will, through the Continental Africa Water Investment Programme, influence over €30 billion in gender transformative water and climate investments to narrow the water investment gap by 2030. Current actual investments are estimated at €10 billion to €19 billion of the €64 billion required to meet the socio-economic needs of the continent.

The foundation of these bold targets has been laid by more than two decades of on-the-ground work by GWP and its partners around the world, influencing change in water governance systems to adopt approaches to integrated water management that are sustainable and inclusive. GWP and its partners have influenced water investments of more than €1.2 billion in the last decade alone.

In the early 2000s, GWP began a journey to promote water as a key part of sustainable regional and national development and to contribute to climate change adaptation for economic growth and human security. Building on the globally accepted principles of integrated water resources management, and its knowledge of how to bring about change in water governance, the Partnership has assisted governments around the world to improve national water security and meet pressing social and economic needs. Significant impact and changes have been achieved through a portfolio of climate resilience programmes that are increasing understanding of the vital connections between water and climate change, and of the investments needed to build resilience.

The Orange River Gorge below the waterfall in the Augrabies Falls National Park in the Northern Cape of South Africa, 2017
Credit: David Steele

Mobilising for a Water Secure World 2025 Targets



300+ water-related policies, laws, institutional arrangements and related management instruments incorporating IWRM principles adopted at regional, national, and local levels.
80+ approved investment plans and budget commitments associated with policies, plans, and strategies that integrate water secure development.



30+ countries access climate finance to implement water-informed National Adaptation Plans and integrated flood and drought management policies and measures.
Investment of €1.5 billion+ directly supported in climate-resilient water management and infrastructure founded on robust, inclusive, and effective water governance systems.



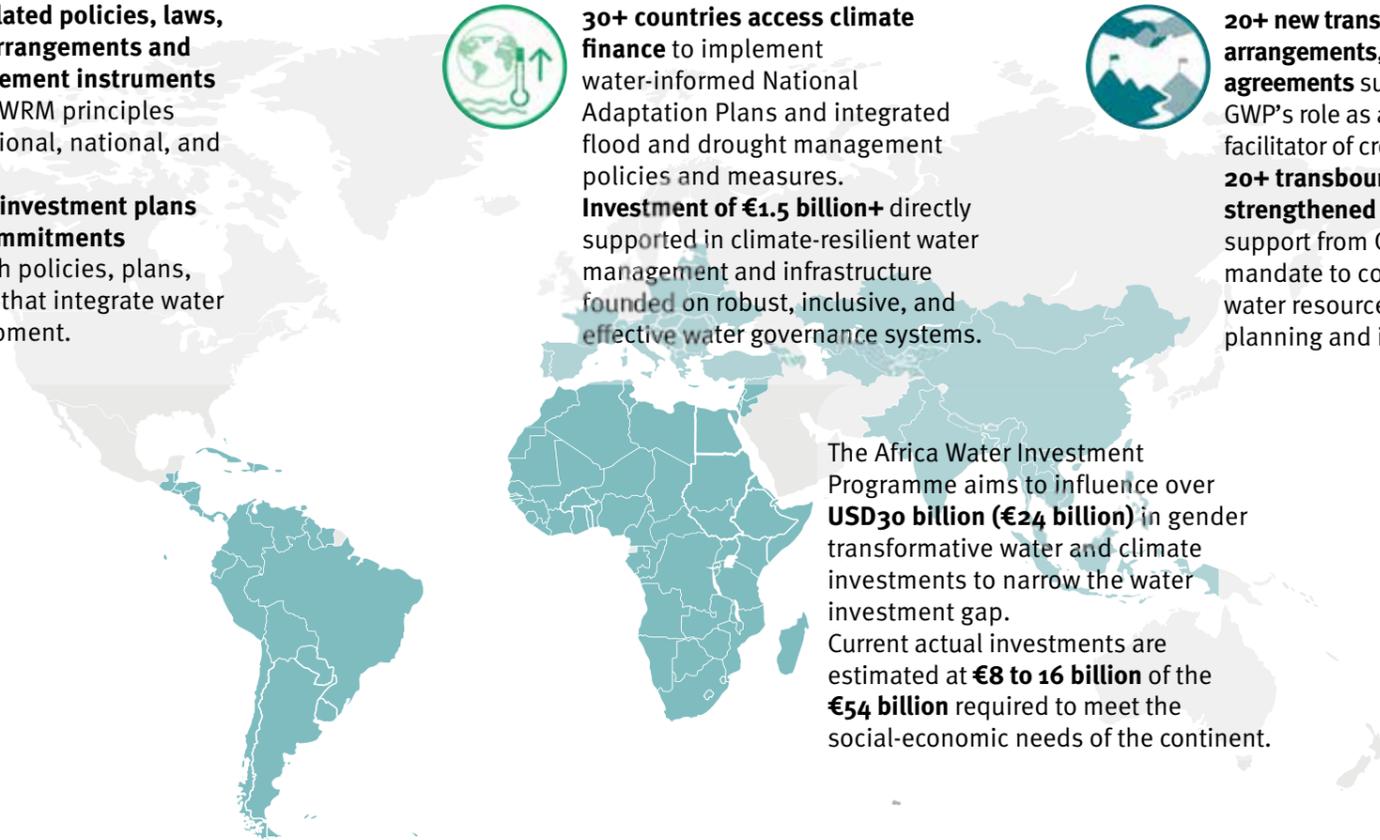
20+ new transboundary arrangements, commitments, and agreements supported through GWP's role as a neutral convener and facilitator of cross-border dialogue.
20+ transboundary institutions strengthened or established with support from GWP teams, with a mandate to coordinate cross-border water resources management, planning and investment.

GWP will contribute to water secure, sustainable, inclusive, and resilient development. We will influence **€10 billion+** in water-related investments over the next five years and significantly advance water-related SDGs for more than four billion people living in 60 countries and 20 transboundary basins across four continents in Asia, Africa, Europe, Latin America and Caribbean.

The scope of GWP's water and climate resilience programme is ambitious, involving high level assessment, policy, and planning at regional and national levels, aimed at supporting policy-makers to integrate water management as an essential element in efforts to further economic development and climate resilience. The support provided includes practical, on-the-ground activities to test solutions to water scarcity, inefficient use, and environmental degradation. Interventions have increased understanding and knowledge exchange and sharing across national boundaries to address similar problems. Through targeted interventions, people interacting with water at different points in its value chain – engineers, farmers, economic policy planners, and government ministers – have begun to look at water in a different way, and to implement what they have learned in their own work. This has helped them to prepare to meet the challenges of climate change. For example, they are learning how to become more resilient to the disruptions brought by floods and droughts, and, at a broader level, understanding how the complex web of environmental interactions that supports human livelihoods is affected by human interventions.

Through an extraordinary range of experience involving the roles of leadership, advocacy, facilitation, liaison, interpretation, project design and management, knowledge brokerage, resource mobilisation, and partner support, GWP has built both knowledge and relationships that can lead to more resilient countries and communities across the globe.

This report shares this experience, looking at highlights from more than 60 countries spanning four continents: Asia, Latin America and the Caribbean, Europe, and Africa. This work has helped governments and communities across the globe to become more resilient to the effects of climate change through better management of their water resources. The report explains how the problem diagnosis, response design, and intervention implementation were undertaken.



The Africa Water Investment Programme aims to influence over **USD30 billion (€24 billion)** in gender transformative water and climate investments to narrow the water investment gap. Current actual investments are estimated at **€8 to 16 billion** of the **€54 billion** required to meet the social-economic needs of the continent.

In the post COVID-19 era, governments are seeking ways and solutions to rebuild their economies from the pandemic amid increasing risks of climate change. The experience and success stories of the Partnership's work, frameworks, and participatory implementation processes

offer a proven model for design and implementation of transformative development with impact that extends far beyond water issues.

We are pleased to be able to share GWP's experience here.



Darío Soto-Abril, Executive Secretary and CEO at Global Water Partnership



Alex Simalabwi, Global Head - Climate Resilience and Executive Secretary - Global Water Partnership Southern Southern Africa

Abbreviations and acronyms

AfDB	African Development Bank
AIP	Africa Water Investment Programme
AMCOW	African Ministers' Council on Water
APFM	Associated Programme on Flood Management
AWF	African Water Facility
CACENA	Caucasus and Central Asia
CAP-NET	International Capacity Development Network for Sustainable Water Management
CCORAL	Caribbean Climate Online Risk and Adaptation Tool
CDKN	Climate and Development Knowledge Network
CWP	Country Water Partnership
DGIS	Directorate General for International Cooperation of the Dutch Ministry of Foreign Affairs
DRESS-EA	Strengthening Drought Resilience of Small Farmers and Pastoralists in the IGAD Region -
EURECCA	Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and Related Resources in Uganda
GCF	Green Climate Fund
GEF	Global Environment Fund
GWP	Global Water Partnership
GWP-C	Global Water Partnership Caribbean
GWPCAF	Global Water Partnership Central Africa
GWP-CAM	Global Water Partnership Central America
GWP-EA	Global Water Partnership Eastern Africa
GWP-Med	Global Water Partnership Mediterranean and North Africa
GWP-SAF	Global Water Partnership Southern Africa
GWP-WA	Global Water Partnership West Africa
IDMP	Integrated Drought Management Programme
IGAD	Intergovernmental Authority on Development
IUWM	Integrated Urban Water Management
LAPA	Local Adaptation Plan for Action
LCBC	Lake Chad Basin Commission
M&E	Monitoring and evaluation
MINEPDED	Ministry of Environment, Protection of Nature and Sustainable Development (Cameroon)
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NAPCC	National Adaptation Plan for Climate Change
NDC	Nationally Determined Contribution
NDPC	National Development Planning Commission (Ghana)
NWP	Nairobi Work Programme
NWSAS	North Western Sahara Aquifer System
ORASECOM	Orange-Senqu River Commission
OSS	Sahara and Sahel Observatory
SADC	Southern African Development Community
SDG	Sustainable Development Goal
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VBA	Volta Basin Authority
WACDEP	Water, Climate and Development Programme
WASH	Water, sanitation, and hygiene
WMO	World Meteorological Organization

1

Confronting the challenge of climate change for global water security

In 2020 the global pandemic exposed how our current governance systems are inadequately prepared to address global systemic challenges that threaten our humanity and our existence. While the pandemic rages on, lessons learned in ensuring better preparedness can assist us to confront the climate change challenge to global water security. Investing in water is imperative for inclusive, sustainable, and climate-resilient growth and development in a rapidly changing world. Water is a finite resource that sustains human health and production of energy and food. Water management systems need to be responsive and adaptive to the changing context of the natural resource, development needs, and sustainability priorities. This is under ordinary conditions. When water is affected by climate change in ways that are dramatically different from our normal experience, the impact is systemic, rippling through our economies, livelihoods, and natural ecosystems. Coordinated action to transform water management systems is needed to shift thinking to the new dynamic normal, to build confidence, and to open new channels for investment that enable effective responses.

Over ten years, through its portfolio of water and climate resilience programmes, the Global Water Partnership (GWP) has been working to bring about this transformation by moving water to the forefront of development agendas. The Partnership's interventions have provided water solutions to development challenges, catalysed climate-resilient development, and enhanced the transboundary cooperation that is essential for reaping the social and economic benefits of shared waters.

*Rally in support of
climate change action
in the Netherlands
on 24 June 2017
Credit: Saph Photography*

These interventions have led to significant outcomes and impact. Capacity has been built in more than 60 countries. Water and climate have been integrated in more than 50 formally approved national, sub-national, regional, and river basin development policies, plans, and strategies. The work has influenced more than 30 investment plans, strategies, and budget commitments supporting more than €1.5 billion worth of investments. Water security and resilience has been improved for millions of people through implementation of interventions to develop local climate resilience in more than 30 countries.

These results signal transformative change. Coordinated responses across governments, multiple regions, and continents from global to local level have enhanced coherence of national development priorities with global international commitments on the Paris Agreement, disaster risk reduction (DRR), and Sustainable Development Goals. The scale of impact and transformation has raised

awareness of the central role of water security in building climate-resilient social systems. Introducing the concepts of climate resilience and water security in national processes by demonstrating impact on the ground has advanced adaptation planning. Facilitating investment planning and access to climate finance has both improved integrated planning processes and opened doors to development of much-needed infrastructure.

The stories in this report provide a glimpse of how this change took place, and of how GWP and its partners are building on this foundation to bring about lasting change through the new global strategy, with the ambition to influence more than €10 billion in water-related investments over the next five years. The aim is to significantly advance the water-related Sustainable Development Goals (SDGs) for more than 4 billion people living in 60 countries and 20 transboundary basins across the four continents of Africa, Asia, Europe, and Latin America and the Caribbean.

Floodwaters in the town of Bushman's River in the Eastern Cape of South Africa, 2012
Credit: David Steele



RESULTS 2010-2020

Enhanced coherence of national development priorities with global international commitments on the Paris agreement, Disaster Risk Reduction, and the Sustainable Development Goals

Supported water resources and climate resilience investments worth more than **€1.5 billion**

Incorporated water and climate in more than **50** formally approved national, subnational, regional, and river basin development policies, plans and strategies

Improvement of water security and resilience through implementation of local climate resilience development interventions in more than **30** countries

Influenced more than **30** investment plans, strategies and budget commitments

Built capacity in **62** countries



2

Investing in water, delivering benefits

Climate change is costing the world between 5 percent and 20 percent of GDP each year, according to the World Water Assessment Programme (*Water in a Changing World, 2009*). An estimated 40 percent of development investments are exposed to climate change hazards, according to analyses by the Organisation for Economic Co-operation and Development (OECD, *Bridge over Troubled Waters: Linking Climate Change and Development, 2005*). These analyses indicate that, while many development efforts contribute to reducing vulnerability to climate variability and change, climate risks are seldom explicitly factored into development projects and programmes.

Benefits from the provision of basic water supply and sanitation services far outweigh the costs. It has been estimated that achieving the SDG of water and sanitation for all would generate benefits of €70 billion per year with a benefit to cost ratio of 7 to 1. Many of these benefits are linked to time saved, and to health in the form of reduction of water-borne diseases. Almost 10 percent of the global burden of disease could be prevented through water, sanitation, and hygiene (WASH) interventions (OECD, *Benefits of Investing in Water and Sanitation, 2011*), as has been shown through implementation of COVID-19 hand-washing campaigns. But GWP partner UNICEF has pointed out that 3 billion people lack soap and water at home, 900 million children lack soap and water at their school, and 40 percent of health care facilities are not equipped to practise hand hygiene at points of care (UNICEF, *Statement on Preventing COVID-19, 2020*).

While GWP partner Water and Sanitation for All estimates that inadequate water services result in annual economic losses of €218 billion, they also estimate that every euro invested in water and sanitation brings at least a threefold return (WSA, *A Handbook for Finance Ministers, 2020*).

Oasis in North Africa
Credit: Sarra Touzi –
GWP Mediterranean





To meet the first targets of SDG 6 – access to safe WASH services for all by 2030 – capital investments must reach €96 billion per year – close to three times the current annual capital investment levels in WASH. In addition to initial capital inflows, significant resources are required to operate and maintain water and sanitation infrastructure and sustain universal coverage. These recurring costs will outweigh the capital costs by 1.4 to 1.6 times by 2029 (UN-Water, *Water and Climate Change: United Nations World Water Development Report*, 2020).

UN-Water points out that these expenditures do not include improving water quality, increasing the proportion of treated wastewater, increasing water efficiency, implementing integrated water resources management, and protecting and restoring water-related ecosystems. They also do not explicitly include climate-resilient technologies.

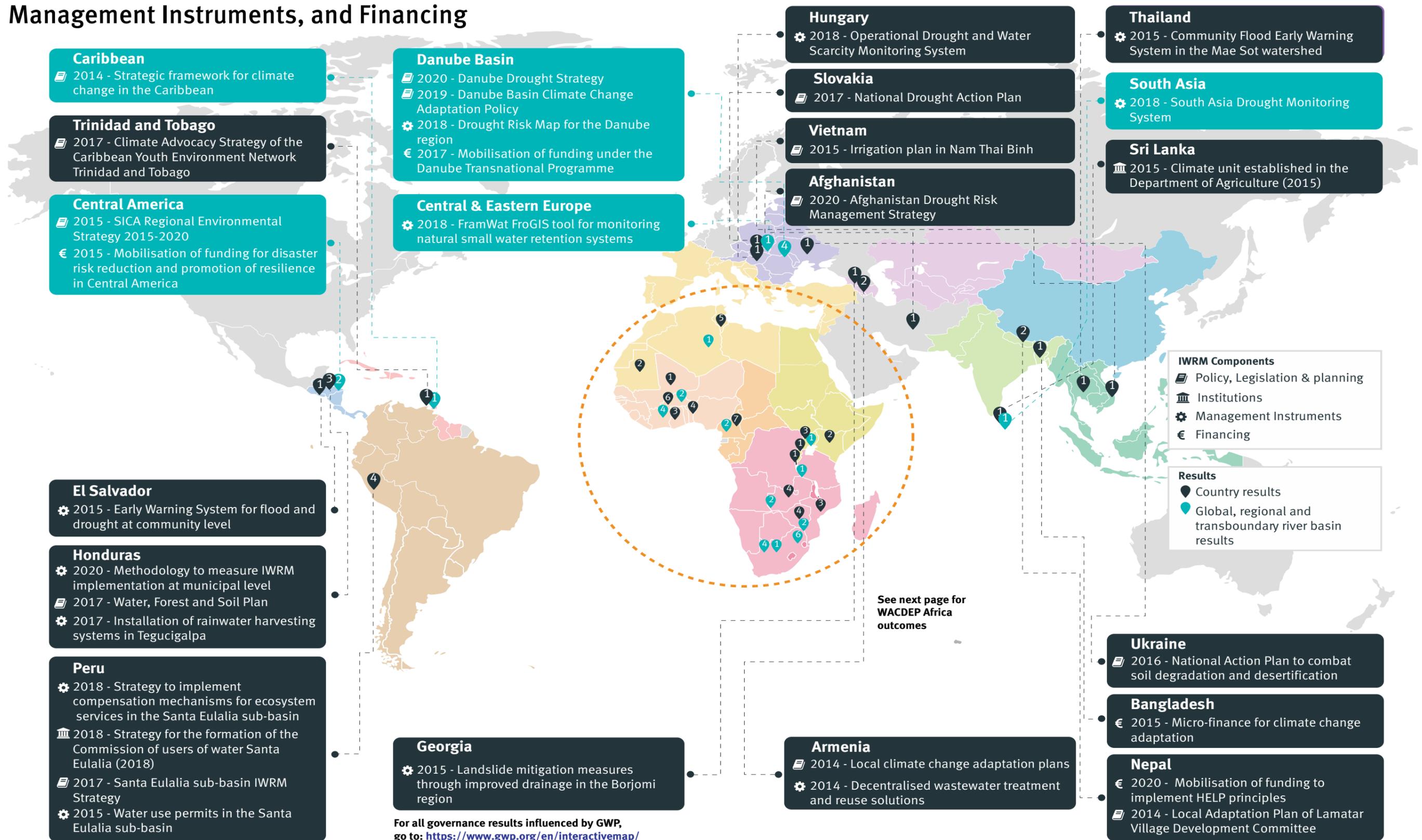
The World Bank, a GWP founding partner, has estimated that investing to improve water resource management could accelerate growth in some regions of the world by 6 percent. Water-related climate adaptation policies can also provide co-benefits such as job creation, improved public health, promotion of gender equality, reduced household expenses, and carbon

sequestration. The World Bank calculates that, if undertaken optimally at a cost of less than 0.5 percent of GDP, adaptation could remove up to around 70 percent of climate change damages by the end of the century, at a cost that would leave net damages considerably reduced (World Bank, *High and Dry*, 2016). The Global Commission on Adaptation estimates that investing €1.5 trillion in early warning systems, resilient infrastructures, improving dryland agriculture and crop production, protection of mangroves, and resilient water resources could create close to €6 trillion in benefits (GCA, *Adapt Now*, 2019).

Promoting investments in water as a key part of sustainable regional and national development, and contributing to climate change adaptation for economic growth and human security are the fundamental objectives across the highly varied geographic and topical scope of activities shown in the maps following this section/on pages 14-17. The themes of the Partnership's work, combining GWP's deep knowledge and experience of integrated water resources management with the imperatives of climate-resilient development, are applicable to this wide range of activity, and to the degrees of change achieved in the social and governance systems of programme beneficiaries reported here.

Storm at sea, Gulfport, Mississippi, USA
Credit: @bjjohnson714 via Twenty20

GWP Water and Climate Resilience Outcomes: 2011-2020, emerging from Policy, Legislation & Planning, Institutions, Management Instruments, and Financing



Mali
 2020 - National IWRM programme (2019-2030) and budgeted operational plan (2019-2022)

Mauritania
 2019 - Allocation of funding for the implementation of the National 10-year Action Plan for the M&E System of Water Resources & WASH
 2018 - National 10-year Action Plan for the Monitoring & Evaluation System of Water Resources & WASH

Benin
 2020 - Five 3-year Integrity Action Plan for the water and sanitation sector in five communes
 2019 - Investment plan for the intermunicipal complex Porto Novo, Aguégoué, Adjarra, Sèmè Podji and Souava
 2018 - Law on climate change regulation
 2018 - Mobilisation of funding for investments for climate resilient development in the Nokoué Lake watershed

Cameroon
 2019 - Design and application of household water filters to remove fluoride from drinking water
 2017 - National Water Policy
 2016 - Draft National Investment Plan for Adaptation to Climate Change
 2016 - Intended Nationally Determined Contributions of Cameroon
 2015 - Solar powered groundwater abstraction technology
 2014 - National Biodiversity Strategy and Action Plan
 2014 - National Adaptation Plan

Burkina Faso
 2017 - IWRM plan for the Nakanbé basin
 2017 - Investment plan for the implementation of the IWRM plan for the Nakanbe basin
 2016 - 2016-2020 Strategy for Growth and Sustainable Development
 2016 - IWRM Action Plan Phase 3 (PAGIRE post 2015)
 2015 - National Adaptation Plan
 2014 - Local Water Management Committee for the Massilli sub-basin

Central Africa
 2019 - Mobilisation of funding for the hydro-meteorological strategy for Central Africa
 2018 - Water and Climate Network for young people in Central Africa

West Africa
 2019 - Common IWRM action plan for the West African Economic Monetary Union (WAEMU) members
 2018 - Water Observatory for West Africa

Zambezi Basin
 2019 - ZAMCOM strategic plan
 2017 - ZAMCOM Gender action plan

Pan-Africa
 2019 - PIDA Water Action Plan
 2018 - AMCOW Strategic Plan 2018-2030
 2016 - The African Water Resources Management Priority Action Programme 2016-2025

Burundi
 2014 - Mechanisms for integrating water and climate resilience into development plans

Ghana
 2017 - Revised White Volta Basin IWRM Plan
 2017 - White Volta Basin investment strategy and plan
 2015 - District development plans for Bawku West, Bawku, & Bongo Councils

Tunisia
 2018 - Charter on Youth Engagement on Water and Climate
 2018 - Drought vulnerability maps for Tunisia
 2016 - Local climate resilience plan for water and land management
 2016 - Guidelines for mainstreaming climate in planning at basin level
 2016 - Investment Plan for the Douimis Basin in Bizerte

Kagera Basin
 2018 - Community resilience through alternative energy and water supply solutions in the Lake Cyohoa region

Northwest Sahara Aquifer System
 2017 - Mobilisation of funding for a nexus assessment

Eastern Africa
 2019 - Mobilisation of funding for drought resilience in the Horn of Africa

Rwanda
 2017 - Mobilisation of funding for sustainable agriculture at local level

Kenya
 2017 - Third Medium Term Plan (2018-2022) and Expenditure Framework (2017)
 2017 - National Climate Change Framework Policy

Uganda
 2017 - Water and Environment Sector Investment Plan
 2016 - Catchment Management Plans for the Maziba, Awoja and Aswa catchments
 2015 - Mobilisation of funding for catchment management planning

Zambia
 2020 - Mobilisation of funding for the development of the Zambia NAP
 2018 - Climate Change policy
 2018 - Mobilisation of funding for the National Adaptation Plan
 2018 - Mobilisation of funding for a water supply project in Livingstone

Mozambique
 2017 - Mobilisation of funding for a Lower Limpopo climate resilient investment plan
 2015 - Mobilisation of funding for flood management in Maputo
 2015 - Mobilisation of funding for IUWM investment planning in Chimoio and Inhanbane

Zimbabwe
 2016 - Mobilisation of funding for climate infrastructure in the Save Catchment
 2016 - Mobilisation of funding for the development of an IUWM Masterplan for Marondera Municipality
 2016 - Budget for the National Climate Change Response Strategy
 2014 - National Climate Change Response Strategy

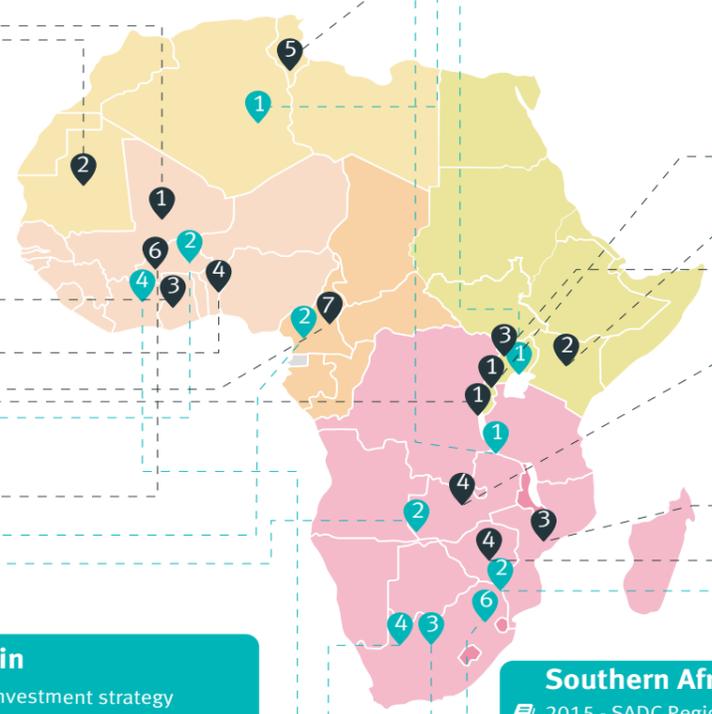
The Buzi, Pungwe and Save river catchments
 2019 - Mobilisation of funding for transboundary collaboration in the Buzi, Pungwe and Save river basins
 2019 - Agreement between Mozambique and Zimbabwe to co-operate on the management of the Buzi watercourse

Orange-Senqu basin
 2019 - ORASECOM IWRM investment strategy
 2018 - Draft Capacity Development plan for implementation of the ORASECOM investment strategy
 2015 - ORASECOM Climate Adaptation Action Plans
 2015 - Mobilisation of funding for a climate investment strategy

Volta Basin
 2019 - Volta Basin Authority Water Charter
 2019 - Ecosystems management plan in the Volta Basin
 2017 - Mobilisation of funding for DRR in the Volta Basin
 2015 - Volta Basin Strategic Action Plan 2015-2020

Southern Africa
 2015 - SADC Regional Strategic Action Plan IV
 2020 - SADC Climate Change Strategy and Action Plan
 2019 - SADC Gender Action Plan Action Plan

Limpopo Basin
 2020 - LIMCOM Gender Analysis and Gender Action Plan
 2018 - Implementation plan for the LIMCOM IWRM/ DRRR plan
 2017 - Disaster Risk Reduction Action Plan for LIMCOM
 2017 - Limpopo IWRM Plan and Vision 2020
 2017 - IWRM Resources Mobilisation Strategy 2017-2021
 2014 - Ratification of the Agreement for the establishment of LIMCOM



Tapping into the power of partnerships and collaboration

Change comes through collective effort. The multiple partnerships formed through GWP's water and climate resilience work have made it possible to shift the boundaries of what had traditionally been fragmented and uncoordinated interventions across sector ministries. These interventions now encompass coordinated, sector-wide, water management processes beyond water ministries to development planning, international finance, and municipal government – all needed to achieve acceptance of water's role in building climate resilience. Trusted partnerships with governments have made the best of the comparative strengths of multiple partners across government from local to global level.

GWP's work has been built by connecting people and organisations. It is founded on understanding the value of partnerships and of the expertise and resources they can mobilise. Its water and climate resilience interventions have deployed existing partnerships and forged new alliances that open doors to national policy-makers and international cooperating partners. Several partnerships have been key in moving the water and climate agenda ahead.

Partnerships for water in global climate policy and financing agendas

The Global Water Partnership recognises that dealing successfully with the challenges of climate change contributes to creating stable regions and to ensuring that developmental gains are sustained, leading to economic growth that can bring jobs and better livelihoods for people. At the same time, it understands that €42 billion investment per year is needed over the next decades to overcome the deficit related to water infrastructure in Africa alone. The Partnership is working on the processes involved in mobilising these resources.

GWP's water and climate programmes provided a platform for GWP, the African Ministers' Council on Water (AMCOW), the World Meteorological Organization (WMO), and other stakeholders to influence the global climate change discourse. The profile of water has also been raised in global processes such as the United Nations Framework Convention on Climate Change (UNFCCC), while securing critical entry points for interventions at country levels. GWP's engagement with the international Nairobi Work Programme (NWP), adopted by the UNFCCC Conference of the Parties at its 11th session, is an example of this. In 2011 GWP helped the NWP produce an analysis of the NWP's responses to climate change on freshwater. GWP then organised an international workshop in 2012, leading to the NWP including water as a thematic work area. The GWP regions supported NWP activities related to adaptation through regional and country water partnerships in the Caribbean, Latin America, Mediterranean, and Central and Eastern Europe, with particular emphasis on disseminating new knowledge among key audiences beyond the climate community.

“Partnerships across sectors or levels can result in dialogues, innovation and ideas that would otherwise remain hidden in independent silos of thinking. Focus should remain on using and strengthening established stakeholder platforms where these exist, although tailoring stakeholder platforms may be required for the specific context of the Framework application.”

African Union/AMCOW and GWP: Water Security and Climate Resilient Development Framework

Partnership milestones

JANUARY 2001

Associated Programme on Flood Management

GWP forms pivotal relationship with the World Meteorological Organisation (WMO) to support countries in an integrated approach to strengthen resilience to water extremes through the Associated Programme on Flood Management (APFM).

JANUARY 2004

Partnership for Africa's Water Development

Zambia Water Partnership supports the country's Ministry for Energy and Water Development to begin implementation of the Partnership for African Water Development (PAWD) project, following a commitment made at the 2002 Water Summit on Sustainable Development (WSSD) to support the WSSD Target for National Integrated Water Resources Management Plans, PAWD would go on to be implemented in close to 10 African countries.

JANUARY 2010

Operationalising the African Union Sharm el-Sheikh Declaration on Water and Sanitation

AMCOW's Executive Council requests GWP and partners to operationalise a programme supporting implementation of the 2008 Africa Union Sharm el-Sheikh Declaration on Water and Sanitation by addressing climate issues through the integration of water in national planning agendas.

NOVEMBER 2007

GWP and African Ministers' Council on Water sign MOU

GWP and the African Ministers' Council on Water (AMCOW) sign MOU to collaborate in the operationalising of IWRM in national and regional activities.

JANUARY 2011

Framework for Water Security and Climate Resilient Development

The African Union initiates development of its *Water Security and Climate Resilient Development Strategic Framework*, with support from GWP in collaboration with the Climate and Development Knowledge Network. The Framework would become a tactical resource for all GWP's water and climate programmes.

Integrated Drought Management Programme

GWP and WMO partner to develop the Integrated Drought Management Programme which supports countries' knowledge and capacity in drought and flood management practices.

Water and Climate Development Programme Phase I

The first phase of the Water and Climate Development Programme, or WACDEP, launches with the aims of integrating water security and climate resilience in development planning processes, building climate resilience, and supporting countries to adapt to a new climate regime through increased investments in water security.

MAY 2012

Framework for Water Security and Climate Resilient Development

The *Framework for Water Security and Climate Resilient Development* launches at the 4th Africa Water Week in Cairo, Egypt, with the goal of guiding African countries in enhancing water security and climate resilience for development.

UNFCCC Collaboration through the Nairobi Work Programme

The UNFCCC knowledge-to-action hub for climate resilience and adaptation, known as the Nairobi Work Programme, includes water as a thematic work area following an international workshop organised by GWP in 2012.

AUGUST 2012

The Economics of Adaptation, Water Security and Climate Resilient Development in Africa Capacity Building Programme

GWP, AMCOW, UNDP, Cap-Net, GEF, CDKN, ICA, and NIRAS launch the *The Economics of Adaptation, Water Security and Climate Resilient Development in Africa* capacity building programme, certified by the United Nations Institute for Training and Research, to develop capacity of planners and technical officers in government departments. More than 140 participants and 30 lecturers/mentors were engaged in the programme between August 2012 and September 2015.

JULY 2013

Caribbean Climate Online Risk and Adaptation toolkit

GWP Caribbean contributes resources to the Caribbean Climate Online Risk and Adaptation (CCORAL) toolkit to support government planners in including potential impacts of climate change in their strategies and plans. Toolkit training results in embedding of the process in some finance and environmental regulatory processes.

NOVEMBER 2013

UNDP/UNEP-led Global Support Programme for National Adaptation Plans

GWP becomes a partner in supporting the Global Support Programme on National Adaptation Plans to assist countries to bring greater focus and attention to medium and long-term climate change adaptation planning and budgeting. GWP contributed its expertise in water resources management in climate change adaptation planning.

UNICEF WASH Collaboration

GWP and UNICEF collaborate on the Water, Sanitation, and Hygiene (WASH) Climate Resilient Framework, which provides guidance on how to ensure climate resilient WASH services and programmes.

DECEMBER 2015

21st Session of the UNFCCC Conference of the Parties

Water emerges as the top priority for adaptation in the UNFCCC and is included as a thematic area within the UNFCCC's non-state actors process at the twenty-first session of the Conference of the Parties in Paris, France. This follows GWP's collaboration with the Nairobi Work Programme in 2012.

JANUARY 2016

High-Level Panel on Water

The UN Secretary-General and the World Bank Group President co-convene 11 sitting Heads of State and Government in the High-Level Panel on Water to work towards availability and sustainable management of water and sanitation for all. The Panel's outcome document calls for development of an Africa Water Investment Programme by GWP, African Union, AUDA-NEPAD, African Development Bank, African Ministers' Council on Water, and the Infrastructure Consortium for Africa.

JULY 2017

African Union Agenda 2063

GWP Africa Coordination Unit aligns its programmes to the Africa Union's Agenda 2063, a strategic framework for socio-economic transformation of the continent over the next 50 years that commits to development of environmentally sustainable climate-resilient economies and communities.

MAY 2016

Water and Climate Development Programme Phase II

Water and Climate Development Programme - WACDEP Phase II (2016 – 2019) launches to continue the work of WACDEP Phase I in supporting the integration of water security and climate resilience in the development planning and decision-making processes.

NOVEMBER 2018

AUDA-NEPAD and GWP sign MOU

GWP and the Africa Union Development Agency sign an MOU to accelerate the implementation of priority continental water infrastructure projects within the framework of the Programme for Infrastructure Development in Africa and the Africa Investment Programme.

FEBRUARY 2019

Continental Africa Water Investment Programme

The Continental Africa Water Investment Programme, now known as the AIP, is adopted by the AMCOW Governance Council. The programme aims to stimulate USD\$30billion in water and sanitation investments and to create five million jobs by 2030, through sustainable climate-resilient development and achievement of SDG 6 targets.

JANUARY 2021

AIP adopted by African Union

The Assembly of the African Union Heads of State and Government adopt the AIP as part of Programme for Infrastructure Development in Africa – Priority Action Plan 2, during their 34th ordinary session.

DECEMBER 2019

Green Climate Fund Readiness and Preparatory Support Programme

GWP is approved as a delivery partner of countries looking to access the Green Climate Fund Readiness and Preparatory Support Programme (the Readiness Programme). The Project Preparation Platform is initiated with partners to strengthen the capacity of NDAs, DAEs, and Water Ministries/agencies to prepare climate-resilient water projects that meet GCF and investment criteria.

The UNFCCC's Nairobi Work Programme now includes water in its results framework, as does the Green Climate Fund (GCF), one of the main financing mechanisms of the 2015 Paris Agreement on Climate Change. In March 2016, water emerged as the top priority for adaptation in the UNFCCC synthesis report for countries' climate action plans submitted ahead of the Paris Agreement. Influenced by GWP's partnership with WMO, floods and droughts are at the top of the list of hazards countries wish to address in the Adaptation Component of their Nationally Determined Contributions, the committed reductions in greenhouse gas emissions under the UNFCCC.

Although the 2015 Paris Agreement on Climate Change does not explicitly address water, 93 percent of national climate action plans identify water as a key to climate adaptation. Adoption, in 2015, of SDG 6 – *Ensure availability and sustainable management of water and sanitation for all* – confirms the increased attention to the role of water in development by global leaders and has opened the door to changing thinking at country level, as it did through GWP's intervention in the Ukraine.

Raising the profile of SDG 6 at the highest level of government

Young workshop participants assessing the degree of implementation of Global SDGs 6 and 13 in strategic Ukrainian documents, in Kiev, 26 September 2019
Credit: GWP Ukraine

In 2020, Ukraine's Deputy Prime Minister presented the country's SDG report to the United Nations. And, through a Presidential decree, the term, 'sustainable management of water' became official. The Ukraine Country Water Partnership's role in this achievement began with an understanding of the inseparability of soil and water.

Mention of Ukraine evokes images of golden wheat fields stretching to the horizon, a product of rich soils and plentiful rain. In recent years, however, soil degradation and recurring drought, combined with a legacy of viewing water only as a resource to be tapped, has threatened the country's agricultural production, and the health of its economy.

Ukraine moved to address degradation of its formerly productive soils in 2016 by approving a draft national action plan to combat desertification and land degradation. While the plan addressed the issue of drought, it did not fully recognise the cyclical nature of water and the need to carefully manage that cycle in

the face of climate change.

"Until recently we have still been living with the old terminology when we discuss water: 'rational use', instead of 'sustainable management'. We knew that until we changed that ingrained way of thinking that the language imposes on us, we could not make good progress", explains Andriy Demydenko of the Ukraine Country Water Partnership.

GWP's Ukraine Country Water Partnership has been working since 2005 towards a more inclusive view of the role of water in the country's development. An opportunity to move towards this change came when, in 2019, the country's president returned from a United Nations meeting in New York, asking the question, "What are we doing about the Sustainable Development Goals?"

GWP's local partners mobilised to ensure that information to support reporting about SDG 6 was available. Results of a joint baseline study in 2017 had indicated a low score in implementation of integrated water resources management in the country. In response, GWP-Ukraine launched a national policy dialogue, "Rethinking Water Security for Ukraine", to support water governance reform. This included a national dialogue session to develop recommendations for adoption of SDGs 6 and 13, with young people especially included in the work.

The recommendations developed met an obstacle when a government reorganisation suspended work in the country's Ministry of Ecology and Natural Resources but found another path through the Voluntary National Review of SDGs organised by the Ministry of Economy. Sustainable management of water -- and its benefits to the country's soils and harvests -- has found its place in Ukraine.



Including water and climate in regional and national planning

In 2010, the African Ministers' Council on Water (AMCOW) Executive Committee asked GWP and partners to set up a programme to support implementation of the 2008 African Union Sharm el-Sheikh Declaration on Water and Sanitation. The programme would address climate issues by putting water on agendas for national sustainable development planning. The Austrian Development Cooperation agency recognised the value of this approach and offered support. The result was the Water, Climate and Development Programme (WACDEP) that, over nine years, brokered change by enhancing technical and institutional capacity, arranging predictable financing, and brokering investments in water security and climate change adaptation. The governments of Denmark, Germany, the Netherlands, Sweden, Switzerland, and the United Kingdom all contributed to the expansion and global reach and impact of this programme in more than 60 countries.

Through WACDEP, GWP assisted more than 25 governments and five transboundary basins across Africa to promote water as a key part of sustainable regional and national development and contributed to climate change adaptation for economic growth and human security. The Partnership's involvement resulted in strengthened resilience of countries to climate change, specifically providing support in formulating and enhancing the Nationally Determined Contributions (NDCs), designing and implementing National Adaptation Plan (NAP) processes, and accessing financing. Countries received support to better integrate water security and climate resilience in development planning and decision-making processes. A collaboration with the Climate and Development Knowledge Network (CDKN) resulted in development of the African Union *Water Security and Climate Resilient Development Strategic Framework*, which became a tactical resource for all GWP's water and climate programmes.

Improving national drought and flood management capacities

Floods and drought are increasingly affecting countries worldwide and are a stated priority for countries in adapting to climate change. In recognition of this, GWP formed a pivotal relationship with the WMO, first in 2001 to set up the Associated Programme on Flood Management (APFM), and second in 2013, with the Integrated Drought Management Programme (IDMP). This GWP-WMO partnership brought together the expert institutions to support countries in moving towards an integrated approach to strengthen resilience to water extremes. The partners jointly designed rapid response Helpdesks to support countries in implementing management practices that were developed and promoted by the communities of experts coming together through the APFM and IDMP.

The Partnership's experience with collaboration has contributed significantly to countries' knowledge and capacity in drought and flood management practices. Countries across the Horn of Africa, Sahel, and Central and Eastern Europe have applied guidance and published knowledge co-produced by GWP with the World Bank, European Commission, United Nations Office for Disaster Risk Reduction, the UN Food and Agriculture Organization (FAO), and US National Oceanic and Atmospheric Administration. The IDMP has also, through its technical guidance and its Helpdesk, supported development of drought plans in more than 70 countries as part of the Drought Initiative mandated by the United Nations Convention to Combat Desertification (UNCCD) Conference of the Parties. GWP's practical guidance, insights, and lessons gained from its on-the-ground experiences with countries have influenced global processes related to integrated drought management, resulting in better and informed policy, as evidenced by several decisions in the UN Convention to Combat Desertification Conference of the Parties in New Delhi in September 2019.

“...the World Meteorological Organisation (WMO) and Global Water Partnership (GWP) are increasing their long-standing cooperation to strengthen water resource management at a time when climate change, population shifts and environmental degradation are leading to more stress on water supplies and more water-related hazards”

Integrated Drought Management Programme (IDMP) Activity Report 2018-2019



In 2019, GWP and WMO renewed and reinforced joint programmes in more than 30 countries worldwide. They committed to strengthening the capacity of countries to develop high priority water and climate projects, supporting stakeholder engagement in developing water information and products at regional and country level, and helping countries access finance for innovative water management projects, climate and hydrological services, and early warning systems.

Heavy rainfall and floods have displaced thousands of people on the Volta Basin in West Africa and led to loss of life and livelihoods across Ghana, Burkina Faso, Côte d'Ivoire, and Benin. In response, GWP and WMO have worked with governments from these countries to implement a regional approach to manage the extremes of flood and drought in the Volta Basin. The work assisted the countries to prepare a project that mobilised €6.6 million from the Adaptation Fund. The project seeks to develop the flood and drought forecasting and early warning system, with risk maps, for the entire Volta Basin. This will support the National Meteorological and Hydrological Services to monitor such events in advance and to send timely warnings to citizens and other relevant stakeholders for preparedness and rapid response.

As part of the response, WMO, GWP, the Volta Basin Authority, and CIMA Research facilitated six national workshops throughout October 2020 in Togo, Benin, Côte d'Ivoire, Burkina Faso, Ghana, and Mali. These stakeholder engagements

brought together professionals working in different sectors, including meteorology, hydrology, civil protection, environment, and water resources, responsible for the management of extreme events and climate change adaptation at the regional, national, and local level. These people-centred and solutions-driven engagements offered countries opportunities to consolidate and share knowledge about gaps and strengths of national early warning systems for floods and drought. Interactive participation and high-level engagement are key for building resilient, people-centred early warning systems.

The GWP and WMO partnership carried out similar interventions in Central America and Central and Eastern Europe, using the experience gained to influence global policies on flood and drought management. Both the IDMP and APFM contribute to the international partnership, Global Framework for Climate Services; GWP is a member of its the Partner Advisory Committee. The Global Framework for Climate Services bridges the gap between climate information producers and the practical needs of policy-makers, planners, and other users, such as farmers. The experience gained through this partnership, and from the work of the GWP-WMO partnership, has helped countries to build collective knowledge and to influence inclusion of climate services in integrated water resources management, as is the case for the Lake Chad Basin.

The Environmental Satellite (Envisat) captures a shrinking Lake Chad, 2007
Credit: European Space Agency

Partnering against climate risks in Lake Chad Basin

The Lake Chad Basin Commission (LCBC), established in 1964 to coordinate access to and use of the resources of one of the largest lakes in Africa, serves its eight riparian states of Algeria, Cameroon, the Central African Republic, Chad, Libya, the Niger, Nigeria, and the Sudan. The hydrological basin has for decades been affected by drought combined with episodic floods: the influence of climate change is visible in the lake's ebbing waters. The social and economic well-being of more than 22 million people living in the basin is endangered. Knowing when extreme weather events are coming is a clear priority for the Commission so the countries of the basin can manage risk through coordinated planning and preparation.

In 2015 Global Water Partnership Central Africa (GWP-CAF), in partnership with the Africa Adaptation Initiative, agreed to help the Commission to develop a multi-hazard early warning system as a climate change adaptation measure. GWP-CAF and the LCBC Secretariat organised a workshop to

Cattle crossing at Ngouboua village, Lake Chad region

Credit: OCHA, C. Birch



review the draft inception report for carrying out a pilot project in two sub-basins. The full project document was developed and submitted to the Commission for approval.

When the Commission's Council of Ministers met to consider the project, it was made plain that such a project would have to include all countries in the basin: a pilot was not to be considered. GWP-CAF had to rethink. Another GWP partner, the World Meteorological Organization (WMO), was working on implementation of its Hydrological System Observing System (HYCOS) network of monitoring stations in the region, so combining the two work programmes made sense. The WMO, GWP CAF, and the LCBC Executive Secretariat agreed on this approach, and a new joint proposal was approved by the Commission in 2019.

The strengthened project would establish a network of national hydrological observation systems to provide close to real-time information to national and regional databases; strengthen the technical and institutional capacities of national meteorological and hydrological services by building their capacity for data collection and processing; and facilitate dissemination and use of information products by developing an early warning system for floods and droughts.

Participation is key to GWP's approach to building capacity. Including stakeholders in planning for water and climate ensures relevance and builds trust and understanding. For this project, training of project stakeholders and knowledge development would range from instructing government meteorological staff in installation, use, and maintenance of new hydrological instruments, to training local people who would measure and report flood levels near their villages. The project would target legal and policy specialists to make the conceptual link between the practical collection of data and consideration of climate change in governance processes. It would also engage communities to develop an effective chain of dissemination of warning messages that would be recognised and understood by all.

It only remained to acquire funding for the work. GWP’s experience with the Associated Programme on Flood Management in the Volta Basin of West Africa reminded the partners that the Adaptation Fund supported transboundary projects. In 2020, a pre-concept note for the joint Lake Chad early warning system and HYCOS work was submitted to the Adaptation Fund.

“The Global Water Partnership’s long experience with water resources management is valuable in this kind of project, especially their experience with policy. For example, they

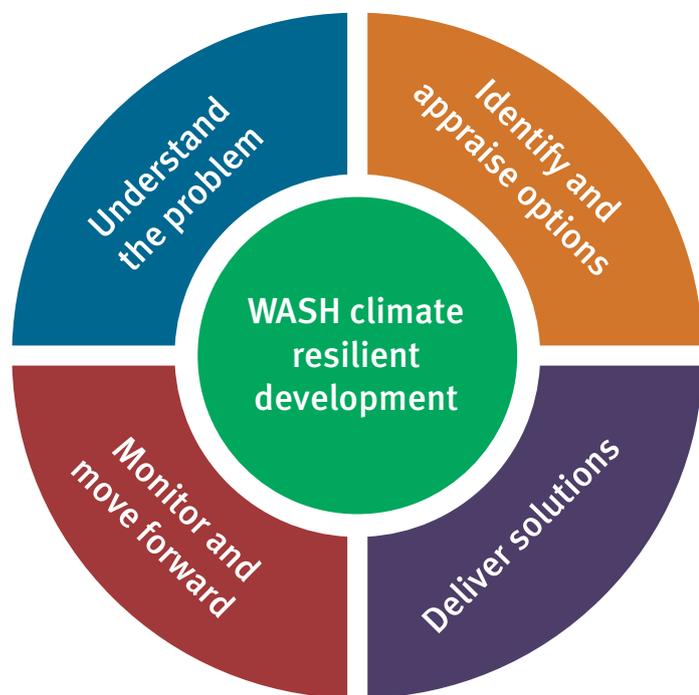
had been giving workshops on implementing the Lake Chad Basin Water Charter, so they really understood the thinking and needs of the organisation.” says Alio Abdoulaye, Head, Lake Chad Basin Observatory.

The ability to recognise windows of opportunity, the flexibility to adapt to changing conditions, and recognition of partner strengths are all needed to build resilience to climate change. Collaboration by GWP-CAF, LCBC, and WMO produced a problem-solving approach that was fit for purpose, making the best of the strengths of the three organisations.

Developing climate-resilient water and sanitation

In 2014, UNICEF, with WASH programmes in more than 100 countries, was becoming increasingly aware of the negative impact of climate change on the availability of water to maintain basic human health. Floods, droughts, and storms were already bringing drinking water shortages and disease, and there was every indication that the risk of these would increase. Inspired by GWP’s work in developing the African Union-AMCOW’s *Water Security and Climate Resilient Development Strategic Framework*, UNICEF approached GWP for a partnership to integrate climate resilience in UNICEF’s work around the world. The resulting collaboration influenced UNICEF’s work on addressing climate resilience in WASH services by developing tailored guidance for applying the *Strategic Framework* for climate resilience in the WASH sector.

The resulting partnership, supported by the UK Department for International Development, the Directorate General for International Cooperation of the Dutch Ministry of Foreign Affairs, and the Swedish International Development Cooperation Agency, produced the *WASH Climate Resilient Development Strategic Framework*. It also provided guidance for applying the strategic framework to WASH by: (i) understanding the risks that climate change poses to the WASH sector; (ii) identifying and appraising options to improve climate



resilience; (iii) delivering solutions by integrating options into existing strategies and plans and their implementation; and (iv) monitoring and applying lessons learned from implementing activities to develop climate resilience.

Technical guidance and policy briefs focusing on each of these interventions were developed to support countries in implementation of the *Strategic Framework*. A training programme was introduced to transform understanding and approaches for national stakeholders and governments faced with climate risks and to enhance country capacity on

Steps in applying the Strategic Framework to WASH

climate-resilient WASH programming. The training programme for 128 participants addressed key challenges of interest to country stakeholders on risk assessments and climate finance for WASH, and sector-wide tools that contribute to ensuring that WASH infrastructure and services are resilient to climate change, and that those services are an asset for building community resilience. As a result of the training, countries have developed WASH risk assessments, following the GWP-UNICEF *WASH Climate Resilient Development Guidance Note: Risk Assessments for WASH*. The knowledge provided through the capacity building is leading to action on the ground. For example, countries such as Iraq and the Plurinational State of Bolivia are conducting WASH risk assessments once

they have learned how to use the risk assessment methodology proposed. Participants have also learned about climate financing and are applying this in their day-to-day work, including discussions with sector partners to begin development of proposals.

UNICEF is now using the GWP-UNICEF *WASH Climate Resilient Development Strategic Framework* to shift all UNICEF WASH work towards climate-resilient programming. This means that the collaboration is allowing UNICEF to implement the framework in 66 countries. GWP's ability to see opportunity in the expertise and work of other organisations, and to form relationships that benefit all parties, is evident in its partnership with UNICEF in Mauritania.

Partnerships working for clean water and sanitation in Mauritania

€3.1 million

World Bank funding for the implementation of the National 10-year Action Plan for the Monitoring & Evaluation (M&E) System of Water Resources and WASH

In the dry rural settlements of the north-western Islamic Republic of Mauritania, women and children walk long distances to fetch water from muddy wells, consuming the hard-won liquid sparingly between drinking and cooking. Washing hands after visiting the bush or latrine is a luxury, and boiling the dirty water uses precious fuel. Mothers know that children could fall ill, but often they have little choice.

Over half the land in Mauritania is sparsely populated desert. Its gross domestic product is one of the lowest in Africa, despite plentiful natural resources such as iron ore, gold, and natural gas. Lacking storage or irrigation infrastructure, agriculture is vulnerable to the changing climate. In recent years, increasingly extreme and frequent droughts have driven traditional nomads to migrate from rural areas to urban centres. Inequalities in access to water, sanitation, and hygiene (WASH) services between urban and rural populations, and between rich and poor, have grown. As a major social consequence, diarrhoeal diseases are the second-highest cause of infant death in the country.

The government does not have the right data to plan appropriate interventions for storing water, treating water, transferring and supplying water to populations and farmers, and providing toilets, drainage,

and wastewater management. Addressing data deficiencies is a first step to answering the kinds of questions that stand in the way of action.

Aware of the need to help build Mauritania's capacity to respond to this need, in 2017 Global Water Partnership Mediterranean (GWP-Med), supported by the country's National Water Resources Centre, began to develop an action plan for a monitoring and evaluation (M&E) system that would provide the needed data. This would be built for the context of climate change, when precipitation patterns are changing and droughts are becoming more frequent and extreme. GWP-Med had help in the form of a system of indicators being developed by the African Ministers' Council on Water (AMCOW) in response to the UN Sustainable Development Goal for water.

Meanwhile, UNICEF had been supporting the Planning, Monitoring, and Cooperation Department at the national Ministry of Hydraulics and Sanitation to elaborate an action plan for an M&E system for WASH. The GWP project team recognised an opportunity and approached UNICEF with a suggestion to join forces and merge the two action plans. Working together, the partners produced a 10-year M&E Action Plan covering the years 2018–2027,



*Women implementing WASH programmes in Mauritania, 2017
Credit: Sarra Touzi*

including costs of outlined activities. The M&E Action Plan included investments needed both for infrastructure in the form of hardware and measuring devices, and for steps to improve the governance framework that would reinforce stakeholders' capacity to maintain the system.

A national workshop in February 2018 brought together key stakeholders representing the different technical departments of the Ministry of Hydraulics and Sanitation, water utilities, the Ministry of Agriculture, and the Ministry of Environment and validated the plan.

Finding financial resources to implement the M&E Action Plan was the next step. In April 2018, Mauritania joined its sister states in the Arab Maghreb Union and Group of Five for the Sahel at a regional conference organised to consolidate the countries' knowledge of approaches for assessing impacts and vulnerabilities to climate change. There, the participants prioritised adaptation actions, shared experiences and good practices in the design and implementation of co-benefits from water projects, and accessed information about funding opportunities to support implementation of the countries' Nationally Determined Contributions and the Sustainable Development Goals.

Discussions during the conference guided Mauritania to approach the Green Climate Fund (GCF) to support the implementation of the M&E Action Plan; an adaptive water supply project in the priority Adrar area in the north of

Mauritania was determined to be the first potential project. The Ministry of Hydraulics and Sanitation, with the support of GWP-Med, began preparing a funding request to submit to the GCF in 2019.

Duplication of effort in development aid projects wastes resources, while complementary and collaborative activities accelerate development. In the case of Mauritania's national water and sanitation policy and planning, GWP-Med's experience in mobilising partnerships enabled a coordinated approach that strengthened the argument for an integrated M&E system and for an improved process to put it in place.

Mauritania's traditional partners have been successfully mobilised to contribute to implementation of the M&E Action Plan, resulting, so far, in UNICEF support for WASH service monitoring in two pilot areas in the south of Mauritania and in the World Bank providing €3 million for water resources monitoring.

Furthermore, Mauritania's Country Programme submission to the GCF included the water adaptation project in Adrar as a priority. The preparation of the funding request is advancing. The influence of the country's M&E Action Plan, meanwhile, has already shifted priorities for the country's decision-makers; it has opened doors to investing in effective management of Mauritania's water resources and in the health of its people.

Building resilience in the world's deltas

Mobilising knowledge and resources to support the world's ecologically rich and population-dense delta regions where rivers meet the sea is a special focus of GWP's water and climate work. Deltas are important centres of food production, livelihoods, and industry. People living in global river deltas and coastal zones are especially vulnerable to the impacts of climate change because of rising sea levels, increased magnitude and frequency of storms, flooding, and salinisation. For this reason, and because accountability is important for achieving multiple SDGs locally and at broader scales, GWP is supporting development of strong accountability mechanisms in formulating viable strategies for sustainable development for deltas.

GWP has partnered with the Delta Alliance to initiate the Learning Deltas Asia Initiative under the political auspices of and in operational cooperation with parties of the Alliance and supported by the Netherlands Ministry of Development Cooperation. Conceived in 2014 as the Enabling Delta Life Initiative, a global project was drafted and advanced during three regional events held in 2016. The work was strengthened as countries adopted the 2030 Agenda for SDGs, the ambitions of the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, and findings of the Asia Water Development Outlook 2016 report.

The Learning Deltas Asia Initiative programme began in 2017 with a scoping phase to assess and understand knowledge gaps in the participating countries of Bangladesh and Myanmar. Given these findings, the programme has been using a South–South learning approach with Cap-Net to expand to other deltaic countries. The Delta Knowledge Hub, planned as a key output of Phase II, is intended to serve as a central knowledge platform to provide access to issues, solutions, projects, success stories, case studies, best practices,

policy dialogues, research papers, and news related to management of deltas. Now, supported by GWP, nine countries are contributing their own knowledge and experience to the development of strategies to stimulate increased cooperation and the science–policy interface worldwide among those involved in the governance of deltas.

Working together for change

While working towards SDG 17 – *Strengthen the means of implementation and revitalize the global partnership for sustainable development* – GWP has used its on-the-ground network of civil society, government, and business associates to establish partnerships with existing, complementary programmes and development funders to support its water and climate programmes. These partners have recognised that this work was going to meet an urgent need, and have agreed to participate in, or fund it. Some, learning about GWP's work, themselves proposed collaboration. Over the past ten years, these have included the following.

The African Development Bank (AfDB) and African Water Facility (AWF) have worked with GWP through Africa Multi-Country Green Climate Fund Readiness, training in climate finance, the Project Preparation Partnership for GCF Water Investments in Africa, mobilisation of funding for the Orange-Senqu River Commission (ORASECOM), and the Benin Climate Resilient Development in the Lac Nokoué-Lagoon Complex of Porto Novo. For Africa Multi-Country GCF Readiness, seven countries – Eswatini, Burundi, the Sudan, Libya, the Central African Republic, Somalia, and the United Republic of Tanzania – are being supported, plus 14 Southern African Development Community (SADC) Member States. An Africa multi-country readiness project will reach up to 20 countries. The total value of this readiness investment is €39,654,303. In 2020, for example, €1,835,397 was secured for Zambia's readiness programme.





*House boats on Mekong Delta river
Credit: @embracethewanderlust
via Twenty20*

A partnership with the CDKN has trained, in collaboration with the United Nations Institute for Training and Research, more than 100 government officials on the Climate Resilient Development Strategic Framework, contributed water knowledge to the Caribbean Climate Online Risk and Adaptation Tool (CCORAL), is supporting knowledge sharing for Enabling Delta Life, and has provided technical assistance for the Mozambique Mapai Dam to ensure that climate resilience issues were addressed beyond the proposed dam project area to the whole basin.

The Infrastructure Consortium for Africa has partnered with GWP in developing capacity and knowledge to help countries to access climate finance, and in the Project Preparation Partnership for GCF Water Investments in Africa.

The UNFCCC Least Developed Countries Expert Group worked with GWP to produce the *Water Supplement to the UNFCCC's NAP Technical Guidelines*. GWP's production of an analysis of climate change and freshwater resources for the Nairobi Work Programme, presented to more than 190 parties to the UNFCCC, led the UNFCCC to adopt a decision to prioritise water in the programme.

Experience in the regions, as well as synergies created by previous and existing partnerships, have revealed more opportunities for collaboration, and sometimes, for creation of needed bodies. In GWP's strategic relationships with governance bodies and processes such as national ministries, commissions, and with regional economic communities, it has spanned the roles of supporter, facilitator, agent, implementer, and collaborator.

Planning sustainably: improving more than 40 new policies, plans, and strategies

The Partnership has fostered more than 40 new national, sub-national, regional, and river basin policies, plans, and strategies, including a new national water policy in Cameroon, a Disaster Risk Reduction Action Plan for the Limpopo basin, and a common integrated water resources management (IWRM) action plan for the West African Economic Monetary Union. National water and climate legislation has been supported in Kenya, Lesotho, and Benin.

Development planning processes are meant to guide economic development by bringing together all sector interests such as agriculture, mining, public health, transport, and trade. Despite its importance to all these sectors, water is often noticeably missing from many regional and national plans, and the impacts of climate change barely included. The Partnership has assisted countries to integrate water security and climate resilience in development planning and decision-making processes at country and transboundary levels. In Ghana, the work supported the National Development Planning Commission (NDPC) to include water security as a cross-cutting factor in Ghana's development planning process.

Engaging policy-makers to include water security as a cross-cutting factor in Ghana's development planning process

National economic development planning is a time-consuming and complex process, requiring coordination of many players to ensure that government interventions with budgets are aligned with the development priorities of a country. In Ghana, this process is carried out by the National Development Planning Commission (NDPC), which must balance the outputs of the country's productive sectors with the needs and demands of its population for education, health, and social welfare, among others. The NDPC prepares a national development framework that provides guidelines for sector and district medium-term development plans prepared by the ministries, departments, and agencies of the central government, and metropolitan, municipal, and district assemblies.

Ghana built its modern economy on extractive industries, including minerals, timber, and petroleum, and on cocoa production. Even though all these depend heavily on water resources, until 2014, national planning processes in Ghana did not include water security as a cross-cutting factor in development activities. The country's participation in formation of the Sustainable Development Goals brought an increasing awareness of the need to consider the country's natural resources, including water, in a different light. The timing was right: Global Water Partnership West Africa (GWP-WA) and Country Water Partnership Ghana (CWP-Ghana),

teaming up with the Water Resources Commission and other national water and climate-related institutions, provided the opportunity to look at how management of water had an impact on both economic and social development, and to begin building it into national planning.

Through gaining an understanding of the national planning process and establishing a working relationship with the planning agencies involved, GWP-WA realised the potential impact the work could have by reaching local levels of government. And because the NDPC served on the technical committee of WACDEP – a cross-sectoral group that provided oversight – it was easier to understand how to align water security-related issues to procedures in the guidelines that would support government agencies in developing their plans. In 2016, tools for screening potential projects were jointly developed, and training of district planners carried out across the country to both introduce the tools and to further create awareness of the relevance of water security to development activities. The planners learned how to prioritise investments that would enhance water security and climate resilience.

The prioritised water-related investments included developing sustainable financial mechanisms, enacting appropriate legislation, research and monitoring, developing payment for ecosystem services for water resource management, promoting public-private partnerships, water resources management and development, and establishing appropriate institutional structures and enhanced capacity for planning in catchments.

“The involvement of NDPC actually facilitated the integration of IWRM and climate change planning into the national development planning framework at district level.” Benjamin Ampomah, CEO, Water Resource Commission, 2016.

This work paved the way for inclusion of water security issues in the Long-Term National Development Plan of Ghana (2018–2057), with support from GWP-WA through CWP-Ghana in the form of aspirations related to climate adaptation, disaster management, irrigation infrastructure development and management, drainage, and flood control.



Ghanaian school children drink from a newly established well
Credit: Edmund Smith Asante

Finding local points of entry

The form of GWP's programme support to water and climate in the development arena varies, depending on conditions in a region or country. Finding an appropriate point of entry involves understanding existing governance structures, revisiting IWRM plans, NAPs, and other plans, identifying climate-resilient investments that acknowledge the cross-cutting issue of water, using local knowledge to identify

strategies for local adaptation measures, and including relevant communities of practice in stakeholder platforms. GWP's Country Water Partnerships often provide the local knowledge needed to achieve these. In China, for example, regional and provincial GWP water partnerships supported transformation of the country's industrial water use in the face of climate-driven shortages.

CHINA

Increasing the value of water in Hebei

China's Hebei Province is an industrial powerhouse, producing automobiles, processed food, electronics, petrochemicals, pharmaceuticals, and iron and steel. Its demand for water to support this activity has been growing, but, at the same time, climate change and over-abstraction have depleted the groundwater resources that supply more than 70 percent of the water needed to maintain this robust economy. Efforts to recharge aquifers from local surface water cannot keep up with abstractions.

Until 2015 Hebei's provincial government had been administering an outdated water tariff that did not reflect the sources and true cost of the resource. China's Water Act states that water resources belong to the nation, but when administered by local government, sometimes water charges were being reduced to support local development. A change in awareness of the value of water among users was needed. Acknowledging this, the central government decided to introduce a new water tax that included use from all water sources, and that reflected all the costs associated with its delivery.

The Global Water Partnership China and the Hebei Provincial Water Partnership, recognised as the 'think tank' for water reform, were invited to work with the national and provincial governments and the World Resources Institute to plan effective

implementation of the new tax through open stakeholder participation and dialogue. The partners brought together the interests and expertise of industrial users and multiple government bodies. The water department classified users, planned for installation of new metering equipment, and monitored the amount of water consumed by water users. The tax authority calculated charges and collected the tax. The finance department determined the investment needed for the reform and use of the income. The information centre that would receive and process data was constructed jointly by the water and tax departments. Meetings, investigations, and discussions gave worried industrial users the opportunity to express their concern about higher water costs, and to learn about options for saving water in their operations.

The new system was in place by 2016, with new water licences issued and illegal wells closed. Technical experts had been brought in to provide water saving advice to companies. The province's growing business expertise in wireless sensor networks made it possible to install state-of-the-art water meters so users were now able to access data about their usage directly, and to pay their tax online. This was a real benefit for the industry managers responsible for water conservation – what had been, for many, an onerous part-time task.

The rapid and successful implementation of Hebei's water tax reform project led to its replication. In December 2017, similar pilot projects were introduced in nine other provinces: Beijing, Tianjin, Shanxi, Inner Mongolia, Henan, Shandong, Sichuan, Ningxia, and Shaanxi. These were guided by a handbook titled *The Policy System of Water Tax Reform* that summarised Hebei's experience and approach and provided standards and instructions for calculating quantities and rates. Experts from both GWP China and GWP Hebei contributed to the handbook.

In 2019, GWP China invited experts from the China Institute of Water Resources and Hydropower Research to evaluate the progress and effectiveness of the pilot work. A survey of more than 500 companies showed the change brought about by the tax reform 'nudge'. Companies reported better understanding of the need for water saving and improved handling of water in their industrial operations. For example, a paper company had saved 700,000 m³ of annual water withdrawal and achieved a 90.8 percent water reuse rate, and a steel producer led its industry in introducing reused urban water after shutting down all its wells, saving 14.6 million m³ of water a year. At the regional level, groundwater extraction has fallen by close to 10 percent.

While these successes make the benefits of the tax reform clear, Professor Pan Zenghui of GWP China Hebei explains that there is still much to be done. ***"The pilot work has shown us that our water tax rate system is complex – there are about 100 water tax rates in the system, and there are different rates for different types of water use located in different areas. We need to simplify. With this enabling reform, more investigation and discussion should be done for discovering new problems and solving them. And public participation should play a more important role in the future."***

But the challenge of juggling many categories and working out complex calculations has brought provincial government departments closer to one another: there is now ongoing collaboration between water and tax departments.

GWP's role as local facilitator and source of expertise continues to support this transformative process, and to capture the learning that will be of use as China's physical and economic environment continues to change.



*Gezhouba Dam on the Yangtze River, and the upstream approach to the ship locks
Credit: Vmenkov via Wikimedia Commons*

Supporting countries' climate planning

National Adaptation Plans (NAPs), submitted to the UNFCCC by Least Developed Countries, describe the countries' perception of their most urgent and immediate needs to adapt to climate change, and are used to identify priorities

for funding. Supporting development of NAPs to ensure inclusion of water has been an important part of GWP's strategy. In Cameroon, for example, GWP's Country Water Partnership played a key role in developing a NAP and investment strategy.

CENTRAL AFRICA

Supporting a National Adaptation Plan and investment strategy for Cameroon

Cameroon is no exception to the impacts of climate change, as the country is already facing an abnormal recurrence of extreme weather phenomena such as violent winds, high temperatures, and heavy rainfall, which endanger communities' ecosystems and the services they provide. Cameroon is particularly exposed because of its territories in the Sahelian zone, which are hit hard by desertification, and its territories in coastal areas that are threatened by rising sea levels.

To reduce the vulnerability of communities, property, and ecosystems to climate risks, Cameroon initiated the process of developing a National Adaptation Plan for Climate Change (NAPCC) in October 2012,

ending in May 2015 with the endorsement of the Plan. In 2016 an estimated €1.5 billion was required for implementing the NAPCC as part of the country's Intended Nationally Determined Contribution. Thus, the NAPCC became part of the Paris Agreement, and should benefit from the financial pledges with legal force under the United Nations Framework Convention on Climate Change. Global Water Partnership Cameroon was a key player in this work.

*The water storage units called "Châteaux" in Yaoundé; seen from the main gate to the campus of University of Yaoundé
Credit: Bdx via Wikimedia Commons]*



Cameroon's Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED), in collaboration with GWP Cameroon and the United Nations Development Programme (UNDP) Cameroon country office, organised a national workshop to present and validate the country's National Adaptation Plan (NAP) in August 2014. Following an analysis of the depth of work required to finalise the NAPCC document, the MINEPDED established a taskforce to integrate comments and recommendations from the validation workshop into a final consolidated NAPCC report. GWP Cameroon was a member of the taskforce, supporting the process of finalisation by providing two experts with

the specific responsibility of mainstreaming water sector issues into the NAPCC document and support the costing of approved adaptation projects.

In 2016, to strengthen their partnership for effective fundraising for the NAPCC implementation, MINEPDED and GWP Cameroon started work on a National Investment Plan for Adaptation on Climate Change. The priority actions of the NAPCC, aimed at reducing vulnerability in the key coastal and Sudano-Sahelian areas of Cameroon, were reported in the national investment plan with an estimated budget of 60 billion Central African CFA francs (€91 408 296,00). The investment plan served as the basis for the budgeting section of Cameroon's Intended Nationally Determined Contributions in 2016, and was presented as the operational framework of NAPCC, as a national and external fund investment planning document, and as a governance tool enabling the visibility and coordination of actions.

GWP's contribution has been acknowledged by Cameroon's Ministry of Environment:

"The support brought by GWP to the Ministry of Environment in the search of funding is really a big step in the framework of cooperation with Cameroon: the Ministry of Environment is open and ready to work with partners so that the nationally approved adaptation and mitigation measures are effectively implemented as a means of reducing the negative impacts of climate change in Cameroon."

GWP provided additional NAP-related support through the capacity development components of the Economics of Adaptation and Water Security and Climate Resilient Development programmes in Africa. The focus has been on training personnel from key ministries and other government agencies to mainstream climate resilience and water security in the planning and implementation of national development projects and programmes, with priority given to no/low regret adaptation options.

GWP helped to reduce the vulnerability of Cameroonians to the effects of climate change by working through the multiple steps involved in the NAP and investment planning processes, and ensuring that stakeholders were meaningfully involved at all relevant stages. This has improved resilience, quality of life, and the adaptive capacity to create new opportunities to support Cameroon's sustainable development.

*Fluoride-contaminated well in northern Cameroon
Credit: GWP Central Africa*



Local Adaptation Plans for Action (LAPAs) strengthen and allow for implementation of prioritised national adaptation actions. GWP, observing that the NAPs were a point of entry for integrating water into national

level planning, began to incorporate them in WACDEP programming. In Nepal, for example, GWP's South Asia Region and Nepal Country Water Partnership worked to include water in LAPAs.

SOUTH ASIA

Water aligning national and local responses to climate change in Nepal

Nepal, a country of mountains, is especially vulnerable to climate change. More forest fires lead to flash floods and landslides, melting glaciers create overflowing lakes, and delayed monsoon and winter rains make food production unpredictable. Recognising these changes, Nepal has been working towards climate change resilience through national adaptation planning, beginning with developing a National Adaptation Programme of Action in 2010. And, because it is a country of many remote rural villages, the country was among the first to include local participation in climate-aware planning by adopting Local Adaptation Plans of Action (LAPAs), a local planning process to address the impacts of the most pressing climate change challenges relevant to communities.

LAPAs aim to translate broad national adaptation policies into meaningful action and monitoring plans at village and community-levels by capturing local needs and directing resources to the most vulnerable people and areas. Between 2010 and 2016, British and European aid supported development of LAPAs that were designed to assess site-specific climate vulnerabilities, identify and prioritise adaptation options, and implement urgent and immediate adaptation actions with participation of local communities.

In 93 Village Development Committees and seven municipalities in the 14 most climate vulnerable districts of mid- and far west Nepal, the LAPAs targeted issues relevant to specific communities and areas, from watershed protection to construction of irrigation canals and water-driven grinding mills. Created under separate projects and programmes, they took shape depending on local conditions and community involvement.

Nepal's National Adaptation Programme of Action had included water and energy as one of the seven important areas of impact, but implementation of the LAPAs provided an opportunity to investigate how often, and how, water issues had been included in the work in the country's regions at most risk from climate change. This was a window of opportunity for Global Water Partnership South Asia and the Nepal Country Water Partnership, with local partner Jalsrot Vikas Sanstha, to prepare a water-focused LAPA for Lamatar Village Development Committee. The programme assessed water resource conservation-related adaptation actions in close to 100 existing LAPAs to locate 'entry points' to integrate adaptation activities into local planning processes.

Former Joint-Secretary and Head of Nepal's Climate Change Management Division, Batu Uprety explains, ***"We learned that local people had aspirations related to their development needs, but there was a lack of real climate information. People were already responding to climate changes in their own way But LAPAs were instrumental in building adaptive and resilience capacities of the local climate vulnerable communities in a planned way."***

The findings of the study were useful. More than 50 percent of the LAPAs studied addressed water issues and included proposed budgets of up to 50 percent for planned activities that would tackle these. Many of these focused on infrastructure development: dams, irrigation and drinking water supply systems, and micro hydro. In response, the study recommended establishing a core technical unit at local levels for timely support in planning, budget management, and implementation. The Ward Citizen Forum body was identified

Consultative workshop on the assessment of water focused climate adaptation actions and its integration into local planning processes in Kathmandu, 17 June 2016
 Credit: GWP South Asia



as an appropriate entry point for LAPA activities. Other GWP recommendations that complemented infrastructure work, such as promoting forest conservation, planting of water-retaining species, and water conservation practices rounded out learning from the study.

Nepal's Ministry of Environment, the climate change national focal point, and Water and Energy Commission Secretariat put the study's findings to use in formulating and implementing climate adaptation activities. Then Jalsrot Vikas Sanstha/GWP Nepal continued to support Nepal's drive towards climate change resilience through participation in the working group on water and energy for Nepal's preparation of its National Adaptation Plan (NAP). This included preparation of two separate stocktaking reports for the water resources and agriculture sector as inputs for the NAP formulation process.

Learning from implementation of the 2011 Climate Change Policy, and reflecting a change in political context, in 2019 the Government of Nepal issued a revised policy that aims to enhance adaptation and build resilience, and specifies functional implementation roles at the federal, provincial, and local levels. Similarly, the government issued a LAPA Framework in early 2020 based on previous lessons and approved a new Environment Protection Act that provides provisions to formulate and implement adaptation planning to reduce the adverse effects and risks of climate change.

Shared learning has transformed Nepalese governance processes to better cope with the changes of a warming world and large-scale shifts in weather, with water as the common thread that pulls community and national planning together.

Countries referred to as Parties to the Paris Agreement commit to addressing climate change through contributions that are nationally determined according to a country's socio-economic development and climate change circumstances. Nationally Determined Contributions (NDCs) – action plans that express the countries' own conditions, capabilities, and priorities – are a powerful framework for laying out national planning for mitigation and adaptation. They have

the potential to guide priorities such as building climate resilience and climate-resilient infrastructure through mobilising finance, and for enhancing the necessary policy and regulatory frameworks. NDCs are meant to grow and change as countries increase their ambitions to reduce emissions and adapt to changing climate conditions. In Paraguay, the GWP Country Water Partnership has helped to shape the country's second contribution.



Body of water close to
Luque City, Paraguay
Credit: GWP South America

SOUTH AMERICA

Raising ambition for adaptation in Paraguay's NDCs

South American countries were among the first to ratify the Paris Agreement and to submit NDCs. Sustained by agriculture and forestry, the economies of these countries are especially vulnerable to the effects of extreme weather. One of these is Paraguay, whose exports of soybean and cotton, and production of livestock support close to 7 million people, and whose water resources closely link food production, transport, and energy.

Paraguay's first NDC focused on reducing deforestation, increasing renewable energy, and improving transport. Adaptation to climate change was included as a priority in the National Development Plan 2030, and Paraguay published a National Plan for Climate Change Adaptation in 2017. Developing a more nuanced understanding of the country's needs, and a more detailed set of actions to address climate change issues were the next steps.

Global Water Partnership South America (GWP-SA), collaborating with members of the NDC Partnership and Paraguay's Ministry of Environment and Development, are taking these steps by formulating new adaptation goals that reflect the country's current context and that are aligned with the country's climate change adaptation plan. The work aims to help prepare the country's submission for the second round of NDCs by strengthening data and evidence, creating a stronger link to existing development plans and the Sustainable Development Goals, incorporating gender considerations, and including a plan to monitor NDC implementation.

Training leaders to promote an ambitious climate vision and convening public- and private-sector stakeholders to contribute to the NDC update are key activities to support this work. Successful adaptive practices that are developed in communities are more likely to be sustainable than approaches imposed from outside. New technical knowledge gained since submission of Paraguay's first NDC, such as that supplied by climate models and analysis of national emissions, can be successfully applied only if it is seen to be relevant to the country's economy and livelihoods. That means capturing and incorporating the experience of Paraguayans from local to national levels, and across economic sectors.

GWP is doing this by creating a baseline analysis of how the country has already been adapting to climate change, and building on this analysis to create new adaptation targets and formulate plans to monitor and measure progress. For example, the country has been evaluating the use of groundwater in the Guaraní aquifer that supports Paraguay and its neighbouring countries.

Potential pathways and responsibilities for the proposed adaptation goals are clarified by engaging stakeholders in reviewing the baseline analysis, and in understanding the interlinkages between the national and international planning processes and frameworks.

The Partnership’s contribution to national development planning processes has been closely linked to the UNFCCC National Adaptation Planning process, a critical effort for countries to work on medium-to-long-term climate change adaptation and on accessing climate funds. The guiding principles in the *Strategic Framework* align the processes of generating and sharing knowledge and experiences, integrating climate change into relevant and existing policies

and programmes, and developing and implementing new policies and programmes, where appropriate, with the NAP process. This has given GWP the opportunity to meaningfully influence how water is positioned in the global climate action agenda, while also securing critical entry points for programme interventions in regions and countries. In Central Asia and the Caucasus, for example, GWP prepared an analysis of NAPs and NDCs to inform national planning processes.

CENTRAL ASIA AND CAUCASUS

From commitments to change: analysing water and climate response in Central Asia and the Caucasus

Over time, programme implementation at country level can lead to insights at the regional level. These, in turn, can help to shape targeted interventions that transform governance and planning processes.

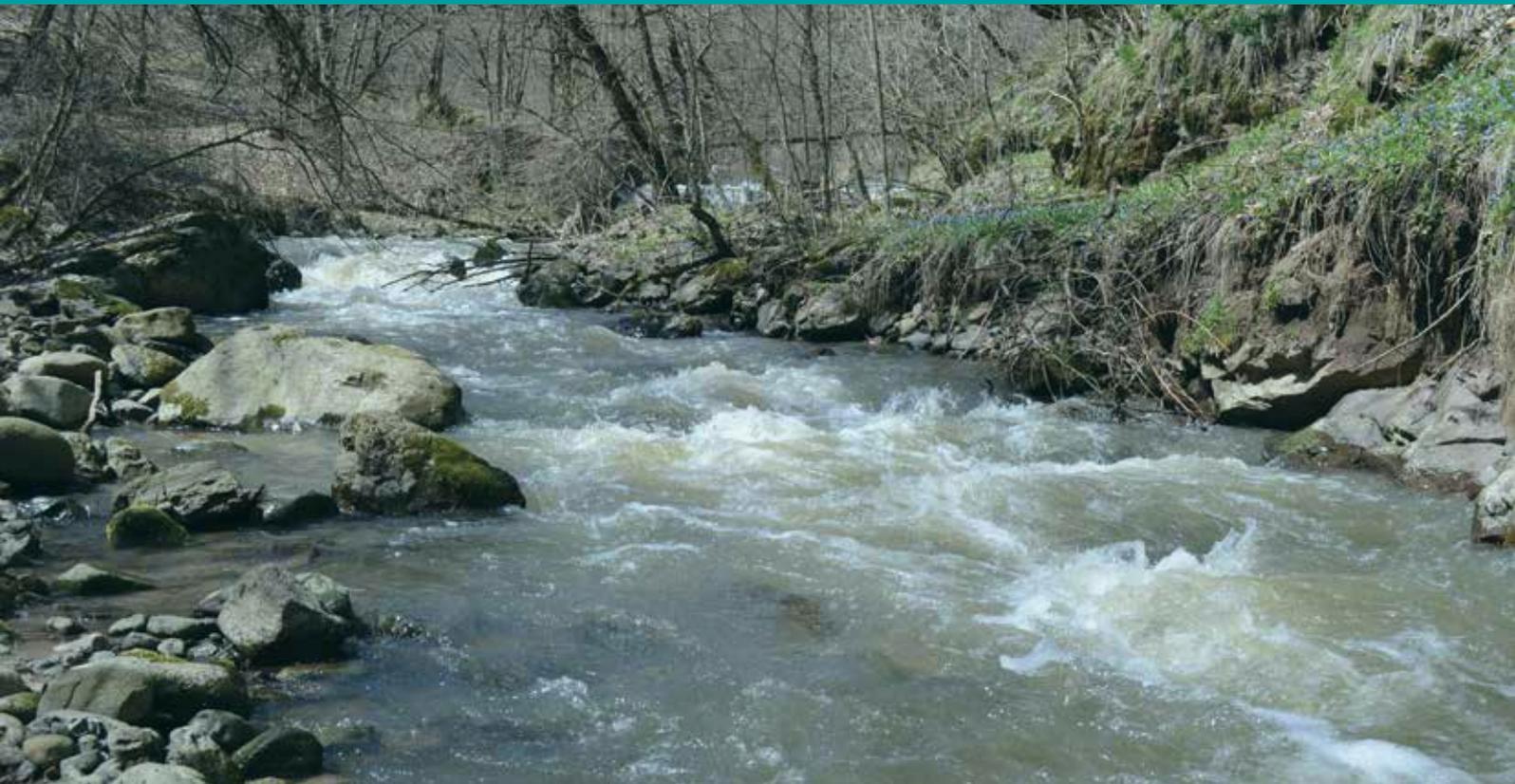
Following several years of WACDEP programme work in the countries of the Caucasus and Central Asia region (CACENA), GWP analysed the preparedness of the region to meet the needs for water security and climate-resilient development. All nine countries – Mongolia, Uzbekistan, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, Azerbaijan, Armenia and Georgia -- are signatories to the United Nations Framework Convention on Climate Change,

but their readiness to implement their commitments under the Paris Climate Agreement was unclear. In 2016 GWP and partners conducted a gap analysis review of water in the countries’ official documents related to National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs).

The region of geographic contrasts, from mountain glaciers to arid plains, faces a combination of rapid climate change processes and intensive water use. Inadequate drinking water supply and sanitation are problems in many countries. Transboundary water cooperation is complicated, and water use efficiency in irrigated agriculture is low.



Fields and mountains in Armenia
 Credit: Country Water Partnership – Armenia



Rippling stream in Armenia

Credit: Country Water Partnership – Armenia

GWP's analysis showed that the region's progress in meeting climate change goals was challenged by a residual mindset that environmental considerations work against economic activities and social development, a perception that regional cooperation is impeded by conflicts of interest, and that extreme climate events are to be viewed as short-term threats to be eliminated rather than as risks to be reduced. There was a shortage of research and training institutions focused on hydrology and meteorology to provide much-needed data, and the close inter-agency cooperation and inter-sectoral coordination required to implement NDCs was missing.

The analysis also showed that, despite awareness of climate risks and adaptation issues in the region, governments and businesses remained largely unprepared. Four CACENA countries out of nine did not identify agriculture and water as vulnerable sectors in their NDCs. Just one country assessed the cost of recent climate hazards, and two assessed the cost of future hazards. Costs of adaptation and investment needs were assessed by only three countries in their NDCs. None of the countries identified quantified adaptation targets or mentioned the link to SDGs. Understanding of adaptation issues was low for all decision-makers in the region.

The results were presented at a GWP Pan-Asia strategy meeting, held in September 2017 in Sri Lanka, and a regional climate conference, held in February 2018 in Kazakhstan. For GWP, the process helped to match the region's needs to

its own strengths: providing a neutral platform for dialogue, sharing knowledge about climate hazards and vulnerability assessment, and forging links between scientists and policy-makers to ensure sharing of relevant information.

The review showed that there is a clear need to support the dissemination of research on vulnerability assessment and on the possibility of adaptation of ecosystems and sectors dependent on water to climate change. This will require the collection and analysis of a large amount of information and, accordingly, improvement of national statistics systems, as well as enhanced cooperation and interaction with relevant ministries and departments.

The gap analysis also identified a role for GWP CACENA in integrating climate change issues and environmental knowledge with educational programmes and development plans. This would increase understanding of the role of water in the causes and consequences of climate change, and of the measures and activities needed to prevent its negative consequences.

Finding the most appropriate role and partners to build resilience in regions requires observation and reflection, rather than a one-size-fits-all approach. For the Caucasus and Central Asia countries, the Paris Agreement gap analysis provided GWP with essential insights for achieving and maintaining much-needed change.

Planning with country neighbours: regional and transboundary cooperation

Many water resources, both on the surface and underground, cross national boundaries. This is especially so in Africa, where transboundary rivers feed 64 percent of the continent's land area and regional organisations have created institutions to share the water and benefits of these resources. It is a clear priority for GWP to support these institutions – AMCOW, Regional Economic Communities, and River Basin Organisations – to advance regional cooperation in climate change adaptation for pan African regional and economic

development. Support to countries has focused on ensuring that these institutions are considered in regional development programmes by identifying and elaborating climate change adaptation investments that can enhance water security and climate resilience.

Over the past ten years, GWP and partners contributed to ten transboundary river basin agreements and management frameworks. These include an agreement signed in 2019 between Mozambique and Zimbabwe to cooperate in managing the transboundary Buzi watercourse, and new management plans and strategic approaches for the Zambezi basin in southern Africa and the Volta basin in West Africa. A further example is the mechanism set up by Algeria, Libya, and Tunisia to jointly manage the North Western Sahara Aquifer System.

MEDITERRANEAN

Crossing hidden borders: water management in the North Western Sahara Aquifer System

€1 million

Funding for a project to strengthen the transboundary consultation mechanism in the North Western Sahara Aquifer System

Deep below the wind-blown sands of North Africa lie dark lakes of old water. While ancestral irrigation systems have tapped this resource over centuries in the region's oases, its water is now being brought to the surface in ever-growing quantities to nourish commercial palm and arboriculture plantations in Algeria, Libya, and Tunisia. This agricultural transformation of the desert, however, may not last, because there is little replenishment of the aquifer, and hotter and drier weather brought by climate change is increasing demand for the resource. Soil degradation and increased energy demand for water pumping add to these problems.

Recognising the North Western Sahara Aquifer System (NWSAS) as a shared resource, in 2008 the three countries agreed to establish a consultation mechanism to plan for its sustainable use: the Consultation Mechanism of the North Western Sahara Aquifer System. Their decision had been influenced by the findings of a series of studies carried out with the support of multiple partners. The

studies encouraged joint data collection and the use of hydrogeological models to monitor the aquifer's behaviour in response to water withdrawals. Under the guidance of the Consultation Mechanism and in the framework of WACDEP, in 2013 Global Water Partnership-Mediterranean (GWP-Med) built on this work and evaluated climate change impacts in the basin. While government decision-makers in the three countries had recognised the signs of climate change on surface lands, they still needed to make the connection with climate impacts on the deep waters of the aquifer. This work brought the message home: climate change leads to increased water demand, which in turn, leads to increased use of the aquifer and aggravation of salinity. As a result, significant reductions in agricultural production are predicted due to the deterioration of water and soil quality but also to the disturbance of crop life-cycles. These conditions would ultimately cause the loss of revenue, increase vulnerability of the region's populations, and accelerate migration.

This work built the capacity of the Consultation Mechanism to help the countries to understand both the changing environment and to analyse options together. The need to access funding to address climate change issues was clear, but the institutional structure of the transboundary body would not allow access to many international financing mechanisms. GWP-Med, at the request of the countries, responded by analysing how to enhance the body's legal status and structure to match its growing needs and ambitions.

The most important insight from GWP-Med's support since 2013, and the engaged analysis and discussions, was recognition of the complex interdependencies among water security, energy sustainable production and use, food supply and affordability, and the environment. This recognition led to the adoption of the Water–Energy–Food–Ecosystems Nexus approach, which seeks to achieve the security of all three productive sectors, water, food, and energy, while ensuring preservation of essential ecosystems.

Key to this interdependence is all three sectors' reliance on common groundwater resources. There are indirect and often unintended impacts of specific government policies such as energy subsidies, renewable energy deployment, and introduction of thirsty high-value crops. Choosing options for shared water management calls for an integrated and coordinated approach that takes the economies of the three countries as a starting point.

Working with the United Nations Economic Commission for Europe and the Sahara and Sahel Observatory (OSS), GWP-

Med used a series of participatory workshops to develop a clearer understanding of this nexus in the NWSAS countries. Findings of the monitoring and climate change studies helped to identify sector interdependencies, the factors linking ecosystem degradation, and solutions to achieve resilient and sustainable socio-economic development while reducing inter-sectoral trade-offs and maximising synergies. A novel GIS integrated resource model for the agriculture–water–energy nexus in the NWSAS was developed to map scenarios and options, and help decision-making. The nexus work also led to another vital shift in thinking among the countries' decision-makers.

“When the countries saw how all these economic activities were linked, and how climate change was affecting them, they were more willing to include other stakeholders in the problem-solving process”, says Sarra Touzi, GWP-Med specialist.

While moving from a focus on water use to adoption of joint management across borders and sectors is a transformative process that takes patience and time, it builds broad understanding of common problems and long-term sustainability. GWP's experience with the North-Western Sahara Aquifer System brings home the lesson that partners should not be discouraged by today's small or 'difficult to measure' changes, and should not interrupt support for this dynamic process that is key to preparing the way for larger impacts.

Irrigation in oasis in North Africa
Credit: Sarra Touzi – GWP Mediterranean



Stimulating water investments for growth and development

Strategies, plans, and investments that promote sound water resources management are a cost-effective way of delivering both immediate development benefits and of building resilience to longer-term climate change. A 'no/low regrets' approach to enhance climate resilience through water helps to manage uncertainty by focusing on interventions that will bring value whatever climate scenarios play out. In other words, governments will have no regrets later about spending money now on key priorities, regardless of what the future holds. No/low regret options include 'soft' approaches such as effective river basin and watershed management, and 'hard' approaches such as storage mechanisms and pipelines. The Partnership has provided support to guide gender sensitive 'no/low regrets' investments and financing options for both.

High-level political support is needed to integrate water and climate investments in existing planning systems. The process should be anchored in a higher-level government ministry or body with the authority to convene sectors, such as the Ministry of Finance. Understanding of the national development planning process and its budget timelines is also required. Investments should be integrated into bilateral and multilateral country assistance, and political and administrative 'windows of opportunity' identified for detailed planning and implementation of investments.

Setting out goals and priorities, identifying the types of investments and the necessary timelines appropriate to achieving these, and assessing financial feasibility and institutional arrangements are challenges for many countries and institutions. GWP has been able to assist countries by helping to build on existing integrated water management plans to clarify investment priorities and establish plans for accessing differentiated finance for projects.

€1.5 billion investments, a dozen investment plans: mobilising project preparation and financing

Over the last decade, GWP influenced over €1.5 billion in climate resilience water investments across the globe. For example, support was provided for the development of more than 30 investment plans, strategies and budget commitments.

The following are examples of water and climate funding mobilised through GWP work:

- Central Africa: World Bank funding to support the Economic Community of Central African States Hydromet project (€200,000)

- Democratic Republic of the Congo: Investments for the West Kinshasa Integrated Urban Water Management (IUWM) Master Plan and Investment Programme (€1.6 million)
- Eastern Africa: Funding for a project to strengthen drought resilience for smallholder farmers and pastoralists in Djibouti, Kenya, the Sudan, and Uganda (€11.8 million)
- Ghana: White Volta Basin IWRM Investment Plan (est. €34 million)
- Limpopo Basin IWRM Resources Mobilisation Strategy 2018–2022 (€768,000), contributing towards developing a full project proposal to mobilise (€5 million)
- Mauritania: World Bank funding for the implementation of the National 10-year Action Plan for the Monitoring & Evaluation (M&E) System of Water Resources and WASH (€3.1 million)
- Mozambique: Chimoio and Inhambane IUWM investment plans (est. €10 million)
- Northwest Sahara Aquifer System: Funding for a project to strengthen the transboundary consultation mechanism in the Northwest Sahara Aquifer System (€1 million)
- Orange-Senqu basin: ORASECOM investment strategy (est. €542 million)
- Rwanda: Funding for the project 'Promoting Sustainable Agriculture in a Changing Climate in Bugesera District' (€1.1 million)
- Slovak Action Plan for Drought national budget (est. value of more than €140 million)
- Southern Africa: Funding for the SADC-GIZ (German Agency for International Cooperation) Transboundary Water Management Programme (€570,000)
- Tunisia: Mobilisation of funding for the Tunisian Government from L'Agence Française de Développement Adapt'Action Facility (€1.9 million)
- Uganda: Catchment level investments in integrated water and land management (€2.6 million)
- Volta Basin: Funding for flood and drought risk reduction in the Volta Basin (€7 million)
- Volta Basin: Funding for the Volta Basin Strategic Action Programme Implementation Project (€90,000)
- Zambia: GCF funding for the development of the Zambia National Adaptation Plan (€2 million)
- Zimbabwe/Mozambique: Funding for transboundary water management in the Buzi, Pungwe, and Save basins shared by Zimbabwe and Mozambique (€350,000)
- Zimbabwe: Funding for the development of an IUWM Masterplan for Marondera Municipality (€2 million).

No/low regrets investments have the potential to attract finance from a wide range of sources, including conventional sources as well as emerging climate adaptation and mitigation financing streams. Assisting institutions to obtain appropriate financial support for major projects is a growing activity in GWP's water and climate programme work. Part of this work for developing countries involves justifying more attention by climate funders to adaptation rather than mitigation because developing countries create few of the emissions that drive global warming but bear more of the negative impacts of climate change.

Understanding that substantial development is essential to meet increasing demand for water, that significant financial investment will be needed to meet the threats of climate change, and that human capacity to respond to these needs is still low, GWP has included project identification, planning, and proposal development in its work. The aim is to support countries and regions to enhance knowledge and efficiency in project preparation and to obtain funding from both traditional sources of financing and recently established climate change funds.

Developing investments must be anchored in mandated institutions that take a central coordination role in the detailed planning and implementation of the investment portfolio. This has to be assigned to an appropriate responsible authority, as was the case in the preparation of an investment

strategy for the Orange-Senqu River Basin in southern Africa, building new capacity for the regional body to manage large and complex development projects that share water security benefits across national boundaries.

SOUTHERN AFRICA

Investing to build resilience to climate change in the Orange-Senqu basin

€50 million

Climate-Resilient Water Resources Investment Strategy estimated value of €50 million

All major river systems of southern Africa are shared by more than one country. Crossing borders, and sometimes changing names, their waters have to meet the needs of users in many different locations. Member states of the Southern African Development Community (SADC) have been working together for more than 20 years to learn how to jointly manage these rivers to support economic development while preserving the ecosystem services that they provide to people. Carefully negotiated integrated water resources management (IWRM) plans now guide these efforts, with transboundary river basin organisations in place to advise national governments on their implementation.

The next step after adoption of an IWRM plan is to look at how to put its recommendations into practice. Building and maintaining water infrastructure such as storage, conveyance, and treatment systems is costly. What are the priorities? Who will pay, and for what? Because water affects so many different human activities, how can the costs and benefits of managing, developing, and using it be fairly shared?

One of GWP’s key programme areas focused on these questions, supporting governing institutions to prepare investment and financing strategies and plans for water security, while building in resilience to climate change. A big opportunity to do this arrived in 2014, when the Orange-

*Klein Pella, Orange River, Northern Cape, South Africa, 2015
Credit: South African Tourism*





*Orange River gorge and tree, Northern Cape, South Africa
Credit: David Steele*

Senqu River Commission (ORASECOM) completed its IWRM plan. Implementing joint water management for this large and economically active basin, which serves 19 million people in Lesotho, South Africa, Botswana, and Namibia, was urgent: variability in rainfall and hydrological flow patterns was high and increasing. As a partner that had been involved in supporting ORASECOM's programmes since the establishment of the Commission, Global Water Partnership Southern Africa (GWP-SAF), through WACDEP, helped ORASECOM to prepare for development of a climate-resilient water resources investment strategy. The aim of the investment strategy was to prioritise actions that would enhance resilience in the Orange-Senqu River Basin system.

GWP-SAF helped to identify funding opportunities to pitch the idea of implementing an investment planning process in the basin to the African Water Facility. Supported by GWP-SAF, ORASECOM successfully argued the case for funding assistance through a jointly developed concept note. GWP further facilitated support through the New Partnership for Africa's Development Infrastructure Project Preparation Facility to develop the Climate Resilient Water Resources Investment Strategy and Multipurpose Project Preparation for the Orange-Senqu River Basin. With confidence and trust built, more partners were drawn in, including the Climate Resilient Infrastructure Development Facility and the Stockholm International Water Institute.

Through an agreed strategy, the partners would aim to promote sustainable socio-economic growth in the basin

riparian countries through climate-resilient water resources development, with an emphasis on multipurpose projects for both rural and urban areas.

The first need was to identify investment goals and priorities, the appropriate actions to achieve these goals, and their timelines, institutional arrangements, and financial feasibility. GWP-SAF supported ORASECOM in this process by engaging with stakeholders and working with the Commission's Technical Task Team to build capacity, mobilise resources, and raise awareness of climate resilience and investment planning development.

A priority project emerging from the investment strategy was a proposed water transfer from Lesotho's highlands to Botswana. This would involve priority transboundary work on investments in infrastructure, governance, and supporting information systems to enhance overall resilience in the basin.

For the first time, ORASECOM was helping its riparian governments to prepare a transboundary project, reinforcing the principles of regional benefit sharing among the countries, and building new capacity to manage large and complex development work. Through WACDEP, ORASECOM had moved from providing knowledge about management of the basin towards influencing the way water storage and transfer schemes are prepared. These infrastructure developments stand to contribute considerably to the Orange-Senqu basin's adaptation to climate change.

Screening of ongoing development activities and identification of new options for climate resilience often result in a broad range of ideas and proposals for investments. Selecting from these ideas and options to create a balanced portfolio of priority investments requires evaluation against criteria representing opportunities and barriers. This is a process that gets

best results when it is participatory and inclusive, bringing in the experience and needs of affected populations. An example of this was development of a regional plan in Tunisia, where a combination of local and broader sources of knowledge produced relevant and trusted recommendations that were incorporated in Tunisia’s national development planning process.

MEDITERRANEAN

Inclusive investment planning for a Tunisian watershed

€1.9 million
Mobilisation of funding for the Tunisian Government from L’Agence Française de Développement Adapt’Action Facility

In Tunisia’s mountainous and forested north, rivers fill rarely yet ferociously, scoring the hillsides as they send their waters down to the sea. The water carries away the topsoils that sustain farmers’ crops and livestock grazing. Then follow months of drought. In the past, farmers would place riprap – or contour banks – to capture and store some of this water and avoid erosion, but that sufficed only for small-scale agriculture. In modern times, with increased commercial production of irrigated export crops such as wheat and vegetables, there are more water shortages and increased pollution of existing water sources from fertilisers. Climate change is adding to these challenges.

The Douimis River watershed flows into Lake Ichkeul, Tunisia’s national wetland park classified as a Ramsar Site, and

has become ecologically fragile due to advanced erosion. At least 46 percent of agricultural land in the area is severely eroded. The region’s farmers talk about the exacerbation of these forms of degradation resulting from climate change, referencing increasing temperatures, decreasing rainfall, and wildfires that together create conditions of hardship:

“Now there isn’t enough rain, fires have become common, droughts frequently causing a lot more work for us. We are always thirsty. We don’t have roads, which makes collecting water even more difficult. We have a well, but engineers have come to tell us that the water is not good to drink. So we had to go 15 kilometres – I went myself only to find that the source was dry. We are going to stay thirsty for the next 10 days.” Douimis Basin farmer.



*Douimis Basin farmer in Tunisia
 Credit: Adel Bakri*



Fields in Doumis Basin, Tunisia
Credit: Adel Bakri

Tunisia's national government, which combines the responsibility for water resources management with agriculture, has recognised the region as especially vulnerable and as a priority intervention area for water and soil conservation projects.

In 2010, Global Water Partnership Mediterranean (GWP-Med) initiated a demonstration project through WACDEP to support the Tunisian Government's planning for soil and water conservation in the region. This brought together a cross-section of stakeholders – scientists, farmers, local communities, and national and regional government representatives – to learn about the conditions and potential of the region, and to begin working together to help decide how best to create a sustainable future there.

GWP-Med applied its understanding of the need to involve different types and levels of stakeholders from the beginning. It has established a close collaboration with the Tunisian General Department for Planning and Conservation of Agricultural Lands at the national level, and the regional Department for Agriculture Development of Bizerte at the local level. The National Meteorological Institute and the National Research Institute for Rural Water Engineering and Forestry, as national reference institutions, brought science to the project in the form of climate change models and rural development research. Facilitation groups were formed to bring the voices of farmers and community members to meetings and workshops.

The project explained climate science in language that could be understood by all; through vulnerability and risk maps, the project visualised the potential impacts and made the urgency to act jointly easy to comprehend. While availability and quality of water was naturally an important focus for discussions, the WACDEP approach recognised the need to consider and discuss critical related socio-economic issues such as land tenure, education, culture, and transport. Five thematic planning groups tasked the stakeholders to look at issues related to infrastructure, natural resources conservation, land tenure, human development, shared equipment, and productive sectors, coming up with practical solutions that could be included in a planning document. The groups also discussed how the government could budget for priority issues.

Working together to deal with local problems, the stakeholders produced highly relevant recommendations that were integrated into Tunisia's Five-Year Development Plan 2016–2020.

Enthusiastic local participation and contributions to the Douimis regional planning process created a model for Tunisia to use in other management plans. They also created new connections among those who participated. The process made clear that a combination of lived experience, scientific evidence, and understanding of management needs is the basis for a strong and locally relevant response to climate change.

As in the case of investment planning, many national institutions struggle when developing proposals to explain and link action on water-relevant infrastructure and water governance and institutions in the context of adapting to climate change. Challenges include design, structuring finance, and coordinating cross-sectoral input. Climate funders can require that organisations be accredited, or that they must partner with an accredited body to begin negotiations. The Partnership has supported Regional Economic Communities, River Basin Organisations, and countries in developing water security and climate resilience-related bankable projects. It has done this

by first strengthening governance mechanisms, and then assisting in the step-by-step process of identifying priorities, forecasting barriers and results, justifying the investment, and then requesting funding. An example of this process is the Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and Related Resources in Uganda (EURECCCA) project, where WACDEP helped Uganda to access climate finance for an integrated catchment management programme that addresses land and ecosystem degradation while improving the livelihoods and resilience of smallholder farmers.

EASTERN AFRICA

Protecting fields and forests in Uganda

€6.5 million
Adaptation Fund

Rain that falls within a region is naturally caught and distributed by rivers, streams, and other watercourses, with all the water ultimately running off to a single outlet. The geographic area that contributes to this process is called a catchment, and integrated catchment management aims to manage all components of the hydrological cycle that operate there, such as evaporation, precipitation, runoff, and infiltration. This also includes human activities like farming, construction, and forestry that have an impact on these components. The scale of catchment management must be large enough to capture all interacting elements but limited to ensure that people who live in the area can easily relate to what happens there.

Integrated catchment management has become accepted as the best way to manage water resources sustainably because the approach considers the most important factors – hydrology, climate, socio-economic activity, ecosystems, governance, and administration – and encourages public participation and transparency in decision-making. The approach also makes it easier to plan for the complex effects of climate change.

Uganda's Maziba, Aswa, and Awoja catchments are home to some of the most vulnerable people in the country, many of them small-scale farmers or herders in the regions' highlands, wetlands, and savannas. The three catchment areas characterise a spectrum of livelihoods and states of catchment health, ranging from densely populated high slopes and degraded areas dominated by crop farming

to semi-arid mixed agriculture. Use of the land and water in these catchments has intensified over the past 50 years, with cultivated fields climbing to the top of mountains and creeping to the edges of rivers and lakes.

People have cut many trees to make charcoal for cooking. When the rains come there is little vegetation to hold the water, so fields and buildings are flooded, and life-threatening landslides bring rivers of mud and debris to settlements. Rivers and streams become clouded with sediment that makes the water unusable and eventually leads to more flooding. Increasingly erratic rainfall is bringing drought episodes to this land of formerly plentiful rivers and lakes, while the melting of mountain ice caps has increased flooding and threatens reduction of the water stored long-term as ice.

WACDEP's assessment of priority climate and water issues in eastern Africa identified these conditions in Uganda's major catchments as needing urgent attention. WACDEP looked for a partner that could work with Uganda's Ministry of Water and Environment to apply an integrated catchment management approach to the region's problems. The right partner was found in the Sahara and Sahel Observatory (OSS), an accredited climate finance broker for both the Green Climate Fund and the Adaptation Fund. Global Water Partnership Eastern Africa (GWP-EA), working with OSS, supported Uganda's lead ministry in preparing an integrated catchment management project proposal that was compatible with community needs.

In 2017, a four-year programme, Enhancing Resilience of Communities to Climate Change through Catchment Based Integrated Management of Water and Related Resources in Uganda (EURECCCA), was launched. Its support by the Adaptation Fund of €6.5 million was a first for Uganda.

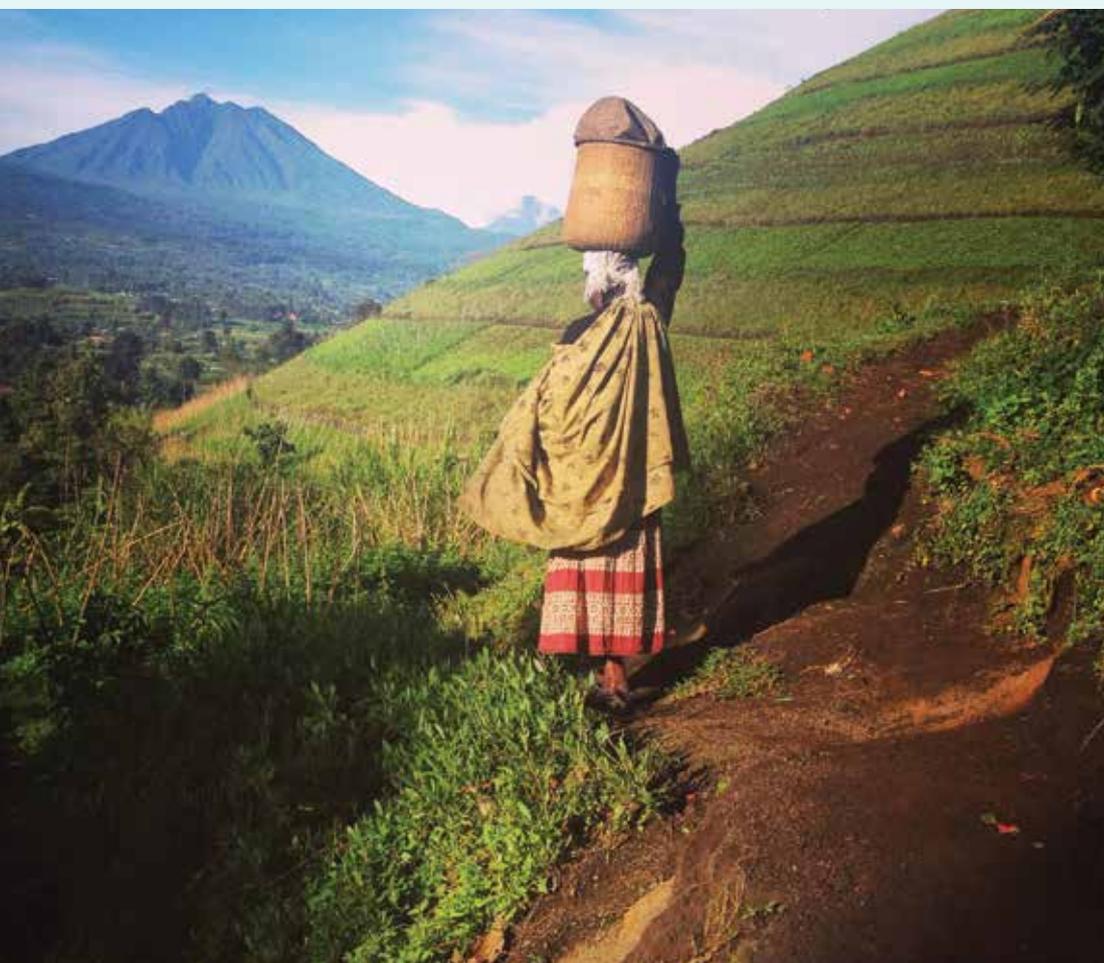
The design of the EURECCCA programme has built on Uganda's existing framework for integrated water resources management; it is integrating climate change adaptation in the catchment management plans for Awoj and Maziba, and developing a similar plan for Aswa that addresses linkages between land use and water resources. The programme is designed to facilitate engagement among the Ministry of Water and Environment, Ministry of Agriculture, Animal Industry and Fisheries, local government staff, catchment management committees, communities, civil society organisations, and the private sector, all to increase resilience of ecosystems, agricultural land, and community livelihoods to climate change.

Building the capacity of extension services and institutions at local catchment levels, water management zone levels, and national levels to better support local stakeholders is a key goal of the programme. In each of the three selected catchments, particularly vulnerable hotspots have been identified – in the highlands, the midlands, and the lowlands – to ensure that the programme addresses the need for catchment management at an appropriate scale.

Reforestation of the regions' slopes, restoring ecosystem services, and taking up new livelihood options require intensive learning. Therefore, the GWP-EA team not only provides strategic guidance through the project steering committee but also supports capacity building and knowledge management, especially focusing on rural extension services. This work has included a capacity needs assessment, delivery of training modules, training of trainers, and documentation of good practices and lessons learned.

The programme is leading to better control of floods and landslides across agricultural landscapes and to diversification of livelihood strategies. It is also building capacities of extension services and institutions at different levels, including sub-catchment, catchment, water management zone, and national. While the end goal is to support local communities and manage knowledge, it has become clear along the way that building the capacity of government agricultural extension services is leading to better support of local stakeholders.

From problem identification to programme implementation, GWP-EA, through WACDEP, has been able to ensure that Uganda is supported in its drive to address climate change using stakeholder-driven, integrated catchment-based planning, development, and management of water and related resources.



Woman climbing through mountain fields, Kisoro, Uganda
Credit: @jonathangiftos via Twenty20

Mobilising climate finance for water security

Historically, financing large water projects in Africa has been difficult. Now, added to challenges of loan service affordability and long payback periods, the uncertainty brought by climate change requires policy-makers and project proponents to consider alternative sources and mechanisms of financing that allow them to support much-needed development, especially for expensive water infrastructure. In 2014, to support the work of project preparation and financing, GWP, through WACDEP, brokered a strategic partnership with the Infrastructure Consortium for Africa, hosted by the AfDB, CDKN, and UNDP-Global Environmental Facility. The collaboration supported training and produced a series of guides to the project preparation process – a first in the field of water.

The guides incorporated GWP's experience. The importance – and complexity – of being thoroughly prepared for a funding request are made clear by the six-phase project development cycle recommended by the guides, with five of the phases devoted to project preparation, and the last to implementation and operation. Guidance is provided for early-stage conceptualisation, creation of concept notes for bankable projects, overcoming obstructions in the process, and use of numerous possible sources within an expanded pool of financing institutions.

Globally, GWP focuses on multilateral climate financing programmes, such as the Green Climate Fund and the Global Environment Facility. The purpose is to support financing of water projects and to support countries to submit project proposals in partnership with accredited agencies such as AfDB, the Austrian Development Agency, the Inter-American Development Bank, UNDP, United Nations Environment Programme, and others.

The Partnership has been collaborating with the African Water Facility (AWF) to

develop the Africa Multi-Country GCF Readiness project. The project provides support to stakeholders under the Integrated Urban Water Management projects funded by AWF in Mozambique, Zimbabwe, and the Democratic Republic of the Congo. Training is provided to technical staff from AfDB, AWF, and GWP regional offices in Africa, to support the Economic Community of Central African States in implementing the AWF-funded project to create a new West African transboundary river basin organisation and for the preparation of investment projects.

Among the financing mechanisms supporting countries' mitigation and adaptation action under the Paris Agreement, GWP has worked most closely with the Adaptation Fund, established under the Kyoto Protocol since 2009, and the Green Climate Fund (GCF), established in 2012 as a financial mechanism of the UNFCCC. The GCF is specifically mandated to promote country-driven, climate-resilient, and low-carbon development and is a primary channel through which international public climate finance flows; GWP is taking a scaled approach to supporting countries to obtain finance from the GCF for water-related resilience building opportunities.

In a context of increasingly sophisticated analytical methods and constantly evolving technology, African countries in particular find that gaps in data availability and limitations in technical capacity make it difficult for them to establish a clear climate rationale for water projects submitted to the GCF for funding. In 2018 GWP partnered with the GCF and WMO to organise a multi-stakeholder workshop on preparing climate-resilient water projects for GCF funding in Africa. The goal was to build capacity and foster institutional coordination within countries with a view to improving access to and use of GCF resources to build water-related climate resilience. The participants learned about GCF investment criteria and exchanged knowledge on previous successful funding applications. That workshop launched the Africa Project Preparation Partnership for Climate Resilient Water Projects, a platform for countries to exchange knowledge and lessons as their experience in preparing, financing, and implementing water projects grows.

GWP organised a similar workshop with the Asian Development Bank in 2018, also with technical input from GCF and WMO. The two workshops involved 180 people from 36 countries, and participants expressed a desire to continue to support one another as they advance their project ideas. New GWP partnership initiatives in Africa and Asia will respond to the request to provide a resource for continued technical assistance. Similar workshops were undertaken in 2019 in Latin America and the Caribbean, and in the Mediterranean. A total of 77 countries were supported across the four continents.

In December 2019, during the UNFCCC COP25 climate change conference in Madrid, GWP passed the Financial Management Capacity Assessment of the GCF. This approval enables GWP to be a delivery partner of countries to access the GCF Readiness and Preparatory Support Programme (the Readiness Programme). By the end of 2019, GWP was nominated by Zambia, the Sudan, Burundi, Eswatini, Mauritania, Libya, and Sri Lanka as a GCF Delivery Partner for its Readiness Programme.

While learning about the workings of investment finance is a priority, pilot and demonstration work that gathers data and helps planners to understand social and environmental context is recognised by funders as an important part of preparing the way for large and complex projects.

Demonstrating possibilities: creating change on the ground

The Partnership's water and climate programming works to influence governance processes at the highest national levels to ensure that institutions recognise policy and planning processes as urgent issues of water security and climate change. GWP also recognises that changes in high-level governance processes are, by nature, gradual, and often not visible in the short term. Including on-the-ground activities that demonstrate the principles GWP is working to instil at national level is a way of making this high-level work more visible and of showing how changes in practice can improve human lives.

In the case of WACDEP, the aim of demonstration projects was to develop innovative pro-poor and gender-sensitive green solutions to address critical water security challenges such as water, food, and energy security to enhance climate resilience. One example is the project to restore the environment of a lake shared by Burundi and Rwanda in a capacity building process that led beyond its practical objectives to strengthening of a district development plan.

Bringing back trees to Lake Cyahoha

Known for the beauty of its green hills and abundant bodies of water, the large rift lakes region of eastern Africa is shared among the countries of Burundi, the Democratic Republic of the Congo, Kenya, Malawi, Rwanda, the United Republic of Tanzania, and Uganda. The waters of this region support fishing, farming, and transport for rapidly growing human populations.

In Burundi and Rwanda, one lake sustains people from both sides of the political border between the two countries, a border that over the past 25 years has seen political upheaval and conflict bring new people to unfamiliar territory. Lake

Cyohoha's transboundary catchment, located in the Bugesera region shared by Burundi and Rwanda, became the site of many unplanned settlements, and its once-green forests almost disappeared after years of harvesting the trees for charcoal cooking fuel, and clearing of land for cultivated crops and more grazing. Cooling wetlands, forests, and savanna woodlands were transformed into many small farming plots that could not sustain traditional woodlots. Drought added to problems of soil erosion, water pollution, and water scarcity. In 2000, the northern part of the lake dried completely. And when some water returned, invasive water hyacinth began clogging the lake.

Lake Cyohoha's losses and the increasing poverty of the people on both sides of the border appeared to be difficult problems to address because the area is governed by two different sets of national laws. In 2012, encouraged by the GWP Country Water Partnership Fora, the governments of the two countries agreed to partner within WACDEP to carry out an in-depth analysis of the issues and come up with interventions that would work towards restoring the lake's environment.

Results of the review, shared with community representatives, local government offices, NGOs, and policy-makers at national level, included approval of activities to protect buffer zones along the shorelines of Lake Cyohoha through tree planting, introduction of fuel saving cooking stoves, and adoption of biogas and solar energy as reliable and climate-resilient sources of energy for cooking and lighting.

Whole communities engaged in planting drought-resistant trees to curb soil erosion and to provide future harvests for the young people and women who were especially included in the programme's work. Ongoing watering, mulching, and replacement of dead trees was built into the programme, and nurseries were set up to train local communities to plant trees on their own plots of land. Ten thousand fruit trees were distributed at household level, and communities were informed about the consequences of allowing cattle to graze in the buffer zone. Teams were also mobilised to clear water hyacinth, allowing the lake to breathe again.

To sustain this effort, the programme encouraged local associations for protection of the buffer zone, and progressive ownership and maintenance of the area by local community committees under the guidance of local administrations.

As cutting trees for firewood and charcoal was identified as one of the major contributors to soil erosion, local women were trained in producing improved cooking stoves that they could sell for additional income. A demonstration project also introduced biogas production from cow dung, and introduction of stoves to burn the gas.

In a dry climate, finding ways to avoid over-use of vital wetland resources requires a combination of clear policy, awareness-building, and alternative resources. Acting through this project, WACDEP worked towards all of these for the Lake Cyohoha catchment.

Government planners and managers gained knowledge and skills in enhancing climate change resilience in the water sector and integrating it into existing policy frameworks. The interventions in Rwanda are now considered as integral parts of the Bugesera District Development Plan, and, in both countries, the project was implemented within existing national frameworks for climate change adaptation and water resources management. Engaging communities in returning trees to the shoreline and surrounding land both helped local people learn about conservation agriculture and supported the Burundi Government's goal of 18 percent forest cover by 2025 to increase resilience to climate change. Improved stoves and access to biogas provided both alternative technology and options for economic improvement.

Working together to bring back trees to the catchment, the two countries have prepared the way for more sustainable management practices and climate change adaptation.

WACDEP Officers in the field to support and document the planting of 10 000 seedlings to protect the Lake Cyohoha buffer zone in Kigali, 9 March 2016
Credit: GWP Eastern Africa



WACDEP's demonstration projects have formed a critical part of the support provided to catalyse changes in policy and practice. Aimed at stimulating innovation and promoting the deployment and up-scaling of water security and climate resilience solutions, they have provided an on-the-ground evidence base to generate lessons and inform national and regional level policy formulation. Projects implemented at the local level have reduced vulnerability and increased the adaptive capacity of targeted communities. As tangible and

understandable activities, they have added colour and meaning to more complex, and often slowly evolving, activities at national and regional government levels, and increased understanding of the socio-economic co-benefits – such as better public health – of adopting climate-resilient solutions. In Armenia, through the GWP Country Water Partnership, WACDEP helped to meet the needs of community members who were determined to improve their local sanitation, setting an example for the entire country.

Growing better sanitation for small communities in Armenia

In the early 2000s the prosperous Armenian village of Parakar had a problem. Despite enjoying a good income from the community's casino operations, villagers were living next to an open sewer that flowed through the schoolyard and residents' farm plots. The collapse of the Soviet-era water treatment plant had diverted wastewater into a canal formerly used for irrigation. The canal had gradually filled with foul-smelling sediment, causing an overflow that was threatening the health of people living nearby, and making it unsafe to grow the fresh vegetables that they used to enjoy. With climate change reducing the availability of other sources of water, the once productive fields lay barren.

In 2010, the community leadership approached the Global Environment Fund (GEF) for assistance in tackling the problem, and GEF referred them to GWP's Armenia Country Water Partnership. The Country Water Partnership brought in one of its own partners – local engineering firm JINJ – to look at options for creating a better system. Since it was clear that community involvement was needed to develop technical and financial plans acceptable to the local population, GWP also led several public consultations in the community, building understanding and enthusiasm for the project. A combination of conventional and natural treatment was proposed as a cost-effective, environmentally sound solution suited to the available location. Meanwhile the community raised 60 percent of the funds needed for construction.



*Sewage flowing into irrigation channel in Parakar, Armenia
Credit: GWP Armenia*

Together with the local authorities, GWP Armenia prepared the technical aspects of the project and the tenders, securing additional financing from GEF and the UK Department for International Development. Construction of the treatment facilities took place in the first stage of the project between 2010 and 2012. This was followed by a second stage to 2014, financed by a combination of local funds and funds

allocated through WACDEP. The second stage added naturally aerated biological treatment, enabling secondary treatment through aquatic plants. At first, the idea of an open pond met with resistance on the part of local people who could not believe that it would be clean and healthy. On seeing the completed system, however, and realising how easy it was to maintain without high-level technicians, they were convinced. And, after a short time, 60 ha of the formerly polluted 100 ha of fields were growing produce again.

Until this project, WACDEP's work in the countries of the CACENA region had focused largely on farm irrigation systems: this was the first demonstration pilot project for domestic wastewater treatment. The opportunity to raise awareness of sustainable options for low-cost hybrid systems for small communities made itself clear.

Following completion of the new system, to integrate the principles of the work more broadly in policy and governance, GWP Armenia organised a national meeting with partners and the government ministries to identify conditions for promoting alternative legislative, institutional, and financial frameworks for urban wastewater treatment. The aim was to create an enabling environment for using the lessons learned in Parakar in other parts of the country. Again, the reaction of government managers to the idea of an open pond for wastewater treatment was disbelief, but they could not argue with the village's satisfaction with their system.

Now, with several other communities interested in implementing similar hybrid treatment systems, the Armenia Country Water Partnership has continued to negotiate funding on their behalf.



Local news reporters cover improved wastewater treatments in Parakar, Armenia
Credit: GWP Armenia

“Sometimes it is a challenge to get water into policy at national level”, says Arevik Hovsepyan, President of the Armenia Country Water Partnership. **“A project like this, that produces what a community needs using cheap and simple technology, and that meets more than one water-related goal such as health and food production, can quickly open up new ways of thinking among government managers.”**

Parakar's new wastewater treatment system was a local solution for local level problems. The new system was inexpensive compared with the cost of reconnecting the village sewer system with larger centralised wastewater infrastructure in the region. Contributions to ongoing operating costs are made from fees collected from households using the treated wastewater for irrigating their gardens. The project improved community involvement in water management and demonstrated the benefits of an integrated approach by incorporating a wastewater service, irrigation, reduced degradation of farmlands, and improved public health. For GWP, the experience again demonstrated that, while integrated water resources management works at all levels, its value is perhaps most visible when it clearly serves a community.

Improved wastewater treatment in Parakar, Armenia
Credit: GWP Armenia



Demonstration and pilot projects, while valuable and interesting on their own, also form part of a chain of action that can lead to the highest levels of influence. Lessons, for example, from WACDEP's Bugesera catchment-based adaptation work in Rwanda were useful in designing the Uganda Adaptation Fund project. This, in turn, combined with the lessons from IDMP-Horn of Africa, influenced the design of a regional Adaptation Fund project on drought risk management. The work in Bugesera also informed the assessment of basin-wide vulnerability, the identification of adaptation options, and the development of regional project concepts at river basin level for the Kagera Basin in the four countries of Burundi, Rwanda, the United Republic of Tanzania, and Uganda.

Over ten years, in Africa alone, GWP's demonstration projects have provided more than 6,000 community members with new knowledge and skills, while increasing vital linkages between local and central government processes.

Building knowledge, awareness, and capacity

The sense of urgency that comes with dealing with climate change brings an enhanced awareness of the need for learning. As the world changes, the capacity to respond, adapt, and to transform systems and institutions

depends on the swift and informed creation and exchange of relevant and trustworthy knowledge. As one of the three pillars of GWP programming, learning connects people and interventions across its water and climate work packages and collaborations.

Increasing knowledge and awareness

The Partnership recognises that countries need to strengthen the collation of existing knowledge and generation and management of new evidence and tools. These need to be shared among stakeholders to support uptake of water security and climate resilience in development planning, policy-making, and investment. Knowledge and evidence help policy- and decision-makers deal with uncertainty, understand trade-offs, and support informed investment choices. Sharing and transfer of knowledge products and tools, emphasising South–South capacity development and cooperation, and proactive data sharing among key institutions are to be encouraged and facilitated. Importantly, the Partnership knows that the learning from programme activities at all levels is useful and incorporates this work to capture the lessons of these activities. In Central America, for example, GWP's engagement with vulnerable municipalities through WACDEP resulted in fit-for-purpose knowledge products that continue to have an impact today.

Local solutions: building resilience to climate change in Central American municipalities

Central America, located between the Caribbean Sea and the Pacific Ocean, has an abundance of water, but two thirds of the population of the region lives in the Pacific watershed, where there is the least water. Cities and towns face increasing demand for water, while trying to cope with floods, drought, pollution, and vector-borne diseases. And, because countries of the region have been decentralising services, local governments must take responsibility for managing water resources and reducing vulnerability of their communities to extreme weather.

Some Central American countries do not yet have national water legislation or have difficulty implementing it. Realising that approval processes for new laws and national adaptation planning can take time, and seeing the need for municipalities to act responsively to existing conditions, Global Water Partnership Central America began to develop tools to support the region's local governments in implementing integrated water resources management and climate-resilient governance frameworks.

“Informed decisions need informed decision makers. Information and evidence are key to making a strong case for action. Technical information on environmental conditions, social indicators, and climate change projections are required by programme planners, and high level planners and policy makers will require them in a synthesised form.”

Water Security and Climate Resilient Development Strategic Framework

As a first step in 2013, GWP Central America produced an IWRM guide for technical personnel and facilitators who work at the municipal level, equipping them with a series of steps for management, use, and conservation of water resources. The guide was widely used and reprinted, especially in Nicaragua, a country with many organised local water committees who could now see a way to engage with a broader group of stakeholders.

“I have found the Guide particularly useful. It has been a fundamental tool in the work with the communities in the Moyúa Lake basin and in the municipality of Monterrey. The document provides an accessible explanation of concepts and methodologies that aids participants in assimilating the important and urgent issues of IWRM.”

Thelma Salvatierra Suárez, Center for Research



Local children benefiting from improved water legislation in Las Conchas, Central America

Credit: GWP Central America

in Aquatic Resources of Nicaragua of the National University of Nicaragua.

In 2015 GWP's WACDEP programme responded to the clear need for more detailed guidance to cities and towns dealing with the potential and actual impacts of climate change. Regional and national workshops captured participants' insights for inclusion in a manual for local governments, *Guidelines for the Incorporation of Risk Management in Municipal Development Plans with a Focus on Water Resources*. Developed in partnership with the Honduran Institute of Earth Sciences of the National University of Honduras and the United Nations Office for Disaster Risk Reduction, the guide aimed to contribute to fulfilling the goals of the Sendai Framework for Disaster Risk Reduction. The manual identified entry points for city and town planners and technical staff to consider water risks in development planning processes. The guidelines were distributed in the region and used as a training resource for workshops in the capital city of Honduras and in a municipality of Guatemala.

“The Environmental and Risk Management Unit of the Municipality of San Marcos was recently created to provide mitigation and containment actions due the effects of climate change. This was possible after the workshop on the Guidelines for the incorporation of risk management in Municipal Development Plans,

coordinated by GWP Central America and the Association of Municipalities of the Naranjo River Basin. The Unit has begun three different projects focused on the protection of the natural resources.” Ruth Nohemi Castañón Mejía, Coordinator, Environmental and Risk Management Unit of the Municipality of San Marcos.

Work to determine countries’ progress in reaching Sustainable Development Goal (SDG) 6.5.1 – the degree of integrated water resources management implementation – provided another opportunity to support Central American municipalities in building resilience to climate change. In 2020 GWP Central America launched *Guidelines for Developing Municipal Water Policies with an IWRM Focus* during SDG 6.5.1 consultation workshops in Central America.

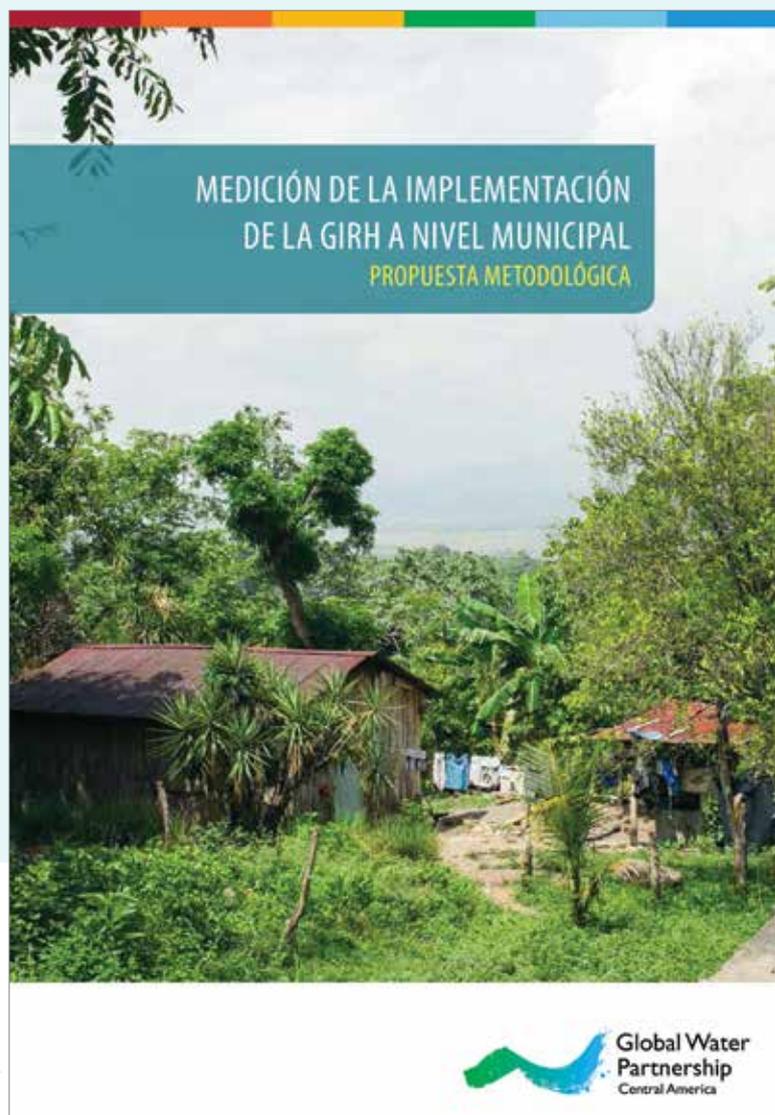
Supporting municipalities in planning the use of water resources and lessening the impacts of climate change, in lieu of instruments at the national level, are examples of GWP’s adaptive management approach, fitting its interventions and support into regional, national, and local conditions. The long-term engagement needed for this work brings home essential messages that change mindsets. Introducing guidance that has been customised through participatory work provides, at each stage, building blocks of a management approach that is relevant to local conditions, trusted, and understood.

Proposed Methodology for Measuring the Implementation of IWRM at Municipal Level was published by GWP to support Central American municipalities

The Partnership’s programming supports opportunities for learning through the *Strategic Framework*, which promotes an iterative cycle of the process of learning by doing. Knowledge exchange takes place through a range of activities. Study visits and workshops, such as the study visit for the NWSAS countries to the Secretariat of the International Sava River Basin Commission, expose managers and planners to problems and practices similar to their own and to options for dealing with them. Conferences and side events, such as the organisation of a side event at the First African Young Water Professional Forum during the 2018 Cairo Water Week, provide opportunities to exchange policy

and technical ideas and to build new professional relationships. Briefings and awareness sessions for the media, and production of knowledge products, such as policy briefs about technical issues, have kept information flowing as new lessons are learned.

GWP’s experience of knowledge exchange extends beyond the production of useful manuals and technical guidelines, and the professional learning gained at conferences and workshops. The need to incorporate valid local knowledge in water governance systems becomes clear when dealing with climate disasters, as was shown in the flooded Thai border town of Mae Sot.



From floods to knowledge flows in north-western Thailand

Surrounded by waterfalls, hot springs, and freshwater creeks, and living with rains that last eight months each year, the people in Thailand's lively border town of Mae Sot understand water. Three main creeks flow through the municipality's valley basin before converging to form the Moei River, which marks the border between Thailand and Myanmar. These waterways have always naturally flooded, but as the town has grown, the removal of riverine trees and paving of roads and parking lots has altered water flow and decreased seepage into the ground. On top of this, climate change has increased the intensity of rainfall in the region. The result is magnified flood risk, both for businesses and for the informal riverine settlements of the region's many displaced ethnic minorities. Mae Sot's system for warning people about oncoming floods has not kept up with this growing threat.

Under the established flood warning practice, Thailand's Royal Irrigation Department posts official information about anticipated weather conditions and water levels on bulletin boards in local government offices. People have to go to district or municipal offices to check for warnings, and in Mae Sot, a border town of busy traders, this system is no longer working. Mae Sot suffered its worst flood in 2012, when the Mae Sot Reservoir overflowed and, without warning, flooded more than ten villages along the banks of the Moei River. The Mae Sot municipality was declared an emergency zone. A €2 million concrete levee that had been constructed by the municipality without consulting the community appeared to worsen the flooding. This lowered local communities' trust in the involved government agencies, including the provincial-level Department of Disaster



The Friendship Bridge to Myanmar at Mae Sot, Thailand
Credit: DL4gbe via Wikimedia Commons

Prevention and Mitigation, which is legally responsible for developing the country's disaster warning systems.

In 2014, Global Water Partnership Thailand (GWP Thailand), supported by WACDEP, adopted a community-based approach to bridge the gaps between the remits of the state authorities and Mae Sot's 20 local communities. The aim was to implement a sustainable community-based flood management solution and, ultimately, to mitigate flood risk in the town of Mae Sot.

Recognising that there was a lack of knowledge about the causes of flooding in the region, GWP Thailand began its work in Mae Sot by leading programmes to educate local groups about the basin's natural water sources, flows, and interconnected subsystem ecology. A WACDEP project team guided site visits, led surveys of waterways using a participatory geographic information system, and plotted risk and safe areas on a map. This work consolidated local understanding of different sources of flooding. GWP Thailand also assisted the community in transforming the risk mapping results into risk reduction plans.

GWP Thailand facilitated discussions between community members and Royal Irrigation Department authorities and supported training simulations to promote integration and horizontal communication across key local and government actors. The programme worked with Mae Sot's civic group to encourage the participation of and collaboration among local communities, line agencies, businesses, and academic institutions. This helped establish a network of local people committed to improving Mae Sot's flood management strategies. The Royal Irrigation Department got involved, and the project received technical support from the Geo-Informatics and Space Technology Agency of Chiang Mai University and from the Water Resources Research Centre of Naresuan University.

The idea to use LINE, a free mobile phone-based communication application, as the platform for the flood early warning system surfaced during this collaboration. The application provided a means of rapidly sharing community observations and enhancing real-time communication throughout the basin. Drawing on their increased awareness of flood sources and their growing capacity to assess risk, local people began to routinely monitor water levels and

exchange this information via LINE, allowing for appropriate lead time to implement flood mitigation plans and preparation strategies. The shared information was also disseminated across other channels, such as community radio stations, to reach the wider public.

The Department of Disaster Prevention and Mitigation is mandated to carry out annual drills for flood disaster preparation and management in each province of Thailand. In 2014, motivated by WACDEP's focus on local engagement, the department decided to have the Mae Sot community organise the drill in its province. All government agencies, the municipality, and sub-district administration were invited. The departmental head from the provincial office joined in. The importance of tailoring to local context was highlighted, as capacities and needs of the communities for flood disaster management were included in the drill. On the same day, the Thai Public Broadcasting Service shared the story of Mae Sot communities' preparedness for flood disaster, live and nationwide.

This cooperation marked an official turn towards community-based flood disaster management in Mae Sot. National authorities agreed to provide regularly updated information to the flood early warning system platform, especially during high-risk periods.

GWP Thailand's facilitation of discussions between community members and government authorities transformed how water policy is implemented in Mae Sot. Never again would the municipality repeat a project such as the €2 million concrete levee that neglected local inputs on how Mae Sot's water subsystems operate, leading in turn to exacerbated flooding. Now, the municipality has engaged community members in reviews of water management project proposals, calling on their local knowledge to help shape flood mitigation strategies.

Mae Sot's flood early warning system benefits a population of at least 200,000 people. Through WACDEP, GWP Thailand opened multidirectional flows of knowledge among the region's water stakeholders, ensuring that science at the national and provincial levels will be available to local communities and that local people's knowledge will inform the design of municipal initiatives.

The Partnership's formal knowledge production and sharing has largely aimed to result in works of substance that reflect and support the programme's two driving policy needs, but that also

links meaningfully to specific regional conditions. An example of this is GWP's contribution to a tool for evaluating climate risk in Caribbean programmes and economic activities.

CARIBBEAN

Developing analytical tools for water and climate risks in the Caribbean

The countries of the Caribbean region – many of them islands – are water-stressed. Freshwater is unevenly distributed, and even those countries with good surface water resources can face water quality issues in the form of salinisation, naturally occurring heavy metals, and pollution from flooding. While not as well-known as the destruction brought to the region by tropical storms, drought is also quietly reducing the value of food crops and economic activities that depend on a reliable water supply. In the Caribbean, climate change, which is increasing these extreme events, changing the timing of seasons, and bringing new diseases, is an immediate and visible threat.

Managing climate risks requires action at many levels, from policy adjustment through to changes in planning practices and project development. Since so many sectors in the region are affected by climate change, evaluating the risk to specific planned activities can be a challenge. Understanding the urgent need to build this evaluation capacity, in 2013 Global Water Partnership Caribbean (GWP-C) joined the Caribbean Community Climate Change Centre and partner Climate Development Knowledge Network (CDKN) to contribute to a tool that screened policies, legislation, plans, budgets, and projects to assess climate risks and identify options to increase climate resilience. The governments of Caribbean Community countries, non-governmental and civil society organisations, business and financial services sectors, universities, and research institutions all contributed their ideas.

The result was the Caribbean Climate Online Risk and Adaptation tool (CCORAL), designed to allow organisations in both public and private sectors to discover how climate change might affect their plans. The tool works by guiding users through a process beginning with a rapid evaluation, followed by a series of steps that provide information and resilience-building solutions more relevant to the case. Users of all levels of skill and knowledge can access different resources, depending on their needs and experience. Considering how central water is to most activities, GWP contributed to the resources embedded in CCORAL to support the system's users in completing the climate risk management process for their specific tasks.

“Working with GWP-C ensured that water is the most represented resource in CCORAL. We need to be able to live, think, and breathe climate change in every facet of our development in this region. Through showing how water is common to many climate issues, GWP was instrumental in making it part of our everyday thinking.”
Keith Nichols, Caribbean Community Climate Change Centre.

Under the WACDEP programme, GWP-C also provided its knowledge to produce a sourcebook for the Caribbean water sector that provided further context for CCORAL, reinforcing messages about assessing existing and future risks, and providing practical advice about how to make a strong case that would support proposals for climate investments.

CCORAL
ccoral.caribbeanclimate.biz

The Caribbean Climate Online Risk and Adaptation Tool (CCORAL) is an online support system that helps users to make climate resilient decisions.

users → country → region → screening → non-expert decisions → expert decisions → climate risk mgmt → toolbox → resilient decision

Uniquely developed to help Caribbean decision-makers make climate-resilient decisions.

CARICOM Regional Agencies (development planning and finance), Government Agencies, Ministries of Finance and/or Planning, Climate Change Experts, Non-experts, Civil Society Organisations, universities, private sector, research institutions, NGOs, and financial services and development partners.

Logos: UKaid, GWP, QR code, We Are Social, @CARICOMClimate

Caribbean Climate Online Risk and Adaptation Tool assists decision-makers in making climate-resilient decisions
Credit: GWP Caribbean

Training of trainers in government ministries in the entire Caribbean region led to recognition of CCORAL as a valuable resource for planning, and, in some countries, its use was embedded in governance instruments. Antigua and Barbuda, for example, incorporated CCORAL elements in its environmental impact assessment process, Grenada’s Public Finance Act of 2017 requires its use for proposed activities, and the Ministry of Economic Development of Saint Kitts and Nevis requires that all project submissions must demonstrate use of CCORAL. Plans to introduce the tool to banking, insurance, and other private sector organisations are underway.

Calculating risk will become increasingly important as a changing climate makes uncertainty the norm. Recognising the fundamental role of water in national development is key to making essential cross-sectoral linkages that lead to more effective climate policy and decision-making.

Knowledge products are key outputs that communicate GWP's water and climate work, build awareness, increase understanding, and enable crossing of social and political boundaries to bring home messages about the importance of water in developing climate resilience. Over ten years, GWP has produced hundreds of publications, news stories, audio-visual materials, website content, and radio and television broadcasts that explain and promote this work to broader audiences. In East Africa, for example, communities' adaptation efforts were aired on the Uganda Broadcasting Service; in Cameroon, sensitisation materials in three languages informed local people about fluorosis and water quality; and in Tunisia, a documentary film captured stakeholder engagement in a basin planning process.

Growing capacity of economic planners for water and climate resilience development

Achieving climate-resilient water security requires both absorbing new knowledge and transforming practice. These in turn require that learning enables a change in thinking and the acquisition of new skills. Better understanding of water security and climate change processes, and of the management practices that result in improved conditions, is central to GWP's work.

During WACDEP's work, government planners across line ministries such as economic planning, finance, water resources, agriculture, environment, energy, health, and infrastructure were trained, as well as researchers and practitioners from key planning agencies and institutions, GWP regional and national teams, UNDP Least Developed Countries Fund project coordinators, Regional Economic Communities, River Basin Organisations, development banks, and non-governmental organisations.

Capacity building in the WACDEP programme, when not directly related to practical instruction for demonstration projects, focused on enhancing understanding of the economics of adaptation for medium- and long-term regional, transboundary, national, sub-national, and sectoral development planning, as well as on methods to evaluate different adaptation investment projects. As such, capacity building was embedded in many other activities – from demonstration projects to high-level planning. It drew on national and regional expertise, as well as promoting North–South and South–South knowledge exchange through involvement of international organisations and academia.

GWP raised more than €2 million from CDKN for WACDEP capacity and knowledge development and project preparation, allowing a linked and structured approach to capacity building. The resulting programme can be considered a model for other large programmes that need to instil a set of concepts and a common language for discussing them. The activity was implemented in Cameroon, Ghana, Burkina Faso, Tunisia, Rwanda, Burundi, Zimbabwe, and Mozambique from January 2013 to November 2015, using a complete package of learning material in English, French, and Portuguese. More than 40 professional workshops were held, and more than 100 economic planners received a certificate following the successful completion of a demanding web-based exam facilitated independently by the United Nations Institute for Training and Research.

As part of the training, participants had to develop action plans that bridged the gap that often exists between training and implementation. This engaged participants in a way that instruction alone could not achieve. It was through the connections among lectures, discussions, and implementation of the action plan that participants' learning processes became concrete and delivered useable learning. Mentors and online discussion groups contributed to the interactive nature of the training.

“The participants realised the role they can play on mainstreaming water security and climate resilient development in the planning chain. Actually, they became aware that they are entry points themselves, being directly involved as actors of the development process”.

WACDEP National Programme Coordinator

The following account of urban flood management risk analysis in Mozambique shows how capacity building was

embedded in other WACDEP activities, creating intensive learning as people worked together on the ground.

SOUTHERN AFRICA

Learning how to stimulate investment in climate-proof infrastructure

est. €10 million

Chimoio and Inhambane IUWM investment plans



*Children playing in flooded area, Nacala, Mozambique, 2017
Credit: @patricia_nyronen via Twenty20*

Africa's low-lying coastal cities are among the first to experience the effects of climate change – in the form of wild storms that come in from the sea, flooding streets and buildings, and drowning ageing sewage and drainage systems. Since these urban areas are also frequently located on rivers, another threat comes from seasonal flood waters driven by heavy rains upstream. Mozambique's Indian Ocean cities are among these vulnerable urban areas, but the damage caused by tropical storms and flooding rivers reaches even inland villages and towns. Mozambique ranks third among those African countries most exposed to risks from multiple weather-related hazards.

With rapidly growing populations to serve, and tough competition for government funding, water managers in the country's urban areas face considerable challenges.

Recognising these issues, GWP Southern Africa (GWP-SAF), through WACDEP and in partnership with the Mozambican Directorate of Water Resources Management and the Water and Sanitation Infrastructure Administration, identified urban flood water management as a critical challenge to development. Working together, planners from different government departments from water- and climate-related sectors developed a cross-



Floods in town of Xai-Xai, Mozambique, 2000

Credit: Medici con l'Africa Cuamm

sectoral project responding to floods in urban areas. They proposed an integrated urban water management (IUWM) approach to address poor drainage, sanitation, and water supply in vulnerable towns in Mozambique.

IUWM is an approach that promotes a circular economy – a system aimed at eliminating waste and promoting continual reuse of resources – in urban areas. Cities and towns using this approach adjust certain practices of planning and effective management, while recognising their local socio-economic context. This approach applies the principles of reusing, reducing, and recycling. Sanitation and wastewater management are viewed as business opportunities that can generate income and employment, have a positive impact on the environment, and contribute improvements to the quality of life. Two towns in Mozambique provided WACDEP with the opportunity to apply these principles.

In response to the capacity needs and gaps identified in water security and climate-resilient development planning, WACDEP facilitated training of government officials. The capacity needs assessment engaged the right people: planners and technical officers, and senior policy-makers from a cross-section of the country's water sector institutions. Building on the principles of Mozambique's National Climate Change Response Strategy, these officials learned in a series of training workshops about the practicalities of climate-resilient project preparation and investment planning. They gained a new understanding of the needs of project investors, financing mechanisms, and of ways to include adaptation to changing climate conditions in water projects. The participants also received support and coaching from water profession mentors to make sure that what they were learning could be aligned to existing Mozambican institutional knowledge and practice.

Having absorbed the theory through workshops, coaching, and accredited training modules from the United Nations

Institute for Training and Research, the participants began to apply their learning to real life by producing a concept note for an urban flood management project.

Choosing an urban setting for the project was not difficult. Child mortality in the towns of Chimoio and Inhambane was higher than in many other parts of the country, and this could be linked to the deteriorating drainage systems and poor toilet facilities in both municipalities. Only the most central parts of town had some solid waste collection. Flood waters were creating health crises.

The group of newly trained planners identified institutional roles, mandates, and possible project partners and promoters. They examined options for, and barriers to, project implementation, and they discussed possible sources of funding. The project, while focused on flood management, also had to address the inseparable problems of sanitation and solid waste management; the planners made these linkages clear. Finally, they submitted their completed concept note for an IUWM feasibility study, detailed design, and priority infrastructure to the African Water Facility. But the concept note was not the only outcome of this concentrated work: the participants returned to their sector posts with a whole network of new colleagues from other sectors, and with shared knowledge and experience.

In 2016, the African Water Facility announced an award of €1.8 million to carry out the work the concept note had proposed: *Development of an IUWM Masterplan and Feasibility Study for Urban Sanitation, Drainage and Solid Waste Management in Chimoio and Inhambane* in Mozambique. Putting GWP-SAF's expertise in capacity development and stakeholder engagement to good use had meant that participants in the capacity building process could learn to work together and achieve sustainable outcomes by promoting integrated approaches.

In Sri Lanka, strategies for climate-resilient agriculture were developed in collaboration with university researchers

and were shared with agricultural extension managers, who then cascaded the learning to farmers.

SOUTH ASIA

Building resilience through knowledge: introducing climate change science to Sri Lankan farmers

Tea, rubber, coconut, and spices are Sri Lanka's agricultural gifts to the world, but rice sustains its people. And growing rice needs plenty of water, a resource that is diminishing in the face of climate change.

Through the Water and Climate Resilience programme, GWP had been working with the Sri Lankan government at national level to develop country-wide policies and

strategies to better prepare the country for warmer and dryer weather. This high-level activity, however, was not visible to farmers working in the country's fields, and to the government's agricultural extension officers who were advising them. And the expert climate and water knowledge of university researchers was available only in the technical language of scholarly publications.

*Farmer in Kalpitiya, Sri Lanka
Credit: S.Niranjala*



Recognising this knowledge gap, in 2015 GWP's Sri Lanka Country Water Partnership engaged three universities in a survey to understand farmers' information needs and the ability of academic researchers to meet them. The survey found that farmers, familiar over the years with normal cycles of drought and heavy rainfall, did not understand that this pattern had been interrupted, and that the future would be different. There was an urgent need for farmers to diversify their crops, and to adopt climate-resilient practices. Plain-language instruction was clearly needed, as was a trained cadre of extension officers.

For GWP Sri Lanka, the study sparked a response: training-of-trainer workshops were organised for mid-level management staff of major agencies. This led to training of more than 2,500 officials – 20 percent of them women. Training materials were produced in Tamil and Sinhala languages – useful in a country with a 90 percent literacy rate – and a 1,000-page technical manual was summarised in 80 pages for local use. Understanding that the main

source of information for many farmers was the news media, GWP Sri Lanka organised special training for journalists to familiarise them with the basic science of climate change.

These activities stimulated several ministries and universities to work together to host their own training courses, and the Department of Agriculture established a unit in its Extension Division dedicated to climate change adaptation.

“Climate change is complicated, so you have to carry people along to build their understanding. But now the knowledge has become self-generating – part of the norm”, explains Ranjith Ratnayke of GWP Sri Lanka.

Catalysing field-level implementation of Sri Lanka's national strategies has both improved farming techniques and led to new networks and collaboration across government and academia.

Developing the potential of women and youth

Across the world, the planning, investment decision-making, and institutional processes for climate-resilient water investments are not inclusive. Throughout its capacity building work, GWP recognised the importance of engaging with women and youth – important actors and stakeholders who have been sidelined in water resources management and decision-making, but who are among the people most affected by climate change. The WACDEP Young Professionals Development Programme aimed at giving young professionals hands on experience in water resources management and climate change adaptation work. Other work designed to engage youth in water and climate work includes:

- Benin: Participation of a youth representative at the Seventh Africa Water Week in Gabon
- Cameroon: Fluorosis sensitisation workshop
- Cameroon: Training workshop on enhancing youth participation in flood and drought disaster risk reduction in developing countries
- Central Africa: Training for primary school hygiene coaches
- Central Africa: Training workshop aimed at strengthening the capacity of youth organisations in developing climate-resilient and water secure projects
- Central Africa: Young women leadership training with Réseau Eau et Climat des Organisations de Jeunes de Afrique Centrale (RECOJAC) and UN Women
- Kenya: Youth training on climate resilience and water security
- Mauritania: Training for youth organisations
- North Africa: National mentoring processes in Tunisia and Morocco



- North Africa: Side event at the First African Young Water Professional Forum during the 2018 Cairo Water Week
- South Africa: Two youth-owned enterprises in South Africa on water, youth, and jobs
- Southern Africa: Establishment of 15 SADC gender focal points from SADC mainstreaming workshop
- Southern Africa: SADC Gender Mainstreaming workshop
- Southern Africa: Support for the development of the SADC Gender Action Plan
- Tunisia: Local workshop targeting youth to discuss adaptation options at Rmel basin
- Tunisia: National workshop on youth and employment
- Tunisia: Youth dialogue for water and climate
- Uganda: Youth training on climate resilience and water security
- West Africa: Sharing experience of Benin on youth engagement with Mauritania,

Benin, Burkina Faso, and Togo

- West Africa: Training organised for youth with the International Union for Conservation of Nature, Eau-Vive, and GWP-WA on the access to water-related jobs for youth in West Africa.

Examples of ongoing efforts include: AMCOW's gender training at the 2014 Gender, Water and Development Conference with UNDP-Cap-Net; the Charter on Youth Engagement on Water and Climate in Tunisia in 2018; a Water and Youth Network in both Kenya and Uganda; establishment of a Water and Climate Network for youth in Central Africa in 2018; and youth and gender workshops for several countries and regions. At transboundary basin level, one of the six priority programmes of the Limpopo River Basin IWRM Plan/Vision 2020 supported by GWP focuses on gender mainstreaming, youth, and stakeholder engagement in water resources management and development. Gender-specific action plans have been developed for the SADC and the Zambezi Watercourse Commission.

In Ecuador, GWP's Country Water Partnership is supporting inclusion of gender in the country's updated NDC.

Sri Lankan farmer sorting chillies in Kalpitiyan
Credit: S.Niranjala

Gender and climate adaptation in Ecuador

Climate change is not gender neutral. The Paris Agreement makes special provision for gender mainstreaming in the fight against the negative impacts of climate change because, overall, women and children will bear to a greater extent the brunt of these impacts through hunger, displacement, and insecurity.

The nation of Ecuador is well-known for its national plan, Buen Vivir, which focuses on developing the country in terms of the well-being of its people and environment. This includes equity along generational, intercultural, territorial, and gender lines. Recognising existing inequities, the Ecuadorian Constitution positions the role of women in the country's economy: in the world of work, women are to have full access to the means of production, and in the larger society, full access to property and educational opportunities. Ecuador has also produced a National

Agenda for Women and Gender Equality, and its Finance Ministry has set up a Gender Equity Unit. While most of these are based on addressing discrimination, they set the stage for a major role for women in Ecuador's adaptation to climate change. Climate change, through El Niño events, floods, and landslides, threatens to erode gender equality rights by stalling development and multiplying existing environmental and social stresses.

Ecuador's Nationally Determined Contribution (NDC) to the Paris Agreement, updated in 2019, intends to facilitate participation of actors as agents of change and to encourage their commitment to the process of formulating the NDC. The gender approach will be integrated in each phase of this process. Global Water Partnership South America (GWP-SA) is collaborating with Ecuador's Ministry of Environment and Water, the NDC Partnership, and



*Woman and child viewing the city of Quito from El Panecillo, Ecuador
Credit: Diego Delso*

other agencies to support Ecuador's implementation of the country's NDC, focusing on the inclusion of gender.

GWP's work is supporting the country to move beyond adaptation policy. It is developing the capacity of Ecuadorian stakeholders to incorporate gender perspectives in planning and tools, and, as this takes place, changing thinking to include a critical awareness of gender roles and norms among men and women. Addressing structural inequalities is a condition for successful climate adaptation and resilience. As the social norms linked to access and management of water resources are deeply embedded in institutional processes, the socio-political and economic structures and processes that underpin vulnerability to climate-induced water challenges need to be considered and fully understood.

Building on the country's ongoing work to develop climate hazard identification and risk assessment, the indicators that are developed will ensure the long-term capacity to monitor gender-related issues using relevant and available

information. Examination of legislation, policies, and instruments takes into account institutional needs to support long-term results. These needs are then captured in the development of a capacity building strategy for institutions involved in the adaptation component of the NDC Implementation Plan, focused on implementation of goals that include a gender perspective. Preparing technical guidelines in a participatory way provides a conceptual framework for country stakeholders that will allow them to design and implement gender-sensitive adaptation measures at sectoral and local levels.

All of these activities are contributing to broader knowledge about effective approaches to the role of gender in adaptation through sharing with GWP partners at the national, regional, and global levels, and by including key insights into GWP's broader climate work. GWP is using its experience in adaptation and the gender approach, helping to catalyse the work that the Ecuadorian Government has been building in recent years, through many activities and programmes.

Policies, plans, and strategies that pay attention to gender equality were built into WACDEP, and the value of rebalancing gender in all GWP's water and climate programming was increasingly reinforced

through programme experience. In Honduras and El Salvador, for example, women took the lead in introducing new water-saving technology to their own, and neighbouring, communities.

CENTRAL AMERICA

Fighting drought with rainwater harvesting in Central America

Central America is already affected by climate change, its effects reflected in the two extremes of floods and drought. These, combined with rapid degradation of the natural environment, uncoordinated land use planning, institutional weaknesses, and lack of adequate infrastructure, make Central America one of the most vulnerable regions in the world in the face of climatic extremes. The dry corridor area of El Salvador and Honduras, where even a slight variation in rainfall can leave people hungry for months, is an example of these challenges.

Between May and July 2014, Central America suffered the effects of a drought associated with the El Niño–Southern Oscillation. This caused irregular rainfall that prolonged the *canícula* – the dry period in the middle of the rainy season – for up to 45 days, leading to shortfalls for agriculture, hydroelectric power, and drinking water supply in Honduras. A

national emergency was declared, and water rationing became the rule. People knew that when the rains came again, the water should not be wasted, but they needed a way to prevent its loss.

In Honduras, the drought affected small-producer families in 64 municipalities across the country's dry corridor. The southern portion of the Honduran dry corridor is where the lowest number of rainy days and the highest temperatures are recorded, and at the same time the influence of the sea brings the most intense rainfall compared with the rest of the country. In 2015, Global Water Partnership Central America (GWP-CAM) joined efforts with CARE and GWP-CAM's partner Mexichem-Amanco to replicate the use of a technological solution for water storage in communities that were hit particularly hard by water scarcity and reduced access to water.



The solution proposed was a rainwater harvesting system using geomembrane bags – flexible and foldable containers that could be easily transported and installed outside the small houses in the region’s rural communities. The bags could be attached to the downpipes of house roof gutters and expanded to hold up to 25,000 litres of rainwater each. Use of the bags, and their repair, could be easily understood, and the cost was lower than that of other technologies used for rainwater harvesting.

Pilot installations in Honduras worked well. In 2016, GWP-CAM, Mexichem-Amanco, CARE, and the Zamorano Pan-American Agricultural School joined forces through WACDEP to disseminate the technology at the regional level and to build capacity in its use. Recognising the importance of engaging women in water management improvements, they used a gender-based approach in a Central American workshop on the principles of integrated water resources management to promote women’s use of the new technology.

The women who attended the regional training workshop were mostly from rural communities and linked to water

*Domestic rainwater harvesting in Honduras, 2015
Credit: GWP Central America*

management associations. Practical sessions included setting up a demonstration system in La Ciénaga, a community near the Zamorano campus. This complemented another WACDEP pilot project aimed at improving community bio-intensive garden yields.

One of the women who participated in the workshop was the mayor of the municipality of Jerusalén, El Salvador, and a member of the Jiboa Valley Women’s Network. She requested that the workshop be replicated in El Salvador. The partnership expanded there to include the Association of Municipalities of the Jiboa Valley, the National Foundation for Development, and Mexichem El Salvador, and it succeeded in transferring the technology and setting up a demonstration system in the municipality of Jerusalén. WACDEP was able to mobilise further support for this work from the Austrian Government, and to expand the work to other communities in the Jiboa Valley, with the support of local governments.

The technology was successfully replicated across countries and adapted to household, community, school, and irrigation uses. The bags, including a variation of the original concept introduced by GWP-CAM to adapt it to the Salvadoran context, were widely accepted at the community level. Local government involvement proved to be valuable in replicating the initiative in other municipalities and regions.

With the application of investment frameworks, community-based water management, engagement of civil society, and promotion of social change, GWP-CAM was able to take a climate change solution to scale through WACDEP, changing lives at the local level and stimulating good governance practice.

In the words of participant Marta Alicia Rivas: *“Before the project families had to walk half an hour or pay USD1 per barrel of water that the providers bring to the community. The time we dedicated to fetch water and the effort to go to the river – that time we will now dedicate to our family, and to the work that we as women develop in our community.”*



Lessons learned from WACDEP have informed the design of the Africa Water Investment Programme (AIP) support for the Water, Climate, Gender and Development Programme (AIP-WACDEP-G) in Africa. The programme is adopting a gender-transformative approach to accelerate water and climate investments as a means of addressing gender inequalities across the continent. Five pilot countries – Benin, Cameroon, Tunisia, Uganda, and Zambia – are participating. The work is part of GWP-SAF's AIP, which aims to stimulate €25 billion for water investments and to create 5 million jobs by 2030. The AIP was adopted by the Governance Council of AMCOW in February 2019, endorsing the programme as a catalyst to the achievement of both the African Union Agenda 2063 and the Sustainable Development Goals.

Capacity building is a cornerstone of all GWP's water and climate programming. Initially considered a parallel process to WACDEP's development activities, it became clear that learning takes place throughout a programme, and that capacity development should be a critical function in all programme activities, beginning with identifying the right people and organisations to engage. WACDEP was able to take advantage of GWP's extensive 'network of networks' and ability to connect to the right people in

government systems to do this. The result was strong uptake of the learning across participant categories.

WACDEP's three-year programme, *The Economics of Adaptation, Water Security and Climate Resilient Development in Africa*, carried out with CDKN, found that with strong national ownership of programme activities, those engaged in each country gained a sense of pride in and responsibility for the activities. This translated into good implementation, lasting learning, and tangible results. By having programme management located in each country, it was possible to close the gap between training and participants' work duties, enabling capacity development to 'slide in' between training and implementation, over time resulting in visible outcomes and impacts.

The IDMP found that a long-term approach was needed: to have real impact, training should also be repeated in each country to build continuity and engagement and generate results that will last.

Perhaps the most important lesson from GWP's water and climate work has been that working together on the ground – developing a concept note or risk management strategy, for example – builds both capacity and trust through social learning.

Abuket River in Uganda, 2010
Credit: Envato Elements

“Training is not a one-off kind of thing ... the people who are being trained have the answers, but they don't know that they have - a simple tilt makes all the difference.”

Gerald Kairu, IDMP Horn of Africa Programme Manager

Multiplying approaches, increasing impacts

While the demonstration projects and capacity building in GWP's water and climate programme portfolio accomplish specific local goals, they are also part of a process that delivers results across

different levels of governance and work packages to meet the principal objectives of raising the profile of water in development planning and building resilience to climate change. Understanding the problem, identifying and appraising options, delivering solutions, and monitoring and moving forward, bring coherence to what can on the surface appear to be disparate systems and problems. The following three examples from national, transboundary, and regional perspectives are examples of this.

WEST AFRICA

Recognising governance niches: encouraging water and climate investments in Ghana

est. €40 million

White Volta Basin
IWRM Investment
Plan

The Volta River Basin covers semi-arid to sub-humid areas of six West African countries: Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Togo. The Basin is highly vulnerable to meteorological and hydrological events: for more than 20 years, some 2 million people – mainly the 68 percent of the population working in the agricultural sector – along the course of the Volta have been negatively affected by extreme floods. Basic socio-economic problems in the region such as poverty and poor health have been aggravated by changes in climate over this period. And the climate is expected to keep changing. For Ghana, building resilience to the negative impacts of floods in its part of the Basin is becoming a priority at all levels of governance, from its transboundary neighbouring countries to local communities. GWP has been working with Ghana since the early 2000s to do this through exploring and promoting appropriate water investments, finding responses to the challenge of water-related disasters at each level of governance.

Applying the *Water Security and Climate Resilient Development Strategic Framework* begins with understanding a shared problem and how it affects the institutions at each governance level. This means getting support from and cooperating with high-level national officials, facilitating dialogue across existing silos of thinking and planning, and, through partnerships, assembling interdisciplinary teams with diverse skill sets. GWP's work with Ghana demonstrates the importance of attaching water and climate work to a common

problem, then partnering with appropriate institutions to develop interventions that address the issue in context.

Transboundary cooperation

With floods a common challenge among the Member States of the Volta Basin Authority (VBA), GWP worked to include climate resilience in the Basin Water Charter. Findings of a vulnerability assessment carried out under WACDEP 2011–2015 were used to support this, leading to the Charter's approval in May 2019 by the VBA Ministerial Council. Monitoring river conditions is essential to predicting and responding to floods. GWP's partnership with the WMO to produce an assessment of flood management strategies and measures, as well as institutional, technical, and organisational needs in the Basin led to the award of an Adaptation Fund grant of €6.7 million. This grant was for a four-year project (2019–2023) to support the VBA and the six riparian countries to integrate flood and drought management and to develop early warning systems. The Country Water Partnerships of the VBA Member States are executing the project.

National adaptation planning

Transboundary work takes time and sometimes years of patient negotiation. During this time, GWP found a point of entry at national level by reviewing the status of and perspectives on the implementation of Ghana's national adaptation planning processes, the Intended Nationally Determined Contributions, the water and



*Portion of the course of the Volta Lake, Akasombo, Ghana
Credit: Bakudie via Wikimedia Commons*

climate-related SDGs, and the Paris Agreement. Because extreme flooding affects the river basin's soils, biodiversity, and water quality that support people's livelihoods, in 2017, WACDEP supported the National Development Planning Commission, Water Resources Commission, and CWP- Ghana to review the country's water sector Strategic Environmental Assessment tools to incorporate climate change.

Finding shared interests across sectors

At sector **level**, the Ghana Country Water Partnership worked with the Water Resources Commission of Ghana to support the finalisation of investment priorities. This was done through stakeholder engagement with the White Volta Basin Investment Forum to develop an investment plan for the White Volta Basin Catchment Plan, while defining a coherent vision for the basin. In 2015 WACDEP supported the Water Resources Commission and the White Volta Basin Office by facilitating a multi-criteria analysis on investment impacts that could achieve resilience to water-related disasters, gender balance, and reduced vulnerabilities for the poor. Engaging the Water Resources Commission, responsible for regulation of water use and coordination of relevant government policies, was key in ensuring sustainability of the work.

Engaging local planners

At municipal level, working with the National Development Planning Commission, in 2016, GWP-WA and the GWP Country

Water Partnership developed planning tools and training for local planners in Municipal District Assemblies for preparation of medium-term development plans. The work built capacity in prioritising investments to enhance water security and climate resilience at the district level. See the story: ***Engaging policy-makers to include water security as a cross-cutting factor in Ghana's development planning process.***

Supporting district communities

At district, or internal river basin level, in 2016 GWP followed up WACDEP's socio-economic and environmental analysis of selected communities in the Bawku, Binduri, and Bongo districts in Ghana's Upper East region with demonstration projects focused on building community resilience among subsistence farmers, many of them women. Capacity building in strategies and technologies to deal with the impacts of flooding and drought was linked to integration of these investments in development planning and decision-making processes in the districts of the White Volta Basin. A cross-section of government ministries, coordinated by the Water Resources Commission, were partners in the work.

Cascading the work of governance to ultimately create resilient communities is the aim of GWP's water and climate work. Identifying a common challenge, and then working to transform the systems and institutions that can address it, has brought Ghana closer to taming its rivers' destructive floods and making the best use of their waters into the future.

Aligning work to climate-proof the Volta Basin

€7 million

Funding for flood and drought risk reduction in the Volta basin (€7 million); Funding for the Volta Basin Strategic Action Programme Implementation Project (€90,000)

In West Africa's Volta Basin, a rapidly growing population is adding to pressure on land and water resources. One of the largest river systems in Africa, the basin spans the six West African countries of Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Togo, and is home to an estimated 14 million people. All climate predictions in the basin point to reduction in water availability and higher temperatures with increased evapotranspiration. These factors alone have the potential to negatively affect water availability for energy production and agriculture now and the foreseeable future. High variability of rainfall patterns and distribution is the main factor causing fluctuations in food production in the Volta Basin, especially in the northern parts. However, climate change makes rainfed agriculture increasingly unreliable, and the use of groundwater for irrigation is increasing.

Even though most of these challenges call for basin-wide responses, until recently, the Volta River remained one of the few transboundary watercourses in Africa without an international treaty and without a basin-wide coordination mechanism.

Selected as one of the original WACDEP priority regions, the Volta Basin is an example of how the programme's work packages complemented one another to build water security and climate resilience, and of how working together has enabled affected countries to direct the evolution of interventions. Regional and transboundary cooperation, national development planning, investment planning, and project preparation and financing were brought together through partnerships, capacity building, and knowledge development to create new options for the region and its people.



*The Volta River in Big Ada, Ghana
Credit: Quartermannoah, via Wikimedia Commons*

Effective partnerships

WACDEP worked in partnership with the Economic Community of West African States, the Volta Basin Authority, and the Regional Technical Advisory Committee of the African Ministers Council on Water (AMCOW) for West Africa. As part of GWP's work on water and climate resilience in partnership with WMO on the Associated Programme on Flood Management (APFM) and IDMP, a €6.7 million project was prepared and approved by the Adaptation Fund in 2018 to strengthen flood and drought management in the Volta Basin.

Regional and transboundary investment planning

In 2014, WACDEP supported the Volta Basin Authority in production of an assessment of the current state of water management and climate change in the Volta Basin as part of planning for an Observatory for Water Resources and Associated Ecosystems. This compilation of existing, but previously scattered, knowledge about conditions in the basin and the capacity of the VBA led to WACDEP's support for the development of the Volta Basin Master Plan for Development and Sustainable Management of Water



Local community gathering around a newly established well in West Africa
Credit: Edmund Smith Asante

Resources and Strategic Action Plan in 2015. In addition, support was provided for the development of a project concept note to set up an early warning system for droughts, floods, and pollution in the Volta Basin.

National development

In parallel, WACDEP's support to the governments of Burkina Faso and the Niger in developing their National Adaptation Plans increased the basin member states' sensitivity to the need for climate-resilient approaches. In 2016, GWP and WMO, through the APFM, carried out flood management needs assessments at the national level in Benin, Burkina Faso, Ghana, and Togo.

Demonstrating drought resilience

Field demonstration projects in Burkina Faso and Ghana showed how drip irrigation and solar energy systems could help farmers produce better crops with less waste, and how reforestation could work against drought and desertification.

Capacity building and knowledge

To both build capacity and increase knowledge flows, in 2018 media practitioners from Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, the Niger, and Togo increased their potential in a regional workshop, *Integrated Drought and Flood Management: Contribution of Media Men/Women in Advocacy and Awareness-raising in West Africa*.

Project preparation and financing

Building on previous work accomplished by IDMP and APFM, in 2018 WACDEP and the WMO secured access to €6.7 million from the Adaptation Fund to support a flood and drought programme. The programme would assist the basin's riparian countries in the first large-scale and transboundary implementation of integrated flood and drought management by building the capacity of national meteorological and hydrological services and other authorities of the six riparian countries. The funds are being used to develop and adopt coordinated measures to improve existing management plans to build better early warning systems for flood and drought at the regional, national, and local levels.

From crisis to risk management: building resilience to drought in the Horn of Africa

€11.8 million

Funding for a project to strengthen drought resilience for smallholder farmers and pastoralists in Djibouti, Kenya, the Sudan, and Uganda

The absence of water is perhaps one of the most powerful consequences of climate change. While floods can be devastating, they tend to be short-term, while the impacts of drought can last for years, slowly withering trees, starving people and animals, and transforming landscapes. Herders and smallholder farmers in the arid lands of the Horn of Africa, where the challenges of water shortages are ever-present, have adapted to periodic droughts over hundreds of years, but climate change is now challenging their knowledge and experience in ways they have never before encountered. The governments of the region are realising that responding to drought as an emergency does not necessarily meet needs beyond the short term, and so are looking to move beyond crisis management to strategically managing the risks associated with drier conditions over time. To support this shift in thinking, GWP in partnership with the WMO, built on previous project experience to build capacity in managing drought and promoting water security in the region.

Starting with policy

In 2010, GWP and the WMO decided to work together to support governments to build resilience to drought in their countries through applying the principles of integrated water resources management (IWRM). Drawing on their joint experience through the Associated Programme on Flood Management (APFM), they would address multiple components of drought management, including disaster risk reduction, climate adaptation strategies, and national water policies aimed at meeting the needs of all stakeholders affected by drought.

The Integrated Drought Management Programme (IDMP) was launched in Geneva at the High-Level Meeting on National Drought Policy in 2013, with the Horn of Africa identified as one of the regions of focus. Global Water Partnership Eastern Africa (GWP-EA), through the Intergovernmental Authority on Development (IGAD) Member States of

*Smallholder farming family in Sudan
Credit: GWP Eastern Africa*



Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, the Sudan, and Uganda, was mobilised to engage with stakeholders from multiple sectors at country level. This engagement revealed opportunities for interventions at several levels of governance.

While the governments of the region had policies for water, climate change, and disaster management, none had specific drought management policies. Production of an overview of drought policy and institutional frameworks for Djibouti, Ethiopia, Kenya, Somalia, South Sudan, the Sudan, and Uganda made it clear that raising awareness among policy-makers about the significant economic impacts of drought was needed and this led to discussions about including awareness as a priority in analysing risks related to climate and water.

Demonstrating tools and approaches to building capacity

A series of demonstration project case studies, workshops, and training sessions also revealed how the effects of drought were leading to conflict in the region, as pastoralists were forced to constantly move with their herds of livestock in search of water and grazing, encroaching upon the fields of smallholder farmers. These vulnerable communities needed to develop strategies for coexistence. The projects tested integrated and participatory watershed management tools, experimented with water harvesting technologies, investigated lending schemes for climate-resilient agriculture, and developed appropriate infrastructure for pastoral peoples. As well as providing lessons about how to engage communities in climate-resilient practice, the work allowed the IDMP to identify the different stages attained by countries in the region in establishing and developing national frameworks and relevant policies for drought resilience.

Formalising partnerships

GWP and WMO found the insights and recommendations from this demonstration work useful. To follow up on the work, in 2015, GWP-EA and Global Water Partnership Organization signed a Memorandum of Understanding with the IGAD, formalising collaboration. This collaborative work included a five-year capacity development programme for on-the-ground training as well as improving institutional capacity in integrating work in the water, agriculture, disaster, and climate sectors.

The IDMP made it clear that there was more to do in the region, at both government policy and community levels. In 2016, supported by an IDMP workshop, GWP-EA began discussions with another GWP partner, the Sahara and Sahel Observatory (OSS), to consider a new programme of work that would build on the relationships and knowledge created during the IDMP to focus on vulnerable and marginalised communities.



*Drought stricken livestock in Sudan
Credit: GWP Eastern Africa*

Project preparation and financing

Through OSS, an accredited entity with the Adaptation Fund, the partners decided to undertake consultations in the Horn of Africa region with the aim of developing a proposal targeting the region's vulnerable and marginalised communities. A project concept was developed and submitted to the Adaptation Fund and was awarded funding in 2017. Adaptation Fund approval requires, at each stage of work from pre-concept to final project, that all countries involved submit letters of no objection. In the case of the new joint GWP-OSS Horn of Africa project, this meant obtaining consent from the four countries that had signed the Kyoto Protocol and expressed interest in working together: Djibouti, Kenya, the Sudan, and Uganda. At each stage, there were opportunities for the countries to express their needs and priorities.

“Access to some people in government circles is not always easy. In many countries, the agency responsible for disaster management is in the office of the President, Vice-President, or Prime Minister: sometimes it is a tall order to reach that level. But through our GWP network, contact with partners, we can often get to these people. It takes time, but it can be done, and it is worth the effort.” Gerald Kairu, Programme Manager, IDMP and DRESS-EA.

In October 2019, a new four-year project, Strengthening Drought Resilience for Smallholder Farmers and Pastoralists in the IGAD Region (DRESS-EA), received funding of €11 million from the Adaptation Fund. The project is both supporting governments at the policy level and reaching out to people on the ground through training, capacity building, and demonstrating adaptation actions, together learning new ways to deal with drought.

3

Looking to the future: mobilising investments for a water secure world

We are living in exceptional times, and bold action is needed. Across the globe, human development is moving so quickly that governments and businesses struggle to keep up with new technology and increased mobility. But many of the resources that feed and support these rapidly growing processes are finite. Land and soil, forests, and wildlife – and the freshwater that all these depend on – are shrinking, and those who most depend on them are at risk. A perilous combination of increasing demand, and a climate that is changing as quickly as society is developing, calls for urgent measures. The window for adaptation is closing rapidly as global temperatures continue to rise, as the COVID-19 pandemic damages economies, and the time for taking stock of the SDG 2030 agenda is passing. Resilience and adaptability to these changing conditions must be encouraged and enabled through flexible and organised approaches that transform the way we govern, live, and work.

Across the world, delivery of climate-resilient investments in water infrastructure, information, and institutions remains below the targets required to meet the social and economic development needs of countries. The lessons of GWP's water and climate programmes over the past ten years have reaffirmed the relevance of connecting climate and development through water, and have pointed the way to a broad range of influential, high-profile work, led by a commitment to meet systemic challenges. The priorities driving this work are positioning water-informed insights in national adaptation planning, facilitating access to climate finance for resilience-building water projects, and supporting integrated resilience planning for water infrastructure. Promoting investment in better and more accessible information, stronger and more adaptable institutions, and natural and human-made infrastructure to store, transport, and treat water are key to ensuring climate-resilient investments, bankable projects, and gender equity.

*Waterfalls in Mpumalanga, South Africa
Credit: Taryn Elliott*

Moving forward, and building on experience, GWP is building on its track record of mobilising more than €1 billion in water and climate resilience investments and influencing policy design and strategy formulation, with 19 investment plans and strategies across 60 countries in the last decade. GWP's climate resilience interventions will scale up action to address the systemic challenges identified in the preparation and delivery of water investments as a priority.

Support will be scaled up to accelerate adaptation, global leadership on water and climate, and mobilisation of climate resilience finance and investments in water security to unleash the transformation required for a water secure world. For low-lying developing countries such as Bangladesh, small island states in the Caribbean and Pacific, and coastal cities in deltas across Asia, Africa, and Latin America and the Caribbean, climate-induced water risks and hazards such as droughts, floods, and sea level rise will be prioritised. GWP and partners will focus attention on supporting countries to address a systemic gap that limits water security and climate resilience development.

In Africa, this gap will be addressed by focusing attention on catalysing high-level political leadership and commitment, mobilising climate finance, partnerships, and capacity to address three systemic challenges in the planning and delivery of water investments:

1. Planning, investment decision-making, and institutional processes of ongoing and new SDG 6 investments in water and sanitation are not coordinated with water-related interventions in health, energy, and food security, and reflect the structurally embedded 'silos' that undermine job creation and inclusive economic growth.
2. Planning, investment decision-making, and institutional processes for climate-resilient water investments are not gender transformative.
3. Preparation and implementation of bankable transboundary water projects is slow, lagging behind the needs of water dependent social-economic growth sectors and hampering job creation and inclusive growth of the continent.

These systemic challenges are barriers to planning, delivery, and implementation of climate-resilient and inclusive investments in water infrastructure, information, and institutions. Combined, the three challenges account for the low rate of progress in climate-resilient and gender transformative water investments that are below the targets required to meet the economic growth objectives and social needs of the continent.

The Partnership will address the three systemic challenges constraining Africa's efforts to prepare and implement bankable projects at a scale required to assure water, health, food, and energy security. The Partnership will also play a transformational role in global efforts to expand economic opportunities for the poor, curtailling the political, governance, economic, and social factors underlying unemployment, migration, gender inequality, and national security.

The Global Water Partnership's strategy for responding to this urgent need is, over the next five years and with its partners, to significantly advance the water-related SDGs for more than 4 billion people in 60 countries and 20 transboundary basins, and influence more than €10 billion in water-related investments from government and private sources. The Partnership's work on the Africa Water Investment Programme aims to narrow the water investment gap by increasing the current €8–16 billion in water-related investments to €25 billion, helping to achieve the €54 billion needed annually to meet the 2025 Africa Water Vision. The Partnership will do this by applying the lessons learned and building on the achievements of the last decade of its work on water security and climate resilience.

Appendix: Experience gained – GWP water and climate good practice guides

Selected knowledge products from GWP's water and climate programmes

Achieving development resilience to climate change: a sourcebook for the Caribbean water sector. 2014. St. Clair, Trinidad & Tobago: Global Water Partnership Caribbean & Caribbean Community Climate Change Centre. Retrieved from <https://www.gwp.org/globalassets/global/gwp-c-files/sourcebook--wv.pdf>

Addressing water in National Adaptation Plans : water supplement to the UNFCCC NAP technical guidelines. 2019. Stockholm: Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/gwp_nap_water_supplement.pdf

Building resilience to drought : learning from experience in the Horn of Africa. 2016. Entebbe, Uganda: Integrated Drought Management Programme in the Horn of Africa, Global Water Partnership Eastern Africa. Retrieved from https://www.droughtmanagement.info/literature/GWP_HOA_Building_Resilience_to_Drought_2016.pdf

Climate resilient development : experience from an African capacity development programme. 2016. Stockholm: Global Water Partnership with Climate and Development Knowledge Network. Retrieved from https://media.africaportal.org/documents/WaterCapacity_Final_WEB.pdf

Coastal and delta flood management. 2013. Geneva: Associated Programme on Flood Management, World Meteorological Organization, & Global Water Partnership. Retrieved from https://library.wmo.int/doc_num.php?explnum_id=7338

Drought risk management scheme - a decision support system. 2015. Bratislava, Slovakia: Integrated Drought Management Programme in Central and Eastern Europe, & Global Water Partnership. (2015). Retrieved from http://www.droughtmanagement.info/literature/GWP-CEE_Drought_Risk_Management_Scheme_Technical-note_2015.pdf

Flood proofing : a tool for integrated flood management. 2012. Geneva: Associated Programme on Flood Management, World Meteorological Organization, & Global Water Partnership Retrieved from https://library.wmo.int/doc_num.php?explnum_id=7334

Guidelines for preparation of the drought management plans. 2015. Bratislava, Slovakia: Global Water Partnership Central and Eastern Europe. Retrieved from https://www.gwp.org/globalassets/global/gwp-cee_files/idmp-cee/idmp-guidelines-final-pdf-small.pdf

Handbook of drought indicators and indices. 2016. Geneva: Integrated Drought Management Programme & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/integrated-drought-management-programme/gwp_handbook_of_drought_indicators_and_indices_2016.pdf

How to communicate drought : A guide by the Integrated Drought Management Programme in Central and Eastern Europe. 2019. Geneva: Integrated Drought Management

Programme, World Meteorological Organization & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/gwp-cee_files/idmp-cee/how-to-communicate-drought-guide.pdf

Lineamientos para la formulación de una política hídrica municipal con enfoque de GIRH. GWP Centroamérica. 2020. Tegucigalpa: Global Water Partnership Central America. Retrieved from https://www.gwp.org/globalassets/global/gwp-cam_files/lineamientos-phm_fin.pdf

Management of flash floods : a tool for integrated flood management. 2012. Geneva: Associated Programme on Flood Management, World Meteorological Organization, & Global Water Partnership. Retrieved from https://library.wmo.int/doc_num.php?explnum_id=7336

Medición de la implementación de la GIRH a nivel municipal : propuesta metodológica. 2020. Tegucigalpa: Global Water Partnership Central America. Retrieved from https://www.gwp.org/globalassets/global/gwp-cam_files/ods-651-municipal_fin.pdf

National drought management policy guidelines: a template for action. 2014. Geneva and Stockholm: Integrated Drought Management Programme, Global Water Partnership & World Meteorological Organization with National Drought Mitigation Center. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/integrated-drought-management-programme/gwp_ndmpg_final_web.pdf

Preparing to adapt : the untold story of water in climate change adaptation processes. 2018. Stockholm: Global Water Partnership. Retrieved from <https://www.gwp.org/globalassets/global/events/cop24/gwp-ndc-report.pdf>

Process guidance document for preparing water security and climate resilience investment projects : turning project ideas into bankable concept notes. 2016. Pretoria: Global Water Partnership Southern Africa, AMCOW and Infrastructure Consortium for Africa. Retrieved from <https://www.gwp.org/globalassets/global/gwp-saf-files/process-guidance-document-low-res.pdf>

Reconciling resource uses : assessment of the water-food-energy-ecosystems nexus in the North Western Sahara Aquifer System. 2020. New York and Geneva: United Nations Economic Commission for Europe, Global Water Partnership Mediterranean, UNECE & Sahara and Sahel Observatory. Retrieved from <https://www.gwp.org/globalassets/global/gwp-med-files/list-of-programmes/sida-matchmaker/nwsas-nexus-report/NWSAS-nexus-en.pdf>

Technical assistance for the preparation of an advocacy strategy. 2015. Geneva: Associated Programme on Flood Management, Global Water Partnership, World Meteorological Organization. Retrieved from https://www.floodmanagement.info/publications/tools/Tool_24_Technical_Assistance_for_the_Preparation_of_an_Advocacy_Strategy.pdf

WASH climate resilient development guidance note : risk assessments for WASH. 2017. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/toolbox/publications/technical-briefs/gwp_unicef_guidance-note-risk-assessments-for-wash.pdf

WASH climate resilient development strategic framework. 2014. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_strategic_framework_web_artwork.pdf

WASH climate resilient development technical brief : appraising and prioritising options for climate resilient WASH. 2015. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/toolbox/publications/technical-briefs/gwp_unicef_tech_b_appraising-and-prioritising-options.pdf

WASH climate resilient development technical brief : integrating climate resilience into national WASH strategies and plans. 2015. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_tech_b_web.pdf

WASH climate resilient development technical brief : linking risk with response: options for climate resilient WASH. 2015. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_linking_risk_with_response_brief.pdf

WASH climate resilient development technical brief : local participatory water supply and climate change risk assessment: modified water safety plans. 2015. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_tech_a_web.pdf

WASH climate resilient development technical brief : monitoring and evaluation for climate-resilient WASH. 2015. Stockholm: UNICEF & Global Water Partnership. Retrieved from https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_monitoring-and-evaluation-brief.pdf

Water management, water security and climate change adaptation : early impacts and essential responses. 2009. Stockholm: Global Water Partnership. Retrieved from <https://www.gwp.org/globalassets/global/toolbox/publications/background-papers/14-water-management-water-security-and-climate-change-adaptation.-early-impacts-and-essential-responses-2009-english.pdf>

Water security and climate resilient development : investing in early-stage conceptualisation as a vital step in ensuring long-term success. 2016. Pretoria: Global Water Partnership Southern Africa, AMCOW and Infrastructure Consortium for Africa. Retrieved from <https://www.gwp.org/globalassets/global/gwp-saf-files/early-project-concept-development-low-res.pdf>

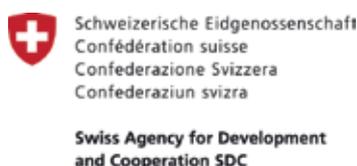
Water security and climate resilient development : overcoming bottlenecks in project preparation. 2016. Pretoria: Global Water Partnership Southern Africa, AMCOW and Infrastructure Consortium for Africa. Retrieved from <https://www.gwp.org/globalassets/global/gwp-saf-files/knowledge-product-bottlenecks-in-project-preparation-low-res.pdf>

Water security and climate resilient development : strategic framework. 2012. Abuja: African Ministers' Council on Water. Retrieved from <https://www.gwp.org/globalassets/global/toolbox/references/strategic-framework-water-security-and-climate-resilient-development-wacdep-amcow-2012.pdf>

Water security in Africa : how innovative financing can enable climate resilient development. 2014. Pretoria: Global Water Partnership Southern Africa. Retrieved from <https://www.gwp.org/globalassets/global/gwp-saf-files/innovative-financing.pdf>

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*Back cover image:
Old tree on Nyong River,
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