2019 ANNUAL REPORT

2030 Water Resources Group

HOSTED BY WORLD BANK GROUP Water

Building trust, growing resilience

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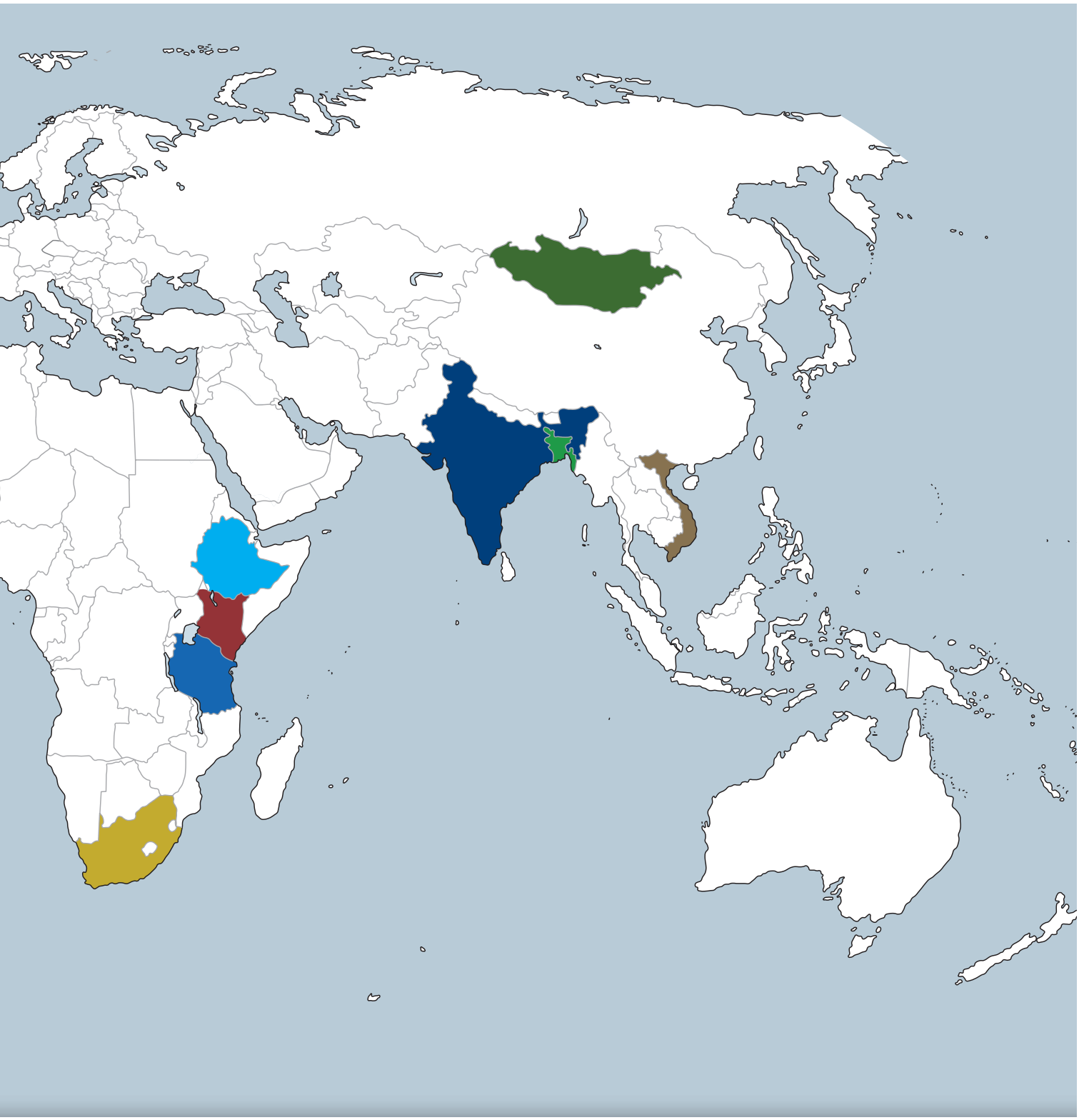

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2030 WRG Annual Report 2019

The 2030 Water Resources Group (2030 WRG) helps countries achieve water security by facilitating collective action between government, the private sector, and civil society, with government firmly in the lead.

Our mandate is in line with the United Nations' Sustainable Development Goal 6, which aims to ensure safe water and sanitation for people, ecosystems, and the economy by 2030. By the end of FY19, we were active in 11 countries.

We are hosted by the World Bank Water Global Practice.

2030 Water Resources Group | HOSTED BY WORLD BANK GROUP Water

About this report

This report tracks our activities between July 1, 2018, and June 30, 2019 (FY19). It provides a record of our strategic approach, our governance structures, and our work at the country level during the year.

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MESSAGE FROM THE CO-CHAIRS

Paul Bulcke
2030 WRG Governing Council Co-Chair
Chairman of the Board, Nestlé

Laura Tuck
2030 WRG Governing Council Co-Chair
Vice-President for Sustainable Development, World Bank Group

Water: The Next Resource Frontier

By 2030, the global population will reach nine billion and the world will require 40 percent more water than it does today. At the same time, water will continue to be central to all economic activity and economic growth will put further pressure on this already scarce resource. Without an adequate water supply, meeting basic needs and achieving sustainable economic growth as envisaged by the 2030 Agenda for Sustainable Development will not be possible.

A handful of governments and companies are working to address the critical issues caused by water stress, but efficient and equitable water resource management remains a global challenge, posing significant risks to households, communities and businesses and even to the stability of nations. Agricultural supply chains are particularly vulnerable to water risks and they will come under further pressure as the climate crisis increases the frequency and severity of extreme water events, and population growth and changing diets drive greater demand for food.

Governments will need to take a leading role in making evidence-based decisions to improve resilience, as well as to create complementary regulatory environments in which initiatives to address the common water challenge can be developed and implemented. The private sector, too, will need to take decisive action by identifying water risk hotspots in its value chains and engaging with suppliers to improve water management.

These two sectors, which often have invisible walls between them, will need to work together to strengthen the impact of their individual efforts.

The 2030 Water Resources Group (2030 WRG) aims to achieve just that kind of collaboration by facilitating intersectoral discussions, growing the scientific evidence base, and providing technical support for the design and implementation of policies, programs, and projects that improve water resilience. Multi-stakeholder platforms (MSPs) are our main tool for achieving these goals. These platforms bring stakeholders from different sectors together, breaking down the barriers between them so that they can collectively and sustainably manage finite water resources.

Over the past decade, 750 partners across 14 countries and states have formed MSPs focused on finding a solution to local water concerns. These MSPs have been instrumental in developing and implementing:

- The first large-scale (and world's largest) community drip irrigation project at Ramthal in Karnataka, India
- The first certificates for sustainable corporate water footprints in Peru
- The first irrigation financing facility in Kenya
- The first public-private partnerships (PPPs) for wastewater treatment and reuse in the Ganga Basin in India
- The first Voluntary Code of Practice for sustainable mine water management in Mongolia
- The first PPP for industrial wastewater treatment in economic zones in Bangladesh
- The first automated water administration system for irrigation schemes in South Africa
- The first water accounting framework at the national level in India
- The first state-level policy on wastewater reuse in Karnataka.

In the coming year, 2030 WRG will work to deepen its presence in its active engagements, mobilize resources in new territories, and respond to lessons learned. It will focus primarily on three key themes—transforming value chains, promoting circular economies, and advancing resilience planning—all while remaining responsive to developments on the ground.

None of these goals are achievable without intersectoral cooperation, borne from the relationships that are nurtured through the MSPs. With this in mind, we invite our partners—long-standing, new and potential—to add their voices to the debate. To collaborate, to question, and to innovate. Together, we will find sustainable solutions to tackle the water crisis.

WE WILL EXPERIENCE A GLOBAL FRESHWATER SHORTFALL OF

40%

IF WE KEEP USING FRESHWATER AS WE ARE NOW.

EXECUTIVE SUMMARY

The world is running out of water. If we keep using freshwater as we are now—as though it were an unlimited resource and a dumping ground for untreated waste—we will experience a global freshwater shortfall of 40% by 2030.

Indeed, parts of the world are already experiencing this, either permanently or seasonally. Yet few countries are equipped to meet the challenge of ensuring the availability and sustainable management of water and sanitation for all by 2030, as set out by the United Nations' Sustainable Development Goal 6 (SDG 6).

Our leaders need to act now to minimize the future impact of water scarcity on human wellbeing, social cohesion, and economic development. Joint action between government, companies, civil society, and communities—supported by scientific knowledge and the strongest available data—is our best chance of success.

We face many challenges on the path to better water management. These include lack of resources as countries work to address many equally pressing issues; lack of reliable, current data to help stakeholders plot a path to greater water efficiency and resilience; and high levels of distrust between different stakeholders.

Creating and maintaining open dialogue is the first step to building trust. With mutual trust in place, all else follows: discussions about water challenges become more open and honest; there is increased willingness to contribute funding to improve the evidence base; and the needs of all parties are considered before decisions are made.

2030 WRG advances collaborative action by providing a neutral platform for stakeholders from various sectors of society (such as government, the private sector, and civil society) and interest groups (such as mining, agriculture, urban–rural planning, and technology) to come together in a safe space to discuss the water challenges in their countries, collectively make decisions based on the best available information, and drive for comprehensive solutions.

We currently work in 11 countries and three subnational states across four continents. Even though these countries differ widely in terms of their natural water endowments, economic activities, and population profiles, they all need to take steps to:

TRANSFORM THE VALUE CHAIN

PROMOTE CIRCULAR WATER ECONOMIES

IMPROVE RESILIENCE PLANNING

FOLLOW THE ICONS IN "**FY19 HIGHLIGHTS**" TO SEE HOW WE ARE TAKING THE LEAD IN THESE AREAS

Our work in these three areas are interrelated: an initiative that transforms the value chain or promotes a circular water economy could well also improve resilience planning. An increase in water demand or pollution by one sector will automatically reduce the volume of freshwater available to another. Conversely, with suitable wastewater treatment, monitoring, and governance structures in place, one sector's treated wastewater could augment another sector's water source.

Transforming value chains

Agriculture is often a key water-consuming sector in our focus countries. The situation is particularly extreme in Bangladesh, an otherwise water-rich country, where 92% of freshwater goes to cultivation. By way of comparison, agriculture accounts for 61% of freshwater use in relatively dry South Africa. This variance is largely due to Bangladesh's choice of Boro rice as its staple crop, which requires up to 4,000 liters of water to produce one kilogram of rice.

In the past year, to achieve water efficiencies on farms, our country platforms advanced various projects that aimed to:

- **Implement water-saving irrigation systems,** specifically drip irrigation. In Mexico, Karnataka (India), and South Africa, PPPs are being forged to establish or expand drip irrigation systems at a large scale. Our support for these and other projects includes convening stakeholders, developing feasibility studies and business cases, helping the multi-stakeholder platform secure funding for activities, improving market linkages, and developing technology-based solutions to automate water management.
- **Shift agricultural production to less water-intensive crops.** The Bangladesh team completed the first year of a two-year project to encourage farmers in the country's north-western areas to implement efficient irrigation methods while growing more water-efficient produce, such as mango. Two thousand Bangladeshi farmers received training during the year against a two-year target of 10,000. A similar extension program, including market linkages, is being rolled out in Uttar Pradesh in India.
- **Develop financing solutions for smallholder and small-scale farmers.** Lack of funding is a common obstacle to implementing water-efficient irrigation systems. The Kenya and Tanzania MSPs have developed projects to identify smallholder farmers that could, with some support, qualify for a loan to install, upgrade, or expand drip irrigation. During the year, the Kenya MSP supported IFC to roll out a 24-month pilot targeting 500 smallholders. Tanzania has received its first wave of loan applicants.
- **Improve the knowledge base.** During the year, our team in Maharashtra (India) co-published two reports on cotton farming: the first examines how efficient irrigation systems could improve yield, while the second discusses the role of women on these farms. The team in Vietnam co-authored a report that sets out the need to improve the country's water resilience by, among other measures, optimizing water use at the farm level.

Promoting circular economies

Industrial water use is a challenge in many areas. In Mongolia, for instance, industrial water use is expected to eclipse agricultural withdrawals by 2030. Even though industry is not the largest water user in most other countries, the situation in Mongolia demonstrates that it is a key driver of water demand that could, if unchecked, lead to runaway increases in future water demand.

To ensure sustainable growth, emerging countries need to delink economic development from water use. During the year, the MSPs in our target countries worked to:

- **Develop the business case for water efficiency.** In Ethiopia, the country team carried out an industrial context analysis to understand the main water sustainability challenges of the emerging textile- and agro-industries. Peru, meanwhile, continued issuing Blue Certificates for water-efficient companies based on ISO standards, making these companies more appealing to investors, customers, and clients who are conscious about sustainability and the environment. In Mexico, the MSP is helping to strengthen the water allocation regime, providing new options for stakeholders to use water more efficiently and sustainably.
- **Ensure that the price of water reflects the true cost of supply.** In Bangladesh, this took the form of initiating a process to develop a

Water Valuation Framework proposal that was endorsed by the highest level of government, while in Mongolia, the team developed recommendations for a new urban water tariff structure to drive water use efficiency and reuse of wastewater.

- **Foster dialogue between competing water users,** as in Peru, where a mining-focused MSP has successfully brokered a deal that will see a local mining company work to meet a community's basic water and sanitation needs.

Pollution linked to industrial development is threatening freshwater supplies in nearly all our partner countries. The textile companies of Bangladesh, Ethiopia, India, and Vietnam and the mines of Mexico, Peru, and South Africa are often singled out as key sources of pollution, but the reality is more complicated than that. External market forces that place cost competitiveness over environmental consequences, complicated water legislation, and poor regulation enforcement all play a contributing role.

Reducing industrial water pollution requires a systemic approach. It isn't enough to encourage companies to reduce or treat their effluent—although this is an important step. We also need to create opportunities for PPPs to build and maintain water-treatment facilities. We need to harness the technologies available to us to put in place systems that are more efficient and effective, and we need to improve laws, policies and regulations about how treated wastewater can be reused.

Together, these steps—and many others—create a nurturing environment for a circular water economy (see box). In such an environment, effluent and the by-products of wastewater treatment are viewed as valuable resources rather than a disposal headache.

Indian worker dyeing clothes in Mumbai.

Through the work of the 2030 WRG MSPs, concrete progress has been made towards laying the foundation for a circular water economy in our partner countries. Among other developments, the following was achieved during the year:

- A **water-testing project** in Bangladesh initiated a study to identify sites to deploy water-testing technologies. Better water pollution data will support the argument for future investments in water treatment.
- **Revised legislation that supports the "polluter pays"** principle was approved in Mongolia.
- **Policy guidelines and standards for the acceptable reuse of treated industrial wastewater** were piloted in Bangladesh, rolled out in Karnataka, drafted in Maharashtra (for agriculture), and formally approved in Mongolia.
- **Public-private projects for wastewater treatment** were piloted at various locations in India. Similar projects were at an advanced stage of development in Bangladesh.
- **Capacity-building workshops** were held and knowledge products were produced in several countries.

- **Plans, policies, and technologies that support wastewater treatment and reuse,** were developed or advanced, thereby reducing industries' reliance on freshwater for their operations. We made fair progress towards realizing these ambitious goals during the year:
  - Our **São Paulo** team supported the joint development of terms of reference for a basin-level plan for the industrial reuse of treated wastewater in the Piracicaba-Capivari-Jundiaí (PCJ) basin.
  - **Maharashtra** conceptualized a trading platform for recycled wastewater and ran a hackathon to develop technologies that support the transactions involved in the reuse of treated industrial and municipal wastewater (see "#codeforcleanwater hackathon" on page 56).
  - **Bangladesh** started developing an online clearance system to allow utilities to transparently and efficiently issue water clearance certificates for public and private sector projects.
  - **India** continued rolling out its National Blueprint for Water Accounting to improve demand-side management.

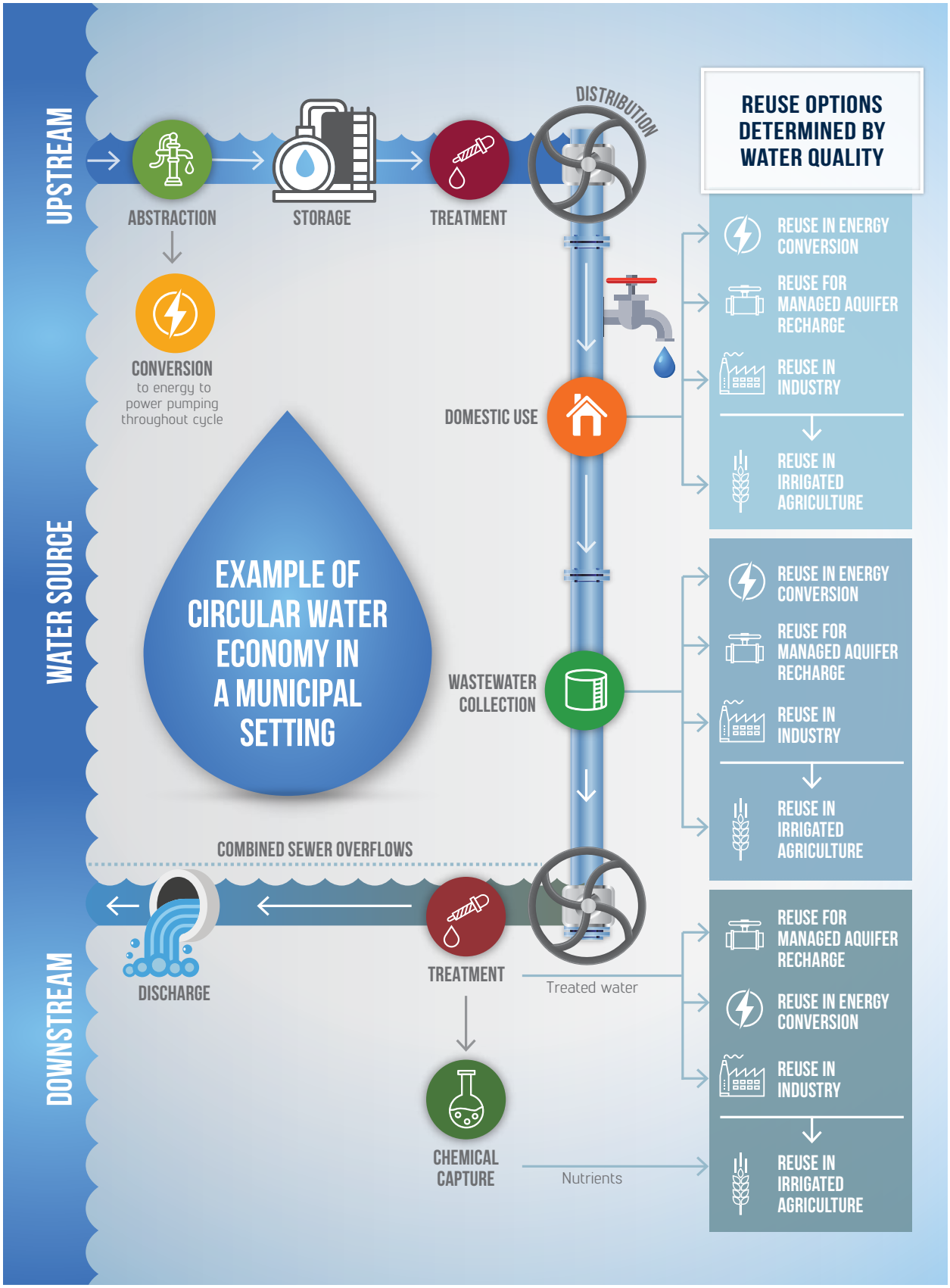
Creating circular water economies

Businesses and governments need to move beyond the current "take, make/use, and dispose" model of water use toward circular water economies, in which wastewater is transformed into a valuable resource that can be reused, recycled, or repurposed, so offsetting growing water demand.

Circular water economies aim to:

- **Design out wastewater disposal**—Rather than view used water as waste material to be disposed of, a circular water economy approach looks at the chemicals contained in the wastewater and asks whether these could be extracted and used elsewhere.
- **Keep resources in use**—Depending on the level and nature of pollutants in it, wastewater can serve other purposes beyond its initial use. For instance, it can be used as an energy source or for agricultural purposes.
- **Regenerate natural capital**—A circular water economy can improve environmental flows by reducing demand and preventing pollution of natural rivers.

Tanks for water treatment of water and sewage in the city of Jundiaí in São Paulo, Brazil.


UPSTREAM
WATER SOURCE
DOWNSTREAM
ABSTRACTION
STORAGE
TREATMENT
DISTRIBUTION
CONVERSION
to energy to power pumping throughout cycle
DOMESTIC USE
WASTEWATER COLLECTION
COMBINED SEWER OVERFLOWS
DISCHARGE
TREATMENT
Treated water
CHEMICAL CAPTURE
Nutrients
EXAMPLE OF CIRCULAR WATER ECONOMY IN A MUNICIPAL SETTING
REUSE OPTIONS DETERMINED BY WATER QUALITY
REUSE IN ENERGY CONVERSION
REUSE FOR MANAGED AQUIFER RECHARGE
REUSE IN INDUSTRY
REUSE IN IRRIGATED AGRICULTURE
REUSE IN ENERGY CONVERSION
REUSE FOR MANAGED AQUIFER RECHARGE
REUSE IN INDUSTRY
REUSE IN IRRIGATED AGRICULTURE
REUSE FOR MANAGED AQUIFER RECHARGE
REUSE IN ENERGY CONVERSION
REUSE IN INDUSTRY
REUSE IN IRRIGATED AGRICULTURE

Advancing resilience planning

Resilience planning is about helping farmers shift to water-efficient irrigation and crops so that dry seasons don't necessarily lead to catastrophic crop failure. It is about encouraging industries to become more efficient and collectively invest in wastewater treatment facilities so that they can continue operating even as water stress increases. And it means strengthening water resources governance to bring about structural and behavioral changes so that vulnerable groups will be able to survive and thrive in the face of climate change.

Water governance is not the sole responsibility of a country's elected officials. Other systems of formal and informal governance involving the private sector, community organizations, academia, and development agencies also have a role to play.

We help strengthen governance across the board by:

- **Providing expert inputs to legislation, regulations, tariffs, and policies.** Among other documents, our inputs have helped shape Bangladesh's infrastructure investment plan, Mongolia's amended Water Pollution Fee Law, and the terms of reference for a state plan for the reuse of industrial effluent in São Paulo, Brazil.
- **Developing the local knowledge base by contributing to and publishing studies and research reports.** Key publications published during the year include a report that examined the role of women in cotton cultivation in Maharashtra, India; a collection of case studies highlighting effective industrial water use in Kenya; and a report highlighting the need to improve water governance and financing in Vietnam.
- **Supporting and upskilling government officials and other stakeholders with governance responsibility** by providing them with expert input around water-related issues, creating opportunities for dialogue and knowledge-sharing, and providing training and skills development. For example, in Peru we are supporting a university initiative to form a "water observatory" that will act as a central repository for the collection and dissemination of water knowledge from various sources, while in India we are developing water accounting.
- **Developing tools like dashboards** that facilitate informed decision-making, such as those being developed for water basins in Maharashtra, India.
- **Facilitating engagements between different levels of governance and government agencies** working in different sectors, such as in Tanzania, where we are facilitating collaboration and communication across the country's complicated five-tier water-governance system.

At the municipal level, much of our work has focused on addressing high levels of non-revenue water—that is, water lost due to theft or physical losses caused by broken infrastructure and faulty metering. In South Africa and Kenya, non-revenue water accounts for more than 35% of total water supply, presenting a realistic opportunity to close the gap between urban supply and demand.

During the year, 2030 WRG Kenya helped six utilities draft performance-based contracts for non-revenue water reduction that have the potential to reduce by 2% the projected supply-demand gap. The MSP in South Africa, meanwhile, made progress with the No Drop program and is working on a demonstration public-private project to reduce municipal water losses.

IN SOUTH AFRICA AND KENYA, NON-REVENUE WATER ACCOUNTS FOR MORE THAN

35%

OF TOTAL WATER SUPPLY.

Installation and assembly of a pump.

Future focus areas

Our work is largely focused on transforming value chains, promoting circular economies, and advancing resilience planning within our partner countries. Going forward, we will expand this focus to include ensuring the financial sustainability of MSPs, exploring linkages with other platforms, and deepening impacts in countries while scoping expansion into new geographies.

Financial sustainability

Our work relies on providing a neutral platform that enables relationships of trust to develop over many years. The long-term sustainability of our MSPs is therefore an important element of their success. 2030 WRG has attracted $889.8 million to date in matched funding for our MSPs and their workstreams, demonstrating that the parallel funding model has the potential to sustainably support current and future MSPs. Strengthening the sustainability of our MSPs will be a focus area for the year to come.

Linkages with other platforms

We will explore the potential to partner with similar initiatives in other sectors to pursue the SDGs more broadly, using Goal 17 as the vehicle. Initiatives that aim to improve food security, reduce plastic waste, and shrink the carbon footprints of mining operations could, for example, benefit from adopting the MSP model, while 2030 WRG could benefit from their knowledge and potential joint action.

Deepening impacts and scoping new geographies

We will continue to deepen impacts in countries and explore the potential for the development of city-based MSPs to strengthen national-local dynamics when it comes to meeting serious water challenges.

In FY19, we developed a plan to guide our scoping of new geographies, particularly focusing on new geographies based on their political economy, social context, hydrological context, and existing international partnerships within the area to advance the 2030 WRG model to new places.

Conclusion

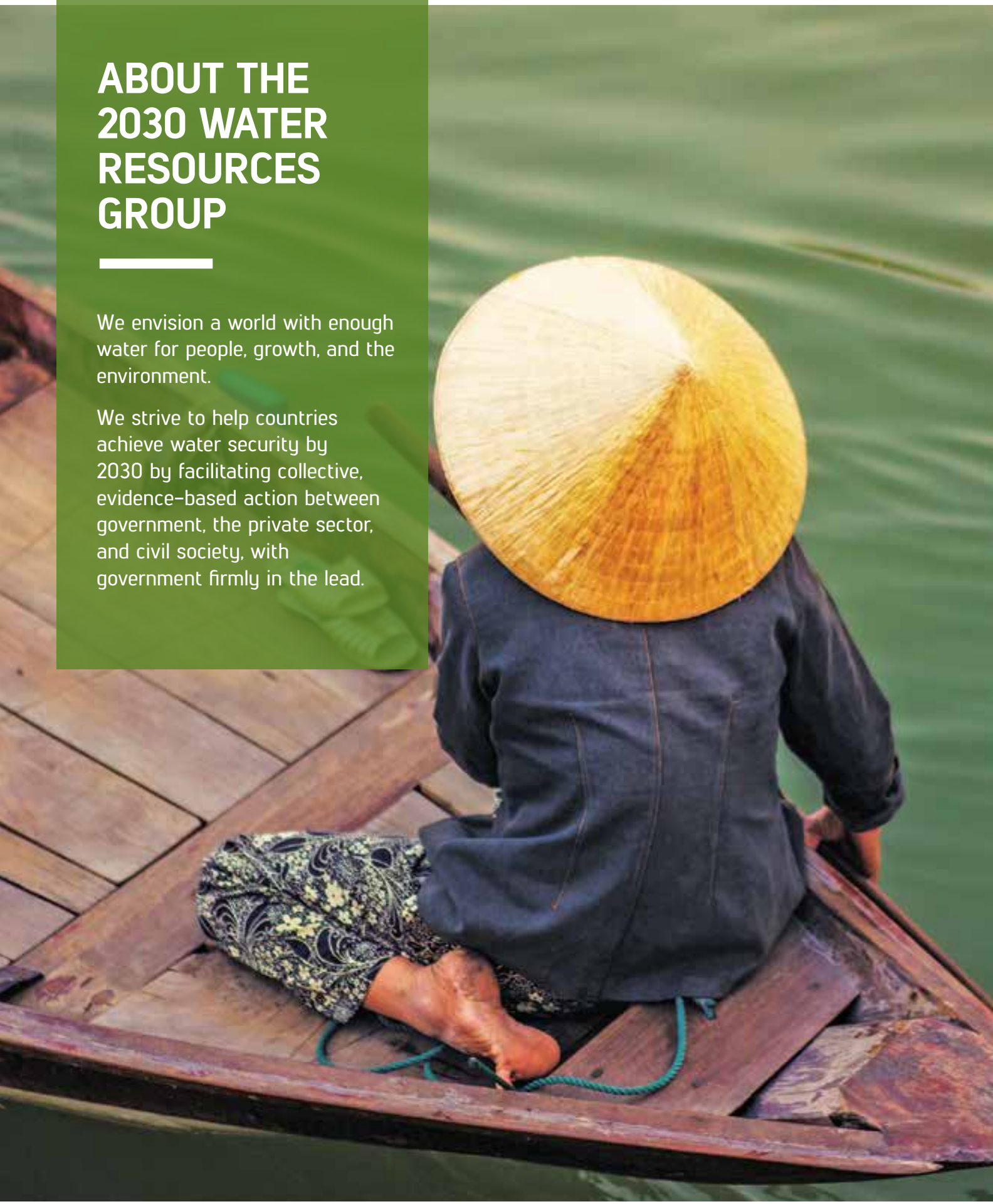
Water will never again be regarded as a boundless resource. Decision makers from various sectors and interest groups need to work together to improve efficiencies, make equitable allocations, and develop resilience to the water challenges that are already starting to affect municipalities and industries. This understanding was central to our approach during the year, and it will continue informing our work in the year to come.

Gold mining camp in Burgede, Mongolia.

ABOUT THE 2030 WATER RESOURCES GROUP

We envision a world with enough water for people, growth, and the environment.

We strive to help countries achieve water security by 2030 by facilitating collective, evidence-based action between government, the private sector, and civil society, with government firmly in the lead.



WHY MSPs?

Water security is a system-wide challenge that cuts across social, political, and economic boundaries and requires systemic, innovative solutions. No single sector, industry, or organization will be able to bridge the anticipated gap between supply and demand in isolation.

THE PRIVATE SECTOR PLAYS A ROLE BY...

- Ensuring operations are water efficient
- Ensuring economic expansion doesn't increase water use
- Treating effluent
- Minimizing pollution
- Striving for better water stewardship in preparation for when water will be priced at "true cost"
- Facilitating reuse

THE PUBLIC SECTOR PLAYS A ROLE BY...

- Investing in water storage and treatment infrastructure
- Creating an enabling environment for sustainable water management and public-private partnerships that offer solutions
- Making science-based and equitable water allocations

WHY MULTI-STAKEHOLDER PARTNERSHIPS?

All water users have a role to play in designing and implementing solutions to shared water challenges

EXPERTS AND DEVELOPMENT PARTNERS PLAY A ROLE BY...

- Providing evidence-based technical advice
- Helping to unlock investments
- Bringing international experience to the local context

CIVIL SOCIETY AND COMMUNITY-BASED ORGANISATIONS PLAY A ROLE BY...

- Providing local knowledge and context
- Giving voice to the vulnerable and marginalized
- Connecting decision makers to communities
- Facilitating pilots and rolling out programs at community level

HOW WE WORK

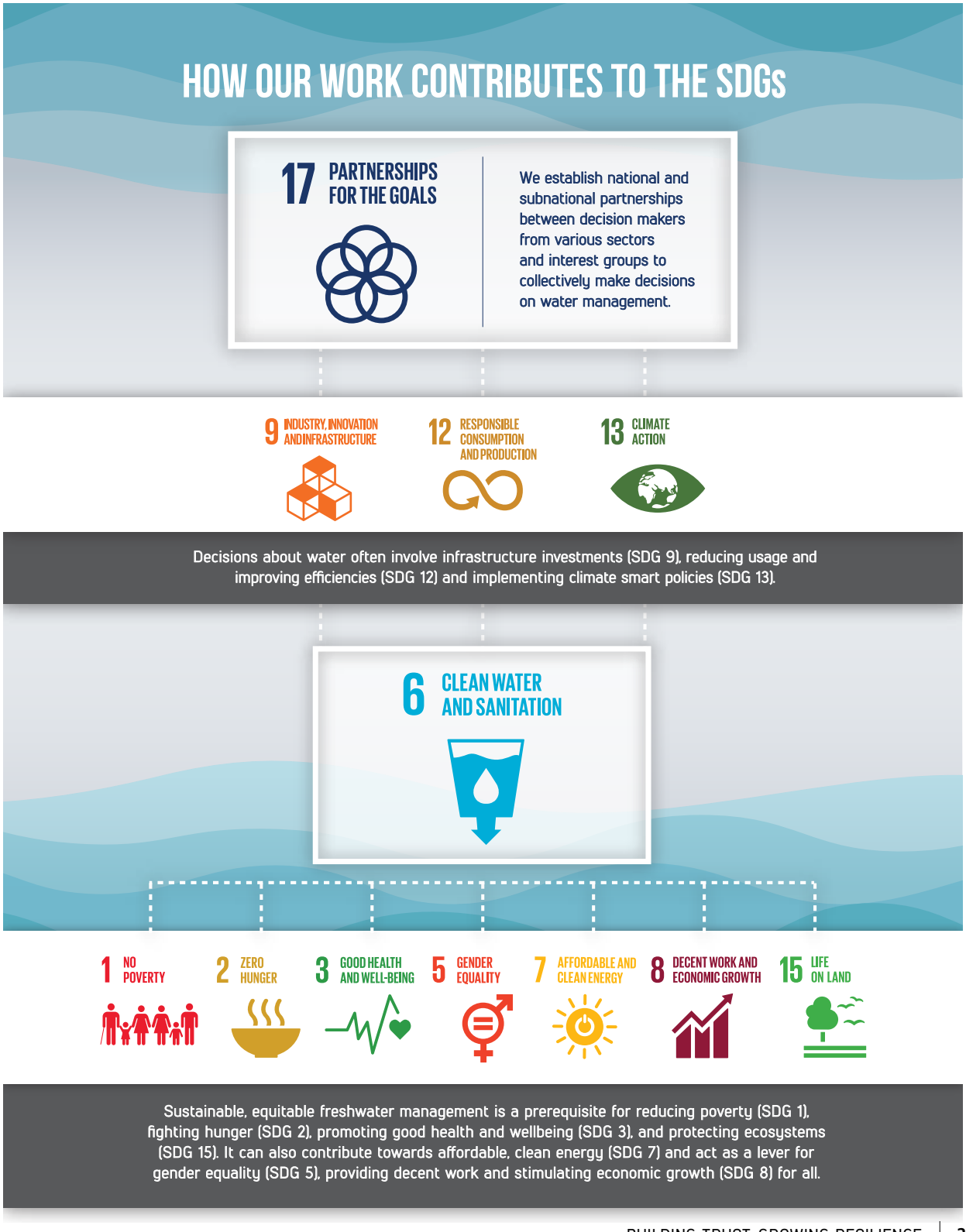
2030 WRG plays the role of an independent secretariat to national and subnational MSPs. We strive to remain agile in our approach so that we can be responsive to the needs of our MSPs, providing administrative and technical support as and where needed. In practice, this means we typically fulfill the following functions:

- **We convene key stakeholders in a neutral platform** to enable them to co-create solutions to the water crises facing them.
- **We contribute to the knowledge base** by conducting national hydro-economic analyses and other studies to help role players better understand water challenges in an area. We also support efforts to disseminate existing knowledge products.
- **We develop innovative tools to facilitate better water management** such as dashboards and blockchain-based wastewater trading mechanisms.
- **We develop concept notes and technical proposals** that support an MSP's vision.
- **We run technical workshops and training opportunities** where needed.
- **We mobilize project finance** and track project progress, resolving bottlenecks as required.

Blue Nile Falls Tis Issat Ethiopia Africa

OUR CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

Even though our work focuses explicitly on SDG 6 (water management and sanitation), our working methods align closely with SDG 17 (partnership for the goals). And because water is a "turnkey goal", linked to just about every other aspect of our society and economy, our work is also affected by—and contributes to the realization of—several other SDGs, as the following figure illustrates.



OUR GROWTH PATH

2008/ 2030 WRG formed

An informal consortium consisting of the International Finance Corporation (IFC) and several multinational corporations identifies lack of inter-sectoral collaboration as a hindrance to effective water management.

2009/ *Charting our Water Future* published

The consortium publishes research demonstrating the need for effective water action to be a joint effort between all stakeholders.

2010/ 2030 WRG launches Karnataka in India launches multi-stakeholder platform

2030 WRG officially launches in January. It is hosted at the World Economic Forum (headquarters in Geneva. Later that year, it adopts the ACT (analyze, convene and transform) approach to its work, initiated in Karnataka.

2011/ South Africa launches multi-stakeholder platform, the Strategic Water Partners Network

As in India, the platform brings together senior representatives from government, the private sector, and other stakeholders.

2012/ International Finance Corporation hosts 2030 WRG

After an incubation period at The Forum, 2030 WRG embarks on a more formal phase of demonstration and implementation at IFC in Washington, D.C. Governance structures are formalized (see page 25).

Tsakhiagiin Elbegdorj
Mongolian President, 2013

2013/ Mongolia launches MSP

The Mongolian MSP is launched at the request of the country's president.

2014/ Peru, Kenya, Tanzania and Maharashtra launch MSPs

The Peru MSP is based on a 2013 agreement with the national water authority and the agriculture ministry. The Kenya MSP is launched at the government's invitation.

2015/ 2030 WRG joins existing MSP in Mexico
Engagement begins at the national level in India

2030 WRG joins the Consejo Consultivo del Agua, A.C. (CCA), a national multi-sectoral water advisory council formed in 2000. In India, 2030 WRG launches an MSP at the national level to focus on key priority themes.

2016/ Bangladesh formalizes MSP
Government of Ethiopia invites 2030 WRG to explore opportunities for establishing an MSP

The Bangladesh platform is chaired by a high-ranking government official. What was then known as the Ethiopian Ministry of Water, Irrigation and Electricity expresses interest in collaborating with 2030 WRG in developing innovative water resources solutions.

2017/ Hydro-economic analyses in Vietnam

2030 WRG Vietnam completed a hydro-economic analysis in 2017, forming the development of two workstreams.

In Ethiopia, what was then known as the Planning and Development Commission expressed interest in working with 2030 WRG on preparing a hydro-economic analysis as an input to the National Planning Strategy.

2018/ World Bank Water Global Practice begins hosting 2030 WRG in transition from International Finance Corporation
Ethiopia's hydro-economic analysis commences in April 2018

Ethiopia's hydro-economic analysis is initiated after various Ethiopian ministries express an interest in collaborating over the two preceding years.

2019/ 2030 WRG commences scoping for expansion as based on its Strategic Plan

ORGANIZATIONAL STRUCTURES

Governance

When we moved to IFC in 2012, a formal governance structure was put in place. This structure has followed us to the World Bank and consists of a Governing Council, which guides our strategic approach, and a Steering Board, which supervises the Secretariat, including the program's strategic plan, budgets, and resource allocation.

Governing Council (as at June 30, 2019)

Co-chair: Paul Bulcke
Chairperson of the Board, Nestlé

Co-chair: Laura Tuck
Vice President of Sustainable Development, World Bank Group

Akinwumi Adesina
President, African Development Bank

Grethel Aguilar
Acting Director-General, International Union for Conservation of Nature (IUCN)

László Balogh
Deputy State Secretary, Ministry for National Economy, Hungary

Eli Cohen
Minister for the Economy and Industry, Israel

Howard Bamsey
Chair, Global Water Partnership

Carin Jämtin
Director-General, Swedish International Development Cooperation Agency

Luis Moreno
President, Inter-American Development Bank

Dr. Muhammad Musa
Executive Director, BRAC

Gugile Nkwinti
Minister of Water and Sanitation, South Africa

Ramon Laguarta
Chairman and CEO, PepsiCo

James Quincey
President and CEO, The Coca-Cola Company

Frank Rijsberman
Director-General, Global Green Growth Institute

Manuel Sager
Director, Swiss Agency for Development and Cooperation

Richard Samans
Head of the Centre for the Global Agenda, Member of the Managing Board, World Economic Forum (WEF)

Achim Steiner
United Nations Development Programme

Steering Board (as of June 30, 2019)

Co-chair: Dominic Waughray
Head of Public Private Partnerships, Member of the Executive Committee, World Economic Forum

Co-chair: Jennifer Sara
Senior Director, World Bank Water Global Practice

Roberta Barbieri
Vice President, Global Water and Environmental Solutions, PepsiCo

Maria van Berlekom
Head of Unit, Global Cooperation on Environment, Department for International Organisations and Policy Support, Swedish International Development Cooperation Agency

James Dalton
Director, Global Water Programme, International Union for Conservation of Nature

Balázs Heincz
Deputy Head of Department for Water Diplomacy and the Danube Region Strategy, Government of Hungary

Karin Krchnak
Program Manager, 2030 WRG

Alice Laidlaw
Manager, Global Infrastructure, Municipal & Environmental Infrastructure, IFC

Yechezkel Lifshitz
Deputy Director-General, Energy Infrastructures and Water Resources, Government of Israel

Isabella Pagotto
Senior Adviser/Senior Program Manager, Global Programme Water, Swiss Agency for Development and Cooperation

Ulrike Sapiro
Global Senior Director, Water Stewardship and Sustainable Agriculture, The Coca-Cola Company

Monika Weber-Fahr
Executive Secretary, Global Water Partnership

Ghislaine Weder
Head, Economics and International Relations, Nestlé

Operations

Secretariat

Our Secretariat is headquartered in Washington, D.C., with most team members based in East Asia, South Asia, Latin America, and Africa. The Secretariat is responsible for implementing our strategy (currently for the period 2018 to 2023) and annual work programs.

Our teams in the 11 countries in which we operate (see foldout cover) are hosted in either World Bank or IFC offices. Each country team includes a lead coordinator, a partnerships coordinator, and other team members who support the MSP workstreams. Short-term consultants provide invaluable technical support to our country teams and the MSPs.

Task forces

In this fiscal year, 2030 WRG established task forces to help strengthen our work across all geographies, improve how we work internally, bolster our knowledge base, and guide our work on driving innovative multi-stakeholder approaches to improving water management.

During the year, we formed several informal internal task forces to lay the groundwork for our future direction regarding, among other issues, our expansion plans, our communications strategy, and our approach to monitoring and evaluation. The task forces consist of 2030 WRG country team members from all regions. Some of our task forces are discussed below:

- The **Expansion Task Force** is developing a New Country Selection Framework to guide new country and state selections.
- The **Knowledge Management Task Force** is working with our country coordinators to consolidate all information from country projects and MSP structures into a central database.
- The **Communications Task Force** aims to organize our knowledge products and present them in a format that is easy to retrieve and use.
- The **Monitoring and Evaluation Task Force** is working to develop and implement practical recommendations for improving how we monitor and evaluate the effectiveness of our activities.

2030 WRG Latin America team.

2030 WRG Africa team.

2030 WRG Asia team.

Q&A
WITH 2030 WRG FRONTRUNNERS

Our work is made possible thanks to the vision of leaders who value collective action to achieve better water governance. Here we talk to a small selection of pioneering decision makers who have seen the value of the MSP approach.

MEXICO

Collective action: Central to the democratic process

Victor Lichtinger, President of Consejo Consultivo del Agua (CCA), Mexico's water advisory council, discusses how 2030 WRG is addressing bottlenecks to progress in a democratic way.

WATER RESOURCES CHALLENGES ARE COMPLEX, INTERDEPENDENT, AND HIGHLY POLITICAL IN NATURE. NO POLITICAL OR SOCIAL ACTOR CAN ADDRESS OR TACKLE THESE CHALLENGES ALONE.

What are the main bottlenecks prohibiting progress in Mexico?

Perhaps one of the most important bottlenecks is the political system itself. It does not regard water issues as important, a situation that translates into declining budgets, continuous state retrenchment, and a lack of enforcement capabilities. Another huge problem is a weak rule of law and corruption.

On the side of civil society, lack of education and knowledge about water challenges is a problem. If society does not pressure governments to address water challenges in a more steadfast and timely manner, governments simply will not allocate political and financial resources to address them.

Lastly, the lack of a more enabling environment for innovation, not only technological innovation, but societal-institutional innovation. For example, it is extremely difficult to innovate in terms of collaboration, inter-institutional coordination, financial mechanisms, and technological innovation. This is why the CCA launched the Social Pact for Water (see page 71).

Do you believe sustainable solutions require collective action?

Water resources challenges are complex, interdependent, and highly political in nature. No political or social actor can address or tackle these challenges alone.

Water users all need water for different, valid purposes. But there is not enough water for everyone, so conflicts arise. In a democratic society, such conflict is resolved through deliberative, representative, and inclusive debate of different points of view, allowing collective decision-making. Value pluralism, interest representation, and public deliberation are at the center of democratic practice. Today, more than ever, these practices should be strengthened. Collective action is central in democratic societies. This is what the CCA is all about.

How has 2030 WRG contributed to collective action through the CCA?

2030 WRG plays a catalyzing role. It is flexible and fast to respond, making it very supportive of the CCA's mandate and responsibilities. This is a crucial value in fast-changing times.

IF SOCIETY DOES NOT PRESSURE GOVERNMENTS TO ADDRESS WATER CHALLENGES IN A MORE STEADFAST AND TIMELY MANNER, GOVERNMENTS SIMPLY WILL NOT ALLOCATE POLITICAL AND FINANCIAL RESOURCES TO ADDRESS THEM. THIS IS WHY THE CCA LAUNCHED THE SOCIAL PACT FOR WATER.

2030 WRG has brought great dynamism, responsiveness, and drive to the CCA. Our partnership has supported new strategic alliances, increased the CCA's engagement level on policy and institutional reform, strengthened our technical competence, and expanded our organizational and financial capabilities. We at the CCA appreciate the strategic, technical, and financial support that 2030 WRG provides.

How can MSPs become more sustainable?

An MSP can only be sustainable if it is responsive and relevant. The CCA needs to keep evolving to address the contextual challenges that affect the Mexican water polity and MSP. Innovation is key to this; the CCA has to continue enabling social learning and different forms of collaborative governance. It also needs to maintain its autonomy, neutrality, and science-based interventions; continue to democratize and thus become more inclusive and representative; and find a way to become more financially robust, diversifying its funding sources.

KEY PARTNERS

MEXICO

CCAs membership-base is comprised by the following entities and individuals:

President:
Dr. Victor Lichtinger

Ex-presidents:
Mr. Manuel Arango Arias (Founder)
Dr. Jesús Reyes Heroles González Garza
Mr. Gastón Luken Aguilar
Mr. Carlos Fernández González

Vice-presidents:
Mr. Jaime Lomelin Gullén, President Petrobal
Mr. Raúl Rodríguez Márquez, Vice President of the National Chamber of Transformations Industries, CANANCINTRA
Mr. Rodolfo Ogarrio Ramírez España, President of the Mexican Foundation for Environmental Education
Mr. Carlos Sandoval Overa, President of the National Council of Ecological Industries

Private Sector Companies:
Mr. Guillermo Garza Martinéz, Executive Director of Arca Continental
Mr. Alberto Baillerez González, President of Steering Board of Bal Group
Mr. Oscar Gálvez, Director of Public Affairs, Heineken-Mexico
Mr. Thomas Renard, CEO, Veolia-Mexico
Mr. Julio Portales, Vice President, Constellation Brands
Mr. Edgar Guillamin, Vice President, Chief of Staff, Constellation Brands
Mr. Fausto Costa, Executive Director of Nestlé
Mr. Juan Carlos Pardo, Corporate Affairs, Nestlé Group-Mexico
Mr. Genaro Borrego, Director of Corporate Affairs, FEMSA
Mr. Carlos Slim, President of the Steering Board of Carso Group
Mr. Juan Pablo García, Director of Inter-institutional Relations, CEMEX-Mexico
Ms Marcela Cristo, Director, Better Water, Grupo Modelo-AB InBev
Mr. Carlos Fregoso, Manager of Corporate Affairs, Water Division, Veolia
Mr. Eduardo Tircio, President, Lala Group
Mr. Merlin Cochran, Executive Director, Mexican Association of Hydrocarbons
Mr. Luis Dario Ochoa, Director Inter-institutional Affairs, Coca-Cola Femsa
Mr. William Hidalgo, Director, Corporate Affairs, Coca-Cola-Mexico
Mr. Humberto Armenta, President, RECSA Constructions
Mr. Pedro Silva, Representative, Mexican Chamber of Paper and Cellulose Industries
Mr. Jordi Valls, CEO, Suez-Mexico
Mr. José Luis Mantecon, Vice-president of Interinstitutional Relations, Rotoplas
Mr. Erich Meyer, Director, Alfa Group

Academic Institutions:
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Dr. Norma Patricia Muñoz, Director of the Interdisciplinary Centre for Environmental Research, Instituto Politécnico Nacional
Dr. David Garza, Rector, Instituto Tecnológico y de Estudios Superiores de Monterrey
Dr. Enrique Graue, Rector, Universidad Autónoma de México

Government Entities:
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Dr. Rafael Leal, Secretary, Secretaría de Obras Públicas del Estado de México
Dr. Rafael Carmona, Director, Sistema de Aguas de la Ciudad de México

Organizations of Civil Society and Interest Representation Organizations:
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Dra. Isabel Struder, Director, Strategic Alliance, The Nature Conservancy
Mr. Luis Manuel Guerra, President, Instituto de Asistencia e Investigaciones Ecológicas A.C.
Mr. Enrique Lomnitz, Director, Isla Urbana
Mr. M.C. Dylan, Director, Caminos del Agua
Mr. Quintin Suárez, Asociación Nacional de Usuarios de Riego
Mr. Humberto Martínez Pepin, Vice President, Consejo Nacional Agropecuario
Mr. Mauricio Fernando Payán, Vice President, Consejo Nacional Agropecuario
Mr. Octavio Enriquez, Asociación Mexicana de Secretarios de Desarrollo Agropecuario
Mr. Genaro Lopez, Director, PROAGRO
Mr. Eduardo Lomelin, President, Cámara Mexicana de la Industria de la Construcción
Mr. Arturo Palma, President, Asociación Nacional de Empresas de Agua y Saneamiento
Mr. José Ramón, Executive Director, Comisión de Estudios del Sector Privado para el Desarrollo Sustentable, CESPEDES
Mr. Raul Rodriguez, Asociación Nacional de Productores de Refrescos y Aguas Carbonatadas

Foundations:
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Mr. Rodolfo Rueda, Director, Fundación Fomento Mexicano
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Dr. Carlos Alfonso de la Parra
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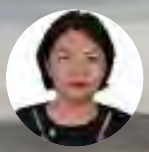
Dra. Marissa Mazari
Dra. Maria del Carmen Carmona
Dr. Oscar Monroy
Dr. Sergio Alcocer

MONGOLIA

2030 WRG: Supporting crucial action in Mongolia



Saranchimeg Batsukh, a Mongolian Member of Parliament, reflects on the role of MSPs and 2030 WRG in addressing Mongolia's water challenges.

MSPs create a platform to discuss solutions to challenges and enable different parties to understand each other's positions in a relatively short period of time.

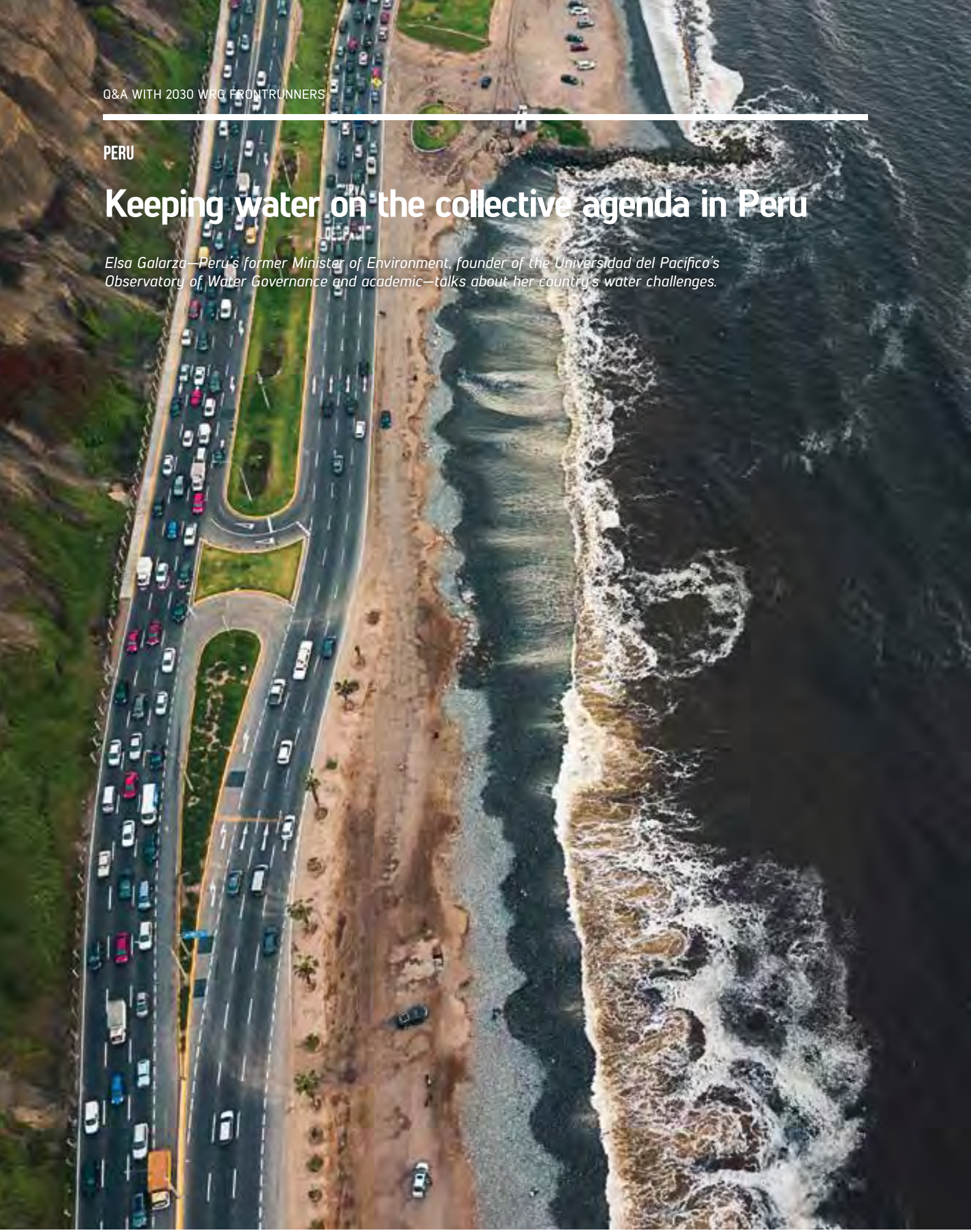
2030 WRG Mongolia's work during the past several years has improved sustainable water management in Mongolia. The program supports key actions to reduce demand and augment supply such as treating and reusing wastewater, implementing the "polluter pays" principle, and improving water tariffs. Collectively, these outcomes are valuable to our water management and freshwater conservation efforts.

It is my hope that the 2030 WRG Mongolia program will be able to continue doing this important work until 2023.

PERU

Keeping water on the collective agenda in Peru

Elsa Galarza—Peru's former Minister of Environment, founder of the Universidad del Pacífico's Observatory of Water Governance and academic—talks about her country's water challenges.



What are the main bottlenecks to integrated water resource management in Peru?

Government is organized in sectors. Each sector sees only its own space and agenda, and has difficulties taking into account that we need to manage a national water system. Public officials also change often, making it difficult to build a common vision and agenda.

Do you believe collective action is required for sustainable solutions?

Of course. Especially for water, which is important for daily life.

Collective action can take place at different levels. The academic sector needs to take a more active role in putting water on the national agenda and increasing awareness about the different aspects of water (as a scare resource, as a resource which creates value, and others).

MSPs like 2030 WRG are also essential. They play a role by presenting possible solutions to be discussed, enriching proposals with different points of views, and creating opportunities to exchange experiences. However, I don't think an MSP is the place for solving problems. Rather, it is a neutral, safe and reliable space where the government, the private sector, international bodies and non-governmental organizations [can] discuss key issues and develop concept notes and programs for private sector participation.

How has 2030 WRG contributed to this work

2030 WRG's impacts have been very positive. All the members find this platform extremely useful for finding out who is doing what, getting new ideas, and creating partnerships with people who are not always easy to reach. Ministers, vice-ministers, presidents of regulatory agencies, academics, international development agencies are all brought together in one space.

In the past three years, Peru has been through many political changes. Through it all, 2030 MRG Peru has been active, promoting improvement of access to water and sanitation, disseminating methods for reducing social conflicts due to water use by the mining sector, and increasing awareness of best water practices in the private sector.

2030 MRG PERU HAS BEEN ACTIVE, PROMOTING IMPROVEMENT OF ACCESS TO WATER AND SANITATION, DISSEMINATING METHODS FOR REDUCING SOCIAL CONFLICTS DUE TO WATER USE BY THE MINING SECTOR, AND INCREASING AWARENESS OF BEST WATER PRACTICES IN THE PRIVATE SECTOR.

How else can 2030 WRG be of help?

Information exchanges with other countries that face water stress on water resource management and running an MSP would be useful.

How can MSPs be sustainable?

As long as participants find value in the platform, I think they will be willing to participate and even pay to remain as members. It is important for an MSP to clearly define the products and services it can deliver, along with an agenda of issues to be discussed.

PERU

Preserving institutional memory in times of political change

Francisco Dumler, the President of the Lima water utility company, SEDAPAL, talks about the challenges of integrated water management in the world's second-largest desert city.

What are the main bottlenecks to progress to sustainable, integrated water management in Peru?

Peruvian law prioritizes domestic water use, yet industrial water use is high in the Chillon, Rimac, and Lurin watersheds that supply Lima's water. Within the private sector there are also various interest groups. For instance, a bottling company's water need is completely different to that of a company that uses water for gardens in a cemetery. There are also many diverse public institutions responsible for water in our country. The challenge is to articulate all these interests in an integrated water resource management plan.

Are MSPs a useful tool to achieve this?

I believe MSPs are the *only* way to enable dialogue between different actors with different interests. It allows them to share their experiences and needs. When private companies and public authorities co-form an MSP, the companies realize that they need to comply to achieve their economic and social goals, and public authorities realize their role in guaranteeing the sustainable use of the resource.

Tell us about 2030 WRG in your country.

I first started working with 2030 WRG in 2013, when I was the General Secretary of ANA, the national water authority. That year, a memorandum of understanding (MoU) was signed between ANA, IFC, and 2030 WRG to formally establish a collaborative relationship.

It has been six years since that MoU was signed, and I can confidently say that the resulting partnership is the most credible, successful, and relevant water mechanism in our country. 2030 WRG has enabled the discussion on water policies and governance, with valuable impact for all involved with water resources management.

Why do you think the 2030 WRG MSP in Peru has been so successful?

First, working through a partnership is efficient. It avoids unilateral discussions between different stakeholders.

Second, the MSP facilitates knowledge sharing. 2030 WRG draws on its global network to bring in speakers who share their stories of success in other countries.

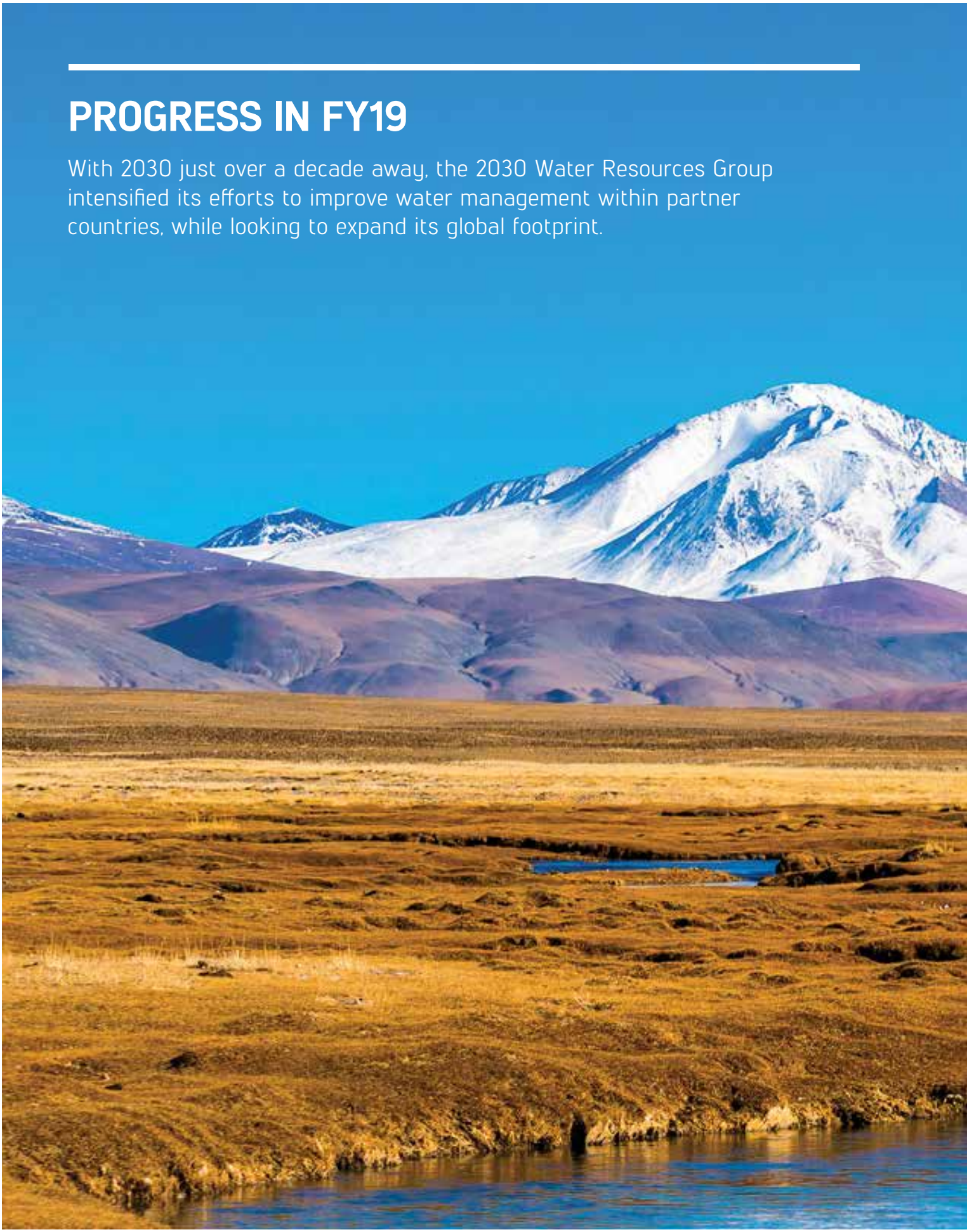
And lastly, in a country where public officers frequently change, the MSP provides institutional memory on how processes have evolved.

How else can 2030 WRG be of help in finding sustainable solutions?

The level of maturity of 2030 WRG in Peru has reached a point where the MSP should now focus in the following years on bringing success cases of 2030 WRG in other countries that will contribute to achieving and improving integrated water resources management in our country.

PROGRESS IN FY19

With 2030 just over a decade away, the 2030 Water Resources Group intensified its efforts to improve water management within partner countries, while looking to expand its global footprint.



Special focus: The garment industry

The global garment industry is rapidly emerging as an important partner in the journey to more sustainable water use.

2030 WRG is working to develop and deepen partnerships that support and country-level policies and programs to improve water resilience in the textiles, leather and footwear sectors of priority geographies. Working through its national MSPs, 2030 WRG has already initiated engagements in many of its partner countries, including Bangladesh, Ethiopia, India, and Vietnam.

Objectives

This initiative aims to:

- **Get the commitment of core partners**, comprising leading brands, private sector companies, and enabling organizations, to agree on a shared roadmap of water-resilient and sustainable textile production.
- **Organize country-level multi-stakeholder roundtables** in Bangladesh, Ethiopia, India, and Vietnam to articulate country-specific challenges and opportunities, including the role of the Fourth Industrial Revolution in developing new approaches and solutions across the value chain.
- **Facilitate country-level public-private collaboration** to develop the enabling environment through relevant policy guidelines and frameworks, including for industrial parks and economic zones.

Country engagements

This initiative will build on existing engagements linked to the textiles, leather, and footwear sectors in the selected countries, while going a step further to increase resilience, particularly through public-private collaboration and policy strengthening under 2030 WRG's country-level MSPs.

Bangladesh

2030 WRG's MSP is currently helping the Bangladesh Economic Zones Authority formulate and implement Green Economic Zone Guidelines. It is also facilitating the development of central effluent treatment infrastructure through PPPs and working to improve access to export markets to ensure economic sustainability.

A task force has been formed under the MSP's Industrial Water and Wastewater workstream to oversee the development of a market-led initiative to incentivize sustainable production practices. Through this initiative, several apparel brands are expected to form an alliance for water resilience and sustainability.

Ethiopia

2030 WRG in Ethiopia has embarked on a scoping study to determine if there is a need for an Ethiopian Textiles and Garment Water workstream. The workstream, if implemented, could include two task forces: one that aims to encourage financially-viable wastewater treatment in industrial parks (where most foreign-owned textile companies are based), and one to promote green . manufacturing standards and practices within the wider textile and garment sector.

India

2030 WRG is working to reduce the vulnerability of the cotton sector to climate change in the state of Maharashtra. Through the establishment of the Cotton Water Platform, in partnership with the IDH-The Sustainable Trade Initiative (IDH), 2030 WRG is supporting initiatives to enhance the resilience of cotton farmers in the state. This initiative incorporates thinking on the business case for action and gender-sensitive approaches.

Vietnam

2030 WRG Vietnam is launching a workstream to tackle urban and industrial water pollution. The workstream will support the acceleration of sustainable textile production in industrial zones by:

- Strengthening the policy framework for sustainable production.
- Piloting digital platforms for pollution management to drive sustainable production practices in response to market demand.
- Supporting implementation of good practices in pilot industrial zones.

Strategic relevance and envisioned impact

The initiative brings together several elements to drive sustainable impact:

- **Global-local.** The initiative combines global commitments on water resilience with country-level engagements to showcase implementable models.
- **Innovation in design and delivery.** The initiative uses multi-stakeholder roundtables to support innovative financing, policy, and implementation approaches.
- **Structured public-private collaboration with a path to scale.** 2030 WRG leverages its country-level partnerships to convene high-level decision makers from government, the private sector, and civil society, serving as a credible and recognized neutral broker.

Alignment with global priorities. The initiative uses country-level solutions to address global priorities, including SDG achievement, climate change adaptation and mitigation, improved water valuation, and a focus on water-quality challenges.

BANGLADESH

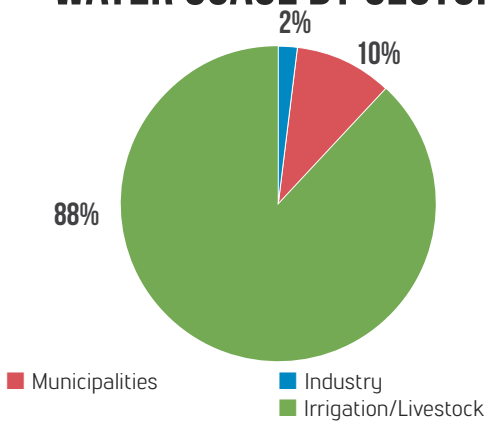
Bangladesh faces a

21%

shortfall between freshwater supply and demand in 2030 unless action is taken to improve efficiency now.

Bangladesh's ample surface water is highly polluted, leading to an overreliance on limited groundwater sources.

WATER USAGE BY SECTOR



Source: Food and Agriculture Organization of the United Nations (2008 figures)

› The textile industry consumes

1,500

billion liters of water a year

› **Agriculture is dominated by Boro rice, a highly water-intensive crop**

It takes up to

4,000

liters of water to produce a kilogram of Boro rice.

It takes

290

liters of water to produce a kilogram of potatoes.

KEY WATER CHALLENGES

- **The country's staple crop is water-intensive.** It takes up to 4,000 liters of water to produce one kilogram of Boro rice. By comparison, it takes 290 liters of water to produce a kilogram of potatoes.
- Limited groundwater resources are overexploited, with many groundwater sources containing naturally occurring arsenic. Over time—up to 20 years in some cases—this arsenic causes poisoning in those who drink the water or eat food cultivated with it.
- Surface water is highly polluted due to the release of untreated or insufficiently treated industrial wastewater into rivers.
- Enforcing water legislation is challenging due to lack of capacity and overly complicated policies and incentives.

2030 WRG IN BANGLADESH

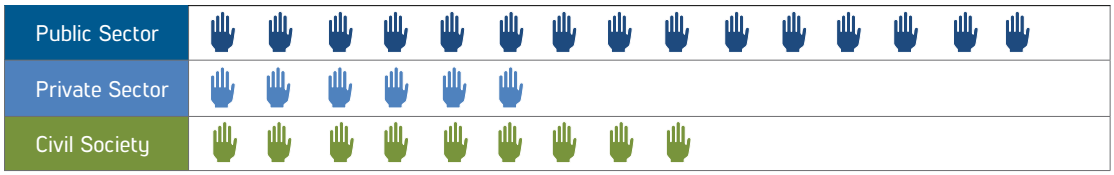
The Bangladesh Water Multi-Stakeholder Partnership (BWMSP) was formed in 2015 under the leadership of the Cabinet Secretary, the country's highest-ranking civil servant, to engage in a fact-based, analytical approach to address water security at national and local levels for economic development and a healthy ecosystem.

The BWMSP differs from the partnerships in most other countries in that it was gazetted at the time of formation, giving it quasi-legal status. Steering Board resolutions are signed off by the Cabinet Secretary and explicitly inform the country's water agenda. The board meets twice a year.

2030 WRG plays an independent supporting role. We facilitate the efficient, effective functioning of the Steering Board and its workstreams by providing secretariat support, developing project concept notes and proposals for solutions, identifying third-party implementers, mobilizing financing for projects, and monitoring project progress, resolving bottlenecks as needed.

The figure below indicates the composition of the BWMSP's national Steering Board as at June 30, 2019. The board is responsible for guiding the activities of the workstreams in the country.

Steering Board membership by sector



BWMSP Workstreams

- Water Governance and Sustainability
- Agricultural Water
- Greater Dhaka Watershed Restoration
- Industrial Water and Wastewater
- The Water Innovation Network

The Bangladesh Water Multi-Stakeholder Partnership (BWMSP) was formed in 2015 under the leadership of the Cabinet Secretary, the country's highest-ranking civil servant, to engage in a fact-based, analytical approach to address water security at national and local levels for economic development and a healthy ecosystem.

BANGLADESH

UPDATE

Bangladesh's water challenges demand innovative solutions that meet the complexity and scale of the problem.

97%

OF URBAN WASTEWATER IN THE GREATER DHAKA REGION IS UNTREATED.

Bangladesh's water challenges demand innovative solutions that meet the complexity and scale of the problem. During the year, two key developments include:

- The formation of the Water Innovation workstream to identify new technologies, partnerships, and practices that could help reduce the intensity of Bangladesh's water use and pollution to ensure a healthy supply for future generations.
- The decision to develop a strategy for Managed Aquifer Recharge in Bangladesh under the guidance of a newly formed Technical Committee.

Updates on initiatives within established workstreams are detailed below.

Inputs to Bangladesh Delta Investment Plan 2100

On September 4, 2018, the government of Bangladesh approved the Bangladesh Delta Plan 2100, which includes an investment plan that the BWMSP and the World Bank helped develop. The investment plan sets out the investments—estimated at nearly BDT3 billion ($37.5 million)—required over the next 15 years to realize the country's infrastructure goals. The plan envisions future private sector participation in infrastructure projects.

Urban Wastewater and Sewage

Ninety-seven percent of urban wastewater in the Greater Dhaka region is released untreated into water bodies. To help address this, we are working to pilot an innovative PPP model that combines low-cost debt, grants, and private investment for municipal wastewater and fecal sludge management services in two important catchments north of the capital. A multi-sectoral committee has been formed to monitor the pilot project's progress and a detailed feasibility study has commenced. The government's economic affairs committee has cleared the project, IFC has been appointed to prepare it for bidding, and a technical consultant has been contracted to conduct technical and financial due diligence. Preparatory arrangements for an information, education, and communication campaign to build community support for the project has also been initiated.

Valuing Water in Bangladesh

The BWMSP's Steering Committee has approved the initiation of an MSP process to develop a Water Valuation Framework proposal.

Introducing Water Efficient Technologies

To address agricultural overexploitation of groundwater, the BWMSP and its partners launched the Introducing Water Efficient Technologies project in north-western Bangladesh. The project aims to train 10,000 farmers on water-saving irrigation methods to reduce demand for irrigation water by 20%. During the year, the project reached 2,000 farmers.

Online Water Project Clearance System

During FY19, our Steering Committee approved a proposal to develop and pilot an Online Water Clearance System. Once complete, this system will allow the Water Resources Planning Organization to expedite the approval of water clearance certificates for public and private sector projects.

Water-Quality Monitoring Systems

The Greater Dhaka region suffers from extreme water pollution, yet water quality is tested infrequently, and by hand. To improve the coverage and frequency of water monitoring—which will, in turn, support the case for investment in pollution mitigation measures—the BWMSP and the University of Oxford's REACH program conducted a feasibility study to identify the best sites to install more advanced water-quality measuring technologies. The study forms the basis of a detailed project proposal that is being drafted. When completed, the proposal will be submitted to the government of Bangladesh to mobilize $5.3 million in funding for the project.

Conservation of Ground Water Study Project

During the year, 2030 WRG Bangladesh and partners embarked on a three-year feasibility study to understand the effectiveness of key elements of a proposed intervention on groundwater conservation in target agricultural areas. Once complete, the study will inform recommendations on charging for groundwater for irrigation, crop-water-saving technologies, and community involvement in water efficiency.

Creating Green Economic Zones

With the aim of ensuring that Bangladesh's industrial zones have common effluent treatment plants, 2030 WRG Bangladesh and its partners are currently developing a National Eco-Industrial Parks Framework (Green Economic Zone guidelines). Once developed, the guidelines will be piloted at the Textile Economic Zone in Mirsarai, Chittagong. The guidelines are due for completion and implementation by the end of the 2020 financial year.

Rivers Around Dhaka City Initiative

The Rivers Around Dhaka City initiative has initiated a rapid needs assessment of the target area, including relevant business models for mobilizing resources from development partners and other stakeholders.

Incentivizing Sustainable Production Practices Initiative

2030 WRG finalized a concept note for a project to promote more efficient and sustainable water use in the textile sector, with possible expansion into leather and other sectors.

KEY PARTNERS

BANGLADESH

KEY PARTNERS

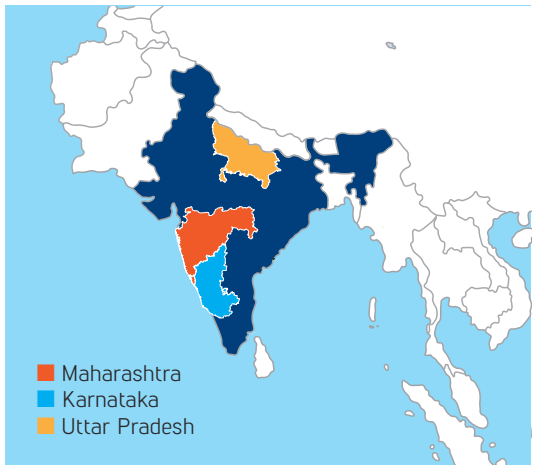
BANGLADESH

INDIA

India is expected to overtake China as the world's most populous country by

2025

Coupled with rapid urbanization, especially in Karnataka and Maharashtra, **this will drive water demand in the primary and secondary cities.**



› **High levels of pollution of both surface and groundwater are reducing the availability of usable freshwater**, especially in Maharashtra, India's most industrialized state and home to the capital, Mumbai.

KEY WATER CHALLENGES

There is insufficient infrastructure for water treatment in urban areas.

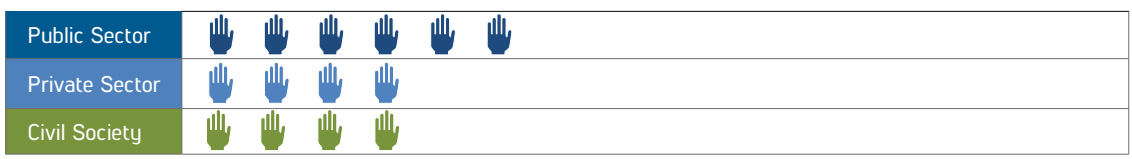
- Rainfall is uneven and seasonal, with Maharashtra receiving between 500mm and 1,000mm in the wet season.
- High levels of pollution of both surface and groundwater are reducing the availability of usable freshwater, especially in Maharashtra, India's most industrialized state and home to the capital, Mumbai.
- There is insufficient infrastructure for water treatment in urban areas and storage in agricultural areas.
- The textile and food industries draw heavily on water sources and are a major pollution source.
- Domestic use relies on a combination of surface and groundwater. Agriculture relies heavily on groundwater.

2030 WRG IN INDIA

2030 WRG supports three subnational MSPs in India, one each in Karnataka, Maharashtra, and Uttar Pradesh. There is also 2030 WRG activity at the national level.

Each of the state-level MSPs has a Steering Committee under the leadership of the state's Chief Secretary—the highest-ranking civil servant. 2030 WRG is working to help the country establish MSPs in other states and with the newly formed national Ministry of Jal Shakti, which combines the former Ministry of Water Resources, River Development, and Ganga Rejuvenation and the Ministry of Drinking Water and Sanitation. The composition of each state's MSP Steering Board as at June 30, 2019, is indicated below.

Karnataka MSP Steering Board membership by sector



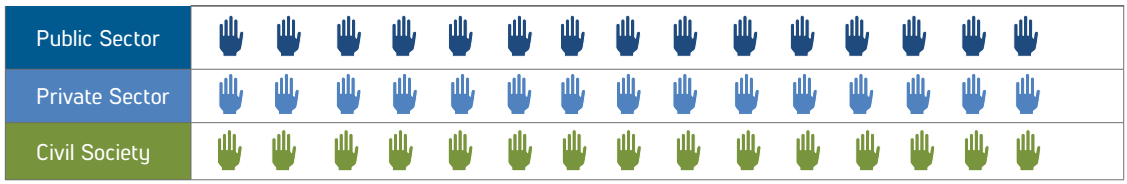
Karnataka Workstreams

Agricultural Water Efficiency

Industrial Water Management

Urban Water

Maharashtra MSP Steering Board membership by sector



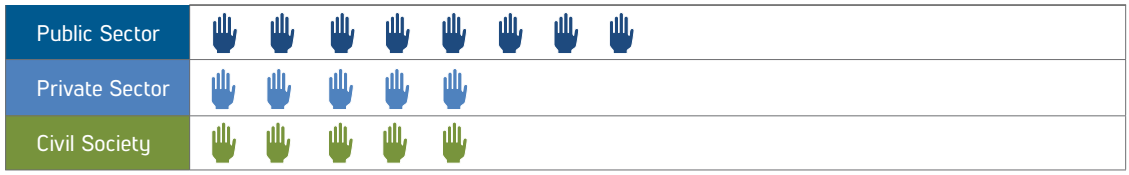
Maharashtra Workstreams

Water and Livelihood Security in Rain-Fed Agriculture

Command Area Water Productivity (command area refers to land that is fit for cultivation and can be irrigated)

Wastewater Reuse and Management (formerly Urban Industrial Water Security)

Uttar Pradesh MSP Steering Board membership by sector



National/Uttar Pradesh Workstreams

Accelerating Municipal Wastewater Treatment and Reuse in the Ganga Basin

Introducing a Participatory Approach to Ganga Tributary Rejuvenation

Creating a Blueprint for Water Accounting

Improving Integrated Water Resources Management in Uttar Pradesh

INDIA

UPDATE

The state MSPs continued addressing local water challenges while remaining cognizant of challenges at a national level.

The state MSPs continued addressing local water challenges while remaining cognizant of challenges at a national level by:

- Creating tools to support evidence-based decision-making.
- Encouraging an enabling regulatory and policy environment for wastewater treatment PPPs.
- Supporting the development, financing, and implementation of public-private collaborations to improve water treatment in urban areas and efficiency on farms.
- Driving the innovation of technologies that support a circular water economy.

Drip Irrigation and Market Linkages

[Uttar Pradesh] Facilitating the design and implementation of integrated drip irrigation programs with market linkages in Uttar Pradesh, one of the country's least developed states.

Expanding the Ramthal Drip Irrigation Project

[Karnataka] We are supporting the Karnataka government's decision to replicate the Ramthal Drip Irrigation Project model—one of the world's largest automated drip projects covering 24,000 hectares—over 200,000 hectares of area. The project is also integrating market linkages and exploring economically important crop systems.

Knowledge Products

[Maharashtra] In partnership with the IDH, we published two reports during the year:

- "Towards Doubling Cotton Farmer Incomes in Maharashtra." Maharashtra is the largest cotton-growing state by area but has the lowest yield. The publication outlines measures that could dramatically increase yield while increasing water independence both in the state and elsewhere. Access the full report here: https://www.idhsustainabletrade.com/uploaded/2019/05/Doubling-Cotton-Farmer-Incomes-in-Maharashtra-1.pdf
- "Business Case for Gender Mainstreaming in Cotton in Maharashtra" outlines the findings of a gender analysis of cotton cultivators in the state, discussing both the role they play and the barriers they face. Access the full report here: https://www.idhsustainabletrade.com/publication/business-case-for-gender-mainstreaming-in-cotton-in-maharashtra/

MoU for Project Implementation Finalized

[Maharashtra] An MoU has been signed between the state government and private sector for command area development. The Water Resources Department is providing staff for a Project Implementation Unit to facilitate on-farm and off-farm infrastructure development. Private sector partners have also committed to developing water investment opportunities and strengthening market linkages.

Developing Dashboards to Support Decisions

Dashboards that track changes in water indicators highlight investment opportunities, support enforcement, and enable managers to track project progress. During the year, we started developing a water-quality database for the Hindon water basin and identified 100 priority indicators for rain-fed areas in Maharashtra to improve drought management and smallholder livelihoods.

Training in National Blueprint for Water Accounting

The National Blueprint for Water Accounting aims to improve demand-side management through data access, transparency, and analysis. In FY19, we provided training and support to central government officials in implementing the Blueprint based on remote sensing technology. Under the Blueprint, water accounts have been developed for the Cauvery basin using remote sensing, an initiative being replicated in Maharashtra.

Promoting PPPs for Wastewater Treatment

Each day, 3,000 million liters of untreated wastewater reach the Ganga river. During the year, the government implemented wastewater treatment PPPs in 13 towns, building on the success of the pilot projects 2030 WRG helped implement in Mathura, Varanasi, and Haridwar.

Rolling Out Wastewater Reuse Policy

[Karnataka] Government policy in Karnataka requires industry to source at least 30% of their water from urban water-treatment facilities. During the year, we helped the government roll out this policy in five large towns and helped industry identify suitable technologies for water reuse and efficiency.

We supported studies to investigate the feasibility of using treated wastewater for power plants and peri-urban agriculture, and supported the deployment of an investment prioritization tool, based on best international practice, for the urban water sector.

#codeforcleanwater Hackathon in Mumbai

[Maharashtra] To support wastewater reuse in urban and industrial settings, the Maharashtra MSP conceptualized and hosted a hackathon in February 2019. The algorithms developed through the event enable smart, transparent, and real-time wastewater trade between users, thereby supporting wastewater reuse. These algorithms have been shared with other 2030 WRG MSPs for possible use (see "#codeforcleanwater hackathon" on page 56).

Trading Platform Guidelines

[Maharashtra] The Maharashtra MSP is developing policy guidelines to support a trading platform for wastewater recycling in urban, industrial, gated communities, and agricultural settings.

Contributing to Wastewater Reuse Standards in Agriculture

[Maharashtra] Our support for wastewater reuse in an agricultural setting focused on drafting, in partnership with IIT Bombay, contributions to a standard for wastewater reuse in agriculture. Once finished, our submission will help ensure food safety in a circular water economy.

Design for Wastewater Reuse Plant Inspired by Nature

[Maharashtra] During the year, we completed the design of a wastewater reuse plant that draws on nature-based techniques and started sourcing funding to pilot it.

Testing Low-Cost Design Solutions

[Maharashtra] The trial of a low-cost water-purification system that uses probes to capture heavy metals and bacteriological contaminants has been concluded in one region.

Rolling Out Ganga Tributary Governance and Management Plan

[Uttar Pradesh] The workstream brought together experts and decision makers from all sectors to roll out Uttar Pradesh's Tributary Governance and Management Plan and build actionable programs for water-quality management.

KEY PARTNERS

INDIA (National, Uttar Pradesh, Maharashtra, Karnataka)

COUNTRY INNOVATION STORY | INDIA/UTTAR PRADESH MSP

Mapping investment priorities, reservoir by reservoir

AGRICULTURE ACCOUNTS FOR ABOUT

35%

OF THE STATE'S GDP AND PROVIDES

66%

OF EMPLOYMENT

Farmer in Gwalior, India, cultivating a field.

The Challenge

Bundelkhand in Uttar Pradesh is one of India's driest, poorest, and least developed areas. Agriculture accounts for about 35% of the state's GDP and provides 66% of employment, yet surface water storage and irrigation facilities are minimal and in poor repair. Groundwater sources are equally poor. Faced with severe water, food, and livelihood insecurity, many people are leaving Bundelkhand for the cities, adding to the water demand in urban areas.

The Solution

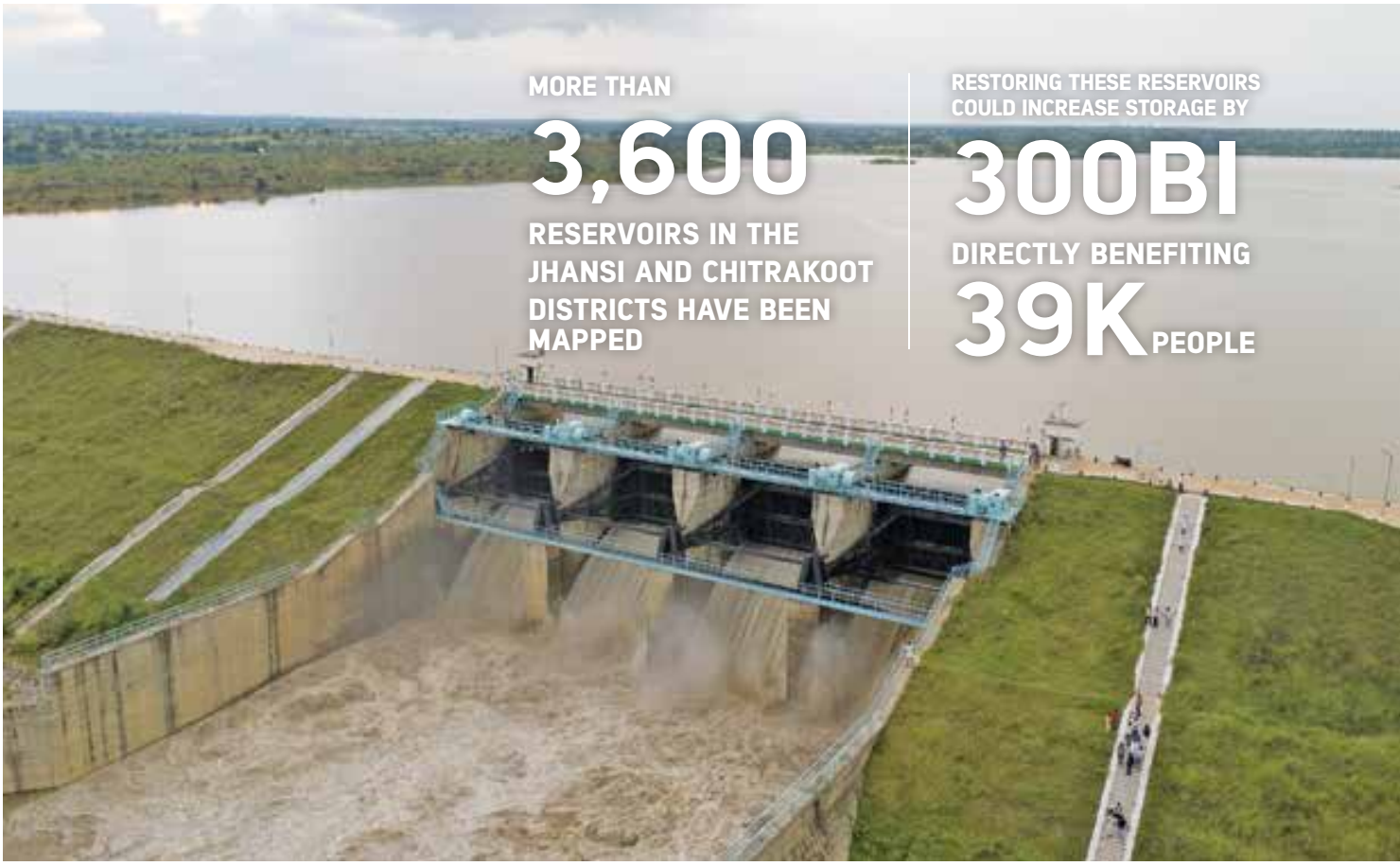
The India/Uttar Pradesh MSP has jointly launched a program that involves:

- **Gathering information** on existing reservoirs in Bundelkhand's Jhansi district, including their volume, the population they serve, their state of disrepair, and the cost of restoring them.
- **Using this information to develop a tool** to help decision makers identify and prioritize repair projects by location, cost, and impact.
- **Improving the local population's capacity** to manage and maintain the water reservoir once the repair project has been completed, with a focus on women-led organizations and state authorities.
- **Training farmers** in water-efficient, sustainable farming practices.
- **Setting up a technical coordinating committee** of key stakeholders from all sectors to drive ongoing rejuvenation, depending on their budgets and priorities.

Progress To Date

More than 3,600 reservoirs in the Jhansi and Chitrakoot districts have been mapped. Of these, more than 3,000 require rejuvenation. Restoring these reservoirs would increase the area's water storage potential by 300 billion liters and directly benefit 39,500 people.

A technical coordinating committee is being formed to take this project further. Once this has been finalized, 2030 WRG India and its partner, Parmarth, will preparing training programs for women-led community groups and local water governance bodies.



COUNTRY INNOVATION STORY | INDIA/MAHARASHTRA MSP

#codeforcleanwater hackathon

A combination of the Internet of Things, blockchain verification technology, machine learning, and cloud computing could transform used water from a waste product into a valuable resource.

Circular thinking holds that wastewater is not something to be disposed of but a valuable source of energy, minerals/nutrients, and water. One of the key challenges in implementing circular water systems lies in quickly and reliably matching effluent water with an appropriate reuse destination based on the quality of the wastewater.

In the past, testing and matching wastewater with an appropriate reuse destination would have taken weeks, if not months, to achieve—by which time the wastewater may no longer be available, or the water quality may have changed.

Technology can help. The Internet of Things, blockchain verification technology, machine learning, and cloud computing could be combined to form a system that tests effluent water, matches the water quality as tested with an appropriate use, and enables a secure transaction that sees the water transferred from the wastewater supplier to the wastewater user—all in real time, and with minimal human oversight.

This past year, the Maharashtra MSP took a novel approach to developing two of the important building blocks to the use-testing-and-reuse transaction puzzle: it held an international hackathon to crowdsource code to automate the detection of anomalies in water, and create blockchains for issuance and verification of Wastewater Reuse Certificates to monitor the transactions involved in moving wastewater from supplier to user.

Of the 2,000 individuals who expressed an interest in the hackathon, 10 teams were shortlisted and given three months to produce their code. A jury of technology experts and private sector representatives selected the winning code, which is publicly available here: https://wrc-hackathon.org/

HOW TECHNOLOGY COULD ENABLE A CIRCULAR WATER ECONOMY IN A MUNICIPAL SETTING

1

INTERNET ENABLED SENSORS
monitor treated domestic wastewater, feeding the data to the cloud for further processing.

2

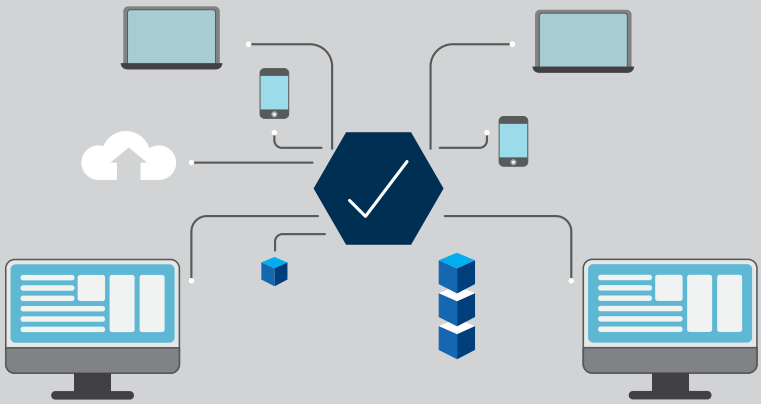
CLOUD BASED ARTIFICIAL INTELLIGENCE
examines the water data to assess water quality and make a decision on an appropriate end use based on this assessment.

3

TREATED WASTEWATER
of an appropriate quality is pumped to an appropriate user, typically industry or agriculture, for reuse.

4

BLOCKCHAIN TECHNOLOGY
verifies the transaction and generates secure Wastewater Reuse Certificates.



MONGOLIA

Ulaanbaatar, Mongolia's capital, faces a

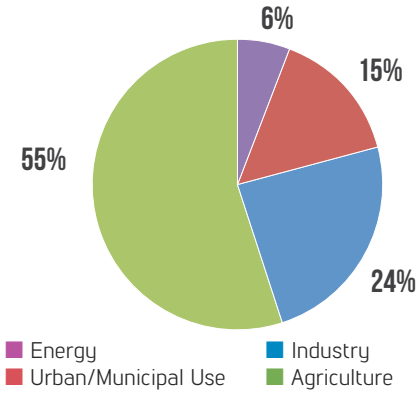
43%

shortfall between freshwater supply and demand in 2030 unless action is taken to improve efficiency now.

The shortfall forecast for the Gobi Desert to the south is

48%

WATER USAGE BY SECTOR



Source: Government of Mongolia

- Mining accounts for more than half the water consumed by industry nationwide
- Nearly **65%** of Ulaanbaatar's water goes to domestic users
- **Agricultural water use will soon be eclipsed by industrial and domestic water use**

KEY WATER CHALLENGES

Ulaanbaatar's central wastewater treatment facility only has a capacity of

170K

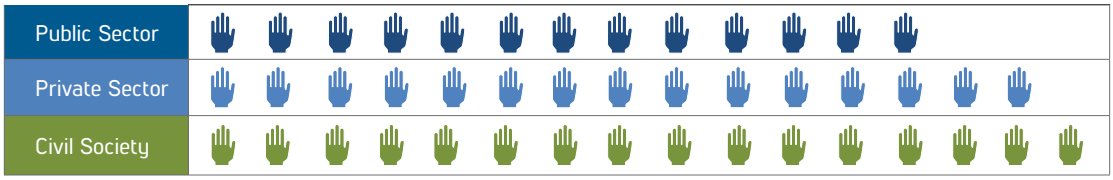
cubic meters a day

- Mongolia gets very little rainfall—only 378mm a year, a fraction of the global average of 900mm—and what rain there is, is unevenly distributed.
- Water demand is driven by inefficient domestic use in the capital city and mining in the water-scarce Gobi desert, where water is drawn exclusively from the groundwater aquifer.
- Ulaanbaatar's central wastewater treatment facility only has a capacity of 170,000 cubic meters a day, but it receives around 250,000 cubic meters of wastewater from domestic and industrial sources. As a result, the Tuul river, which flows through the capital, is highly polluted.

2030 WRG IN MONGOLIA

Mongolia's national MSP was formed in September 2014. 2030 WRG Mongolia plays an independent supporting role, promoting dialogue and collaboration among government, the private sector, and civil society. The figure below indicates the composition of the MSP's national Steering Board as at June 30, 2019.

Steering Board membership by sector



Mongolia Workstreams

- Reducing water demand and augmenting supply
- Improving water valuation and developing incentives for sustainable water management
- Supporting stakeholder collaboration and capacity building

MONGOLIA

UPDATE

With the support of 2030 WRG and the Swiss Agency for Development and Cooperation in Mongolia (SDC Mongolia), the Mongolian government has formed 24 river basin MSPs across 29 river basins to improve water governance at this level.

Supporting River Basin MSPs

With the support of 2030 WRG and the Swiss Agency for Development and Cooperation in Mongolia (SDC Mongolia), the Mongolian government has formed 24 river basin MSPs across 29 river basins to improve water governance at this level. Our support included updating the River Basin Council Guidelines, which the government approved in March 2018, and providing science-backed training and knowledge-sharing opportunities for stakeholders who come from varying backgrounds and have different levels of technical expertise. These MSPs are the controlling body for 29 public sector River Basin Authorities, which manage water at the local level.

Pilot Projects to Test National Standards for Treated Wastewater Reuse

With 2030 WRG Mongolia's support, the country's national MSP helped the government amend its Water Pollution Fee Law (see page 61) To support the effective rollout of this law, we helped the government develop national standards for wastewater reuse for activities such as car washing, firefighting, urban gardening, and dust suppression in mining industries, based on international best practice. The National Committee on Standards approved the standards—which are premised on the idea that wastewater should be treated according to its end use—in June 2018.

During the year, we identified two pilot projects to demonstrate that treated wastewater can be reused, per the standard:

- **In Ulaanbaatar**, a plan to reuse soil-contaminated water to flush toilets at the local teacher's training college house has been developed and submitted to the government for approval. The house is built on the banks of a tributary of the Tuul river, which tends to break its banks and flood the house's basement each monsoon season, creating a useful local reservoir for an appropriate use.
- In **the Gobi Desert,** a plan to use treated wastewater to suppress dust, fight fires, flush toilets, and wash cars at a coal mine site has been developed. The treated wastewater could also be used for vegetation planted to reduce desertification in the area.

Development financing for these projects will be released when government approval has been received.

Exploring Technologies for Real-Time, Responsive Water Management

Sound water-management decisions are those that are based on the best available data. This data should be updated and analyzed in real time to reflect the changing water situation, and freely available to all stakeholders to ensure transparency.

Drawing on lessons from a hackathon initiated by Maharashtra in India (see "#codeforcleanwater hackathon", page 56), Mongolia is developing a concept note on ways to apply the Internet of Things, machine learning, and artificial intelligence to wastewater management in urban Mongolia and groundwater management in the mining areas of the Gobi Desert. Such a system would reduce freshwater usage by supporting reliable forecasts of groundwater usage, facilitating improved allocation decisions, and accelerating demand-side management of water.

MONGOLIA MILESTONE

Revised "Polluter Pays" law gets green light

The Challenge

Ulaanbaatar's central wastewater treatment plant receives more wastewater than it has capacity to treat. As a result, untreated wastewater often reaches the city's Tuul river, with negative effects on the environment and human health.

In 2012, Mongolia's parliament approved a law allowing for the collection of a water pollution fee. The aim of the law is to reduce the volume of wastewater and level of pollutants in effluent sent to the central wastewater treatment plant. However, the law has not been implemented due to economic pressures on business and a slowdown in the extractive industry, the backbone of the Mongolian economy, between 2011 and 2014. The model for estimating pollution charges was also overly complex.

The Solution

2030 WRG Mongolia worked with the Ministry of Environment and Tourism, the private sector, and civil society to draft a proposed revision of the Water Pollution Fee Law based on local data and best international practice for estimating pollution levels and charges.

Progress To Date

The proposed revision was ratified by the Mongolian parliament in May 2019. It supports better monitoring of effluent, provides economic incentives for industry to treat and reuse wastewater before discharge, and identifies a simpler methodology for estimating pollution levels in wastewater. Discharge permits, contractual arrangements, and the method for fixing wastewater charges are also considered under the law.

To support the new law, 2030 WRG Mongolia has:

- Developed fee guidelines for discharging inadequately treated mining water.
- Conducted a review of water tariffs, which are a key instrument for incentivizing wastewater reuse and promoting the judicious use of freshwater.

The Mongolia MSP is considering the guidelines and tariff review before submitting them to Cabinet for approval. It will also continue tracking progress in implementing the law and guidelines in the months to come.

KEY PARTNERS

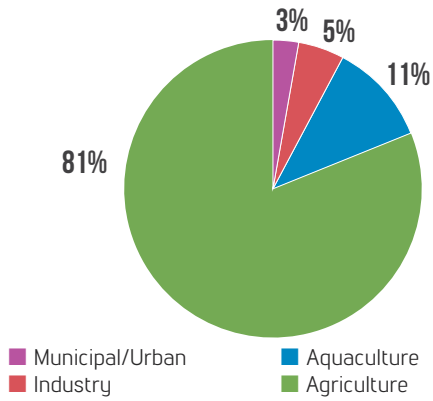
MONGOLIA

VIETNAM

Vietnam could experience severe freshwater shortfalls in some river basins unless action is taken to improve efficiency now.

Only 71% of industrial wastewater is treated before discharge.

WATER USAGE BY SECTOR



Source: Hydro-economic Framework for Assessing Water Sector Challenges (2030 WRG, 2017)

› Industry is driving rapid economic growth, but also contributing to high pollution levels.

12.5%

Only 12.5% of urban wastewater is treated before discharge.

› Only 20% of farmland is under drip irrigation.

KEY WATER CHALLENGES

- Although Vietnam has generous rainfall on average, this is geographically and temporally uneven, creating areas that experience water stress during the dry season.
- Pollution linked to rapid urbanization and industrial development poses a substantial threat to the country's water supply.
- Inefficient water use on farms and an increasingly urbanizing population also contribute to growing water stress in many areas.

2030 WRG IN VIETNAM

Our work in Vietnam is developing through two workstreams.

Vietnam workstreams

- Agriculture Water Productivity Enhancement
- Urban and Industrial Water Pollution Management

VIETNAM

UPDATE

2030 WRG Vietnam believes there is great potential for using technological solutions for effluent treatment and pollution management, with the aim of moving the country towards wastewater reuse and repurposing.

Knowledge Creation

May 2018 saw the release of a report co-authored by 2030 WRG Vietnam titled "Vietnam: Towards a Clean, Safe and Resilient Water System". The report, which was developed with the support of the World Bank's Water Global Practice, forms part of a larger study on water governance in the country. It highlights the need to improve water governance and financing; better manage water risks, especially pollution; and extract the most use out of water, especially at farm level. The second phase of the governance study involves developing policy papers based on the report in consultation with all relevant stakeholders.

Roundtable Events Hosted

2030 WRG held discussions with agribusinesses and government departments to identify key water challenges that could be tackled through a multi-stakeholder workstream. The discussions highlighted a need to shift to horticultural practices, higher-value crops, and more efficient water technologies. The following questions still need to be resolved:

- How to achieve these goals through policies, technology, infrastructure investments, and market linkages.
- How to strengthen the capacity and financing of cooperatives, given the Ministry of Agriculture and Rural Development's goal of capacitating 30,000 cooperatives by 2030.
- How to address water-quality issues, particularly the impacts of industrial and urban pollution on agricultural water.

Urban and Industrial Water Pollution Management

2030 WRG Vietnam engaged in discussions with the Vietnam Textile and Apparel Association on possibly forming an MSP that focuses on water resilience and sustainable growth in the sector, a major contributor to water pollution. 2030 WRG Vietnam believes there is great potential for using technological solutions for effluent treatment and pollution management, with the aim of moving the country towards wastewater reuse and repurposing.

KEY PARTNERS

VIETNAM

MEXICO

Mexico faces a

23Mm³

shortfall between freshwater supply and demand in 2030 unless action is taken to improve efficiency now.

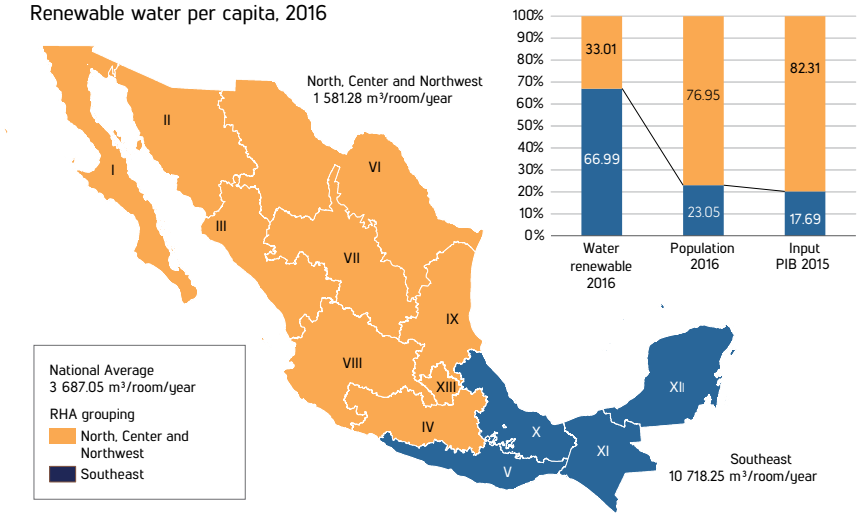
On average,

39%

of the country's water comes from underground sources. In Mexico City, this figure climbs to 60%.

WATER AVAILABILITY BY REGION

Renewable water per capita, 2016



By 2030, only

28%

of people in the capital will have acceptable water provision.

The area that produces

80%

of GDP receives less than a third of the country's freshwater.

KEY WATER CHALLENGES

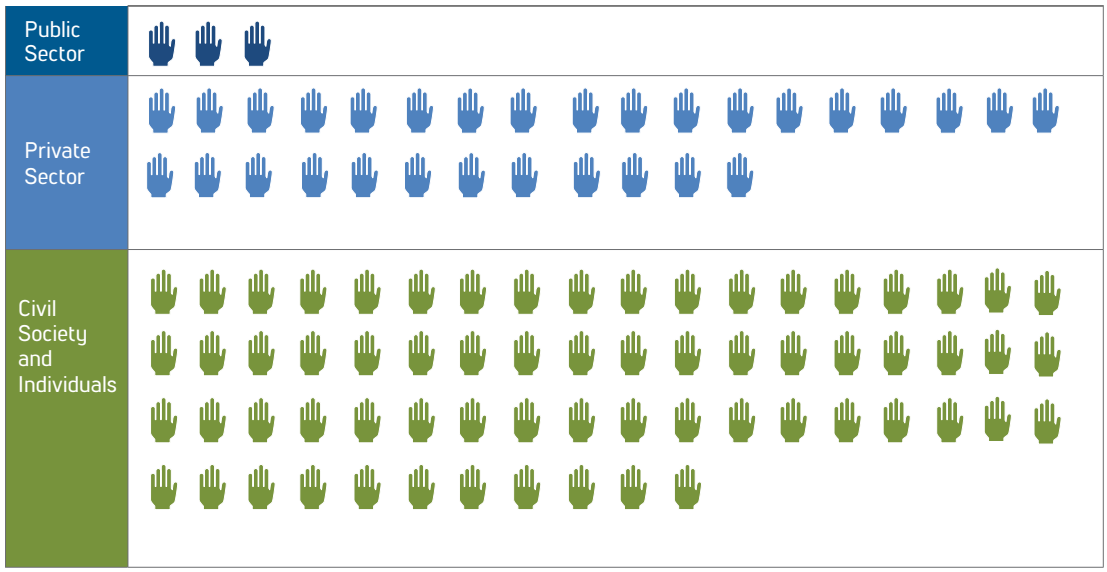
- Ninety-five million people—77% of the population—live in urban areas, with cities constantly expanding into peri-urban areas.
- Agricultural water use is highly inefficient.
- Insufficient wastewater treatment and agricultural runoff are polluting surface and groundwater sources. Only 63% of collected wastewater is treated before discharge.
- Overreliance on groundwater means that 106 out of 653 strategic aquifers are overexploited. Parts of Mexico City have sunk due to high levels of groundwater abstraction.
- Governance challenges have resulted in unrepresentative water allocations and insufficient investment in wastewater treatment infrastructure. The country also elected new political leadership in December 2018, creating the need to develop new relationships with key decision makers.

2030 WRG IN MEXICO

2030 WRG Mexico is a member of the Steering Board of Mexico's existing water advisory council, Consejo Consultivo del Agua (CCA), which was formed in 2000 and advises Mexico's President and the National Water Commission (CONAGUA). The CCA is acknowledged in the National Water Law and its president sits on CONAGUA's Governing Board. The current CCA Chair is Dr. Victor Lichtinger, former Secretary of State of the Environment.

The CCA's Steering Board consists of a balance of representatives from the private, public, and non-profit sectors. It meets once a month, while the General Assembly—the CCA's decision-making body, consisting of nearly 30 representatives from the private sector, 65 from civil society (including indigenous groups), and 2 from the public sector (plus ad hoc invitation to relevant government institutions)—meets four times a year.

Mexico's CCA Steering Board membership by sector



The CCA works through several Thematic Committees, the equivalent of 2030 WRG workstreams in other countries. Each Thematic Committee runs various projects focusing on areas of concern. 2030 WRG serves as the Technical Secretary to four Thematic Committees, improving the committee's technical skills and ability to map emerging challenges, convene decision makers, obtain financing, and respond to water challenges through policy recommendations and institutional reform.

The four Thematic Committees on which 2030 WRG serves are:

- Agriculture and Water
- Water Security and Legal Certainty
- Green Infrastructure Solutions
- Circular Economy and Wastewater

MEXICO

UPDATE

The four Thematic Committees on which 2030 WRG sits have engaged in several projects. A selection of achievements within these projects are detailed.

Public–Private–Partnerships for Agri–Water Initiative

The first phase of this initiative focused on examining the barriers and opportunities for PPPs in agri-water infrastructure and developing evidence-based business cases for potential projects. A second phase is being developed. This will focus on supporting implementation of three potential projects: the El Carrizo Irrigation Area in the state of Jalisco, the Valley of Guadalupe Project in the state of Baja California, and the Tapaneo Project in the State of Michoacán.

Green Infrastructure Solutions Initiative

This project is developing a position paper for the CCA regarding barriers to, and opportunities in, green infrastructure and policy recommendations.

Water Security and Legal Certainty Initiative

This Thematic Committee makes policy recommendations to strengthen and modernize Mexico's water allocation regime and enable corporate water stewardship. The first phase of the initiative involved holding several multi-stakeholder dialogues and producing a CCA position paper containing policy recommendations and identifying relevant avenues for collaboration with government. A second phase is being discussed with the new government authorities.

Circular Economy and Wastewater Initiative

This initiative, which was formed during FY19, aims to support radical change in the way wastewater is treated by fostering a circular economy approach that considers wastewater as a critical resource to be reused and recycled, and not only a by-product.

The initiative further acknowledges that wastewater needs to be managed in an integrated manner at river basin level. This will require new governance arrangements, supported by innovative financial instruments and technologies.

COUNTRY INNOVATION STORY | MEXICO

Fostering democratic dialogue at a time of change

The Challenge

In December 2018, Mexico's government leadership changed, bringing about a shift in the country's policies and priorities. This change marked an opportunity to bring together stakeholders with different—sometimes conflicting—views about water management to build consensus around a collective approach to tackling the country's water challenges through institutional reform.

The Solution

The CCA formed the Social Pact for Water, a platform for continuous, open, and inclusive dialogue that aims to:

- Discuss water resources management challenges and solutions.
- Ensure that Mexico's most pressing water challenges remain high on the political agenda.
- Make evidence-based submissions on the proposed new National Water Law.
- Showcase projects and initiatives that demonstrate the power of collaboration and innovation in addressing water challenges.

Achieving resilience and water security for all are central to the Social Pact for Water's work.

Progress to Date

The CCA developed a list of water management principles to guide dialogues, policy changes, and institutional reform processes. These principles will inform possible areas of work and include:

- The human right to water and sanitation should be prioritized.
- Long-term environmental sustainability should be pursued.
- The Mexican water allocation regime needs to be modernized and strengthened.
- Water resources management should be integrated and follow circular economy approaches.
- A new agricultural water management model needs to be developed to support agriculture and food security.
- The state's regulatory capabilities need to be strengthened to allow for greater private sector involvement and to protect the public interest.

The Social Pact for Water focuses on creating an enabling environment for action and has to date already convened several interviews and workshops.

PERU

$45.7B

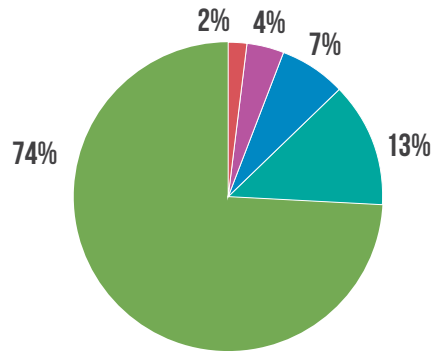
in new investment is required by 2035 to meet the country's water needs.

Groundwater accounts for

15%

of freshwater supply in the populous Pacific

WATER USAGE BY SECTOR



Source: National Authority of Water

- Industrial effluent is insufficiently treated—if at all—before release.
- More than half the country's population lives in **the Pacific basin, which receives only**

1.8%

of the country's freshwater.

- Agricultural water use is highly inefficient and has a high percentage of rural users.

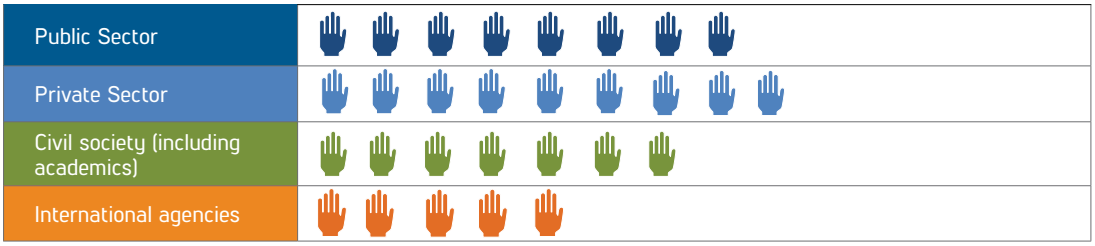
KEY WATER CHALLENGES

- Peru's ample freshwater resources are unevenly distributed in space and time. The Andean mountains divide the country into the water-rich Atlantic basin and two water-scarce watersheds, the Pacific and Lake Titicaca basins. Seasonal variability results in droughts and chronic shortages during the dry season and frequent flooding in certain areas during the wet season.
- Water is extremely polluted due to mining, widespread use of agricultural chemicals, insufficient wastewater treatment in urban and industrial areas, and dumping of municipal and industrial solid waste.
- Water is inefficiently used, mostly on rural farms.
- Climate change is driving an increase in floods in the north and droughts in the south.

2030 WRG IN PERU

The Peru partnership was established in 2014, with 2030 WRG playing an independent supporting role. We facilitate the efficient, effective functioning of the Steering Board and its workstreams by providing secretariat support, promoting partnership between the public and private sectors, providing a neutral space for dialogue on controversial matters related to water policy and governance, developing project concept notes and proposals for solutions, identifying third-party implementers, mobilizing financing for projects, and monitoring project progress, resolving key bottlenecks as required.

Peru's Steering Board membership by sector



Workstreams

Works for Taxes

Adaptation to Climate Change and Green Infrastructure

Water Responsible Companies

Guidelines for Dialogue Processes

PERU

UPDATE

ProNatura, and IFC established a shared value platform where local stakeholders can engage with mining companies in a neutral space.

Works for Taxes

Works for Taxes aims to accelerate infrastructure investments by allowing private firms to "pay" their income taxes in advance by executing public works projects. During the year, the Peru MSP initiated two dialogues (one with stakeholders from the public sector and one with private sector players who have successfully used the mechanism) to identify areas where the implementation of the Works for Taxes mechanism could be strengthened and share lessons learned by those who are already implementing it.

Shared Value Platform Project

More than half of Peru's mining projects are paralyzed over social or environmental conflict around water resources. To break the deadlock, the Peru MSP, ProNatura, and IFC established a shared value platform where local stakeholders can engage with mining companies in a neutral space. Building on the success of this platform, an MoU with one of the country's biggest copper companies was signed in FY19, paving the way for a new shared value platform that will work to meet the local population's basic water and sanitation needs while delinking the area's economic growth from mining. In the year to come, 2030 WRG will form and support a Steering Committee of authorities, sustainability experts, and Peruvian leaders to guide this specific project.

The Blue Certificate Award

The Blue Certificate aims to encourage companies to assess their water footprint and commit to reducing their water reliance. Two companies received certification during the year, bringing the total number of certified companies to six. Another nine are in the process of being certified.

The certification process has to date stimulated more than $11.2 million in investments by companies seeking certification. Thirty thousand people are expected to benefit from these investments.

The certification system is based on the ISO 14046 standard. Based on the eight certificates issued, 3.3 million cubic meters of water will be saved, 110,000 cubic meters of water will be treated, and 122,000 cubic meters of water will be reused each year.

THE BLUE CERTIFICATION PROCESS HAS TO DATE STIMULATED INVESTMENTS OF MORE THAN

$11M+

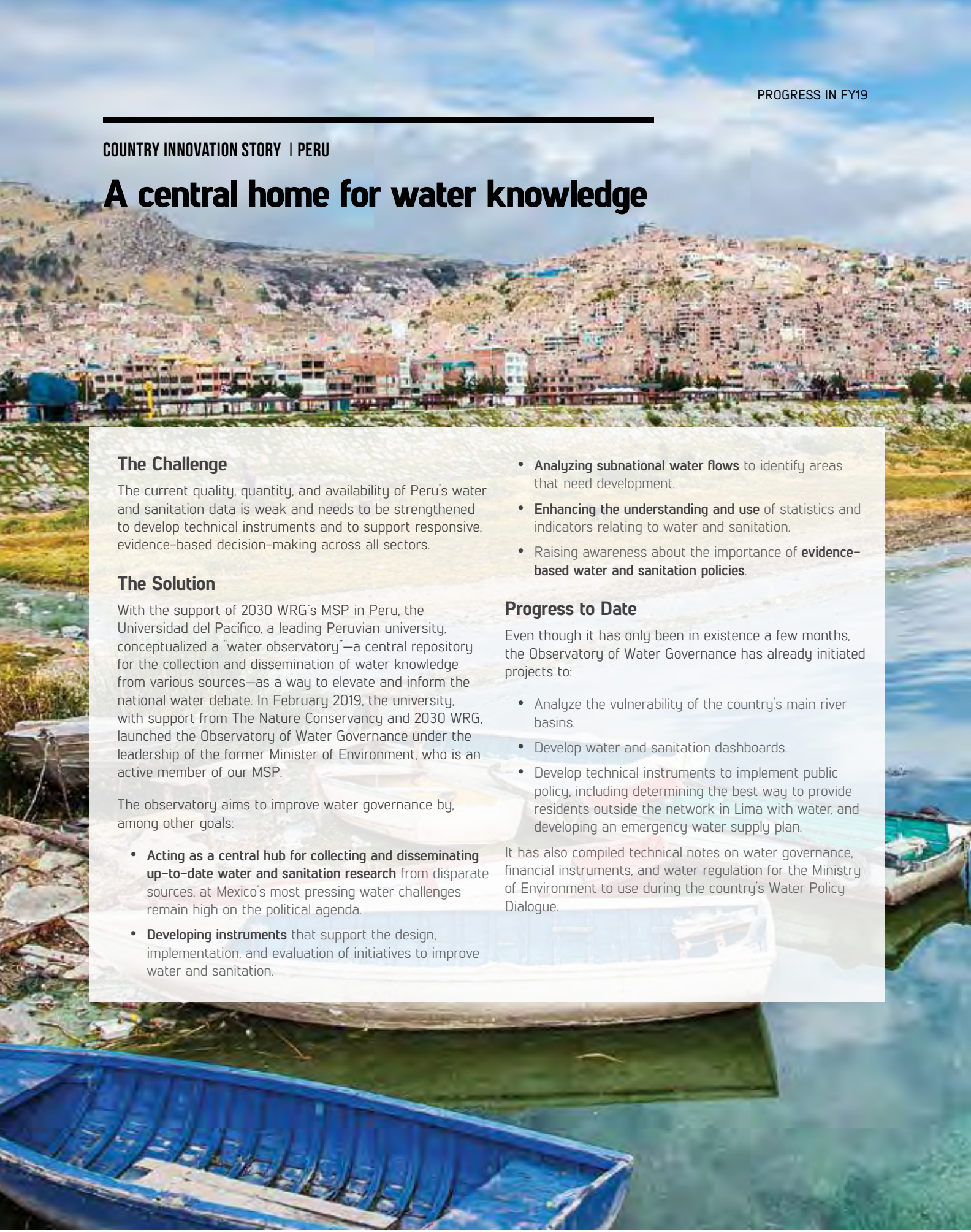
BENEFITING MORE THAN THIRTY THOUSAND PEOPLE.

Groundwater Management Dialogue

After helping the National Authority of Wastewater Services develop a groundwater tariff for industrial users in previous years, in FY19 we launched a neutral platform for the private sector to engage with national regulators and utilities about sustainable groundwater governance. The platform aims to examine the four-year process that has brought Peru to this point, share the results to date, and encourage constructive dialogue in order to improve current regulation.

COUNTRY INNOVATION STORY | PERU

A central home for water knowledge



The Challenge

The current quality, quantity, and availability of Peru's water and sanitation data is weak and needs to be strengthened to develop technical instruments and to support responsive, evidence-based decision-making across all sectors.

The Solution

With the support of 2030 WRG's MSP in Peru, the Universidad del Pacífico, a leading Peruvian university, conceptualized a "water observatory"—a central repository for the collection and dissemination of water knowledge from various sources—as a way to elevate and inform the national water debate. In February 2019, the university, with support from The Nature Conservancy and 2030 WRG, launched the Observatory of Water Governance under the leadership of the former Minister of Environment, who is an active member of our MSP.

The observatory aims to improve water governance by, among other goals:

- **Acting as a central hub for collecting and disseminating up-to-date water and sanitation research** from disparate sources. at Mexico's most pressing water challenges remain high on the political agenda.
- **Developing instruments** that support the design, implementation, and evaluation of initiatives to improve water and sanitation.
- **Analyzing subnational water flows** to identify areas that need development.
- **Enhancing the understanding and use** of statistics and indicators relating to water and sanitation.
- Raising awareness about the importance of **evidence-based water and sanitation policies**.

Progress to Date

Even though it has only been in existence a few months, the Observatory of Water Governance has already initiated projects to:

- Analyze the vulnerability of the country's main river basins.
- Develop water and sanitation dashboards.
- Develop technical instruments to implement public policy, including determining the best way to provide residents outside the network in Lima with water, and developing an emergency water supply plan.

It has also compiled technical notes on water governance, financial instruments, and water regulation for the Ministry of Environment to use during the country's Water Policy Dialogue.

KEY PARTNERS

PERU

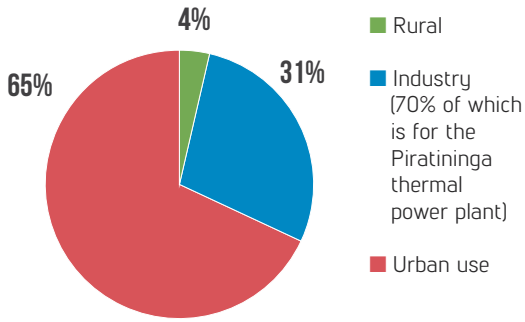
Ariel view of Urubamba river and valley at Cuzco, Peru.

SÃO PAULO STATE, BRAZIL

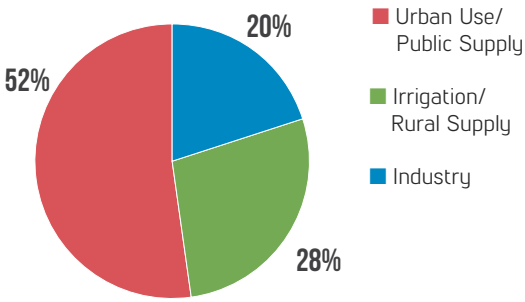
São Paulo state, in southeastern Brazil, has extensive and populous metropolitan areas that are experiencing water stress.

In 2014–15, a water crisis demonstrated that regional water supply is unable to meet total demand in the metropolitan areas of São Paulo and Campinas, which are within the Alto Tietê and Piracicaba–Capivari–Jundiaí (PCJ) river basins—despite existing interbasin water transfers and possible augmentation at feasible costs.

Projected water demand by sector for 2035 (Alto Tietê river basin)



Projected water demand by sector for 2035 (PCJ river basin)



Source: Official estimates

› **The Alto Tietê river basin has the worst average per capita water availability in the state—around**

130m³

per person per year. Surface water demand is more than double the minimum surface water flow.

› **The ratio between surface water demand and minimum water flow in the PCJ river basins is higher than**

80%

KEY WATER CHALLENGES

- The São Paulo metropolitan area is supplied by the Alto Tiete river basin, which also receives a huge supplement of about 30 cubic meters per second through an inter-basin transfer from the headwaters of the PCJ river basin. However, total demand versus average availability in the Alto Tietê basin is almost 70%, even counting on the supplement from the PCJ basin, which also faces water scarcity. Thus, both basins are interconnected and have critical water balances.
- Insufficient sewage collection and treatment services and the improper disposal of solid waste in the past resulted in widespread water pollution as cities grew. This has forced authorities to bring in spring water from increasingly distant areas.
- River pollution and the lack of integration of water, sanitation, and land use management have also prevented other uses such as navigation and recreation, or the creation of riverside public open spaces. This has had a negative impact on how people view rivers in the city.

2030 WRG IN BRAZIL/SÃO PAULO

2030 WRG Brazil is based in São Paulo and focuses on the state's water and sanitation challenges. Brazil, and especially São Paulo, count on very structured and institutionalized MSPs for water and environmental management.

2030 WRG convenes key actors from public and advisory institutions within this framework, as well as private sector and civil society representatives, to promote cross-sector discussions on water management policies and integrate working groups that develop and implement strategic actions (studies, plans, projects, programs, regulations, and public-private enterprises), with the ultimate aim of improving water quality and security in the state.

Working groups (WGs)

WG 1: Water Reuse for Urban and Industrial Purposes

WG 2: Charging for Water Use

WG 4: Optimization of Sanitation Services

WG 5: Urban River Cleaning and Revitalization

SÃO PAULO STATE, BRAZIL

UPDATE

In May 2019, the 2030 WRG Brazil/São Paulo country coordinator was invited to join the Steering Council of São Paulo's Department of Infrastructure and Environment and of the Urban Policy Council of the Commercial Association of São Paulo. Joining this council complements the work already being done through the working groups.

Regional Study on Industrial Reuse of Treated Domestic Wastewater

We worked with the PCJ State Basin Committee and Agency to develop detailed terms of reference for a regional study on the potential for the direct industrial reuse of final (treated) effluent water from public wastewater treatment plants in the PCJ basins.

The study will be commissioned by the PCJ State Basin Committee and Agency, and supervised by the committee's Chamber for Water Use and Conservation in Industry, with 2030 WRG's support.

State Regulation on Water Reuse for Urban Purposes

In 2017, we called public and private sanitation companies together to discuss proposing amendments to state regulation on water reuse for urban purposes, in the face of technical and monitoring requirements that sector representatives considered to be obstacles to investment in wastewater reuse.

Through our advocacy efforts, the state environmental and health regulatory agencies have accepted the proposed amendments, which will be officially approved when revised regulations are issued.

Making the Business Case for Industrial Wastewater Treatment and Reuse

We wrote an article setting out the business case for treating and reusing effluent to reduce demand and ensure future water supply for industrial operations in São Paulo state. The article was published in the prominent business journal, *Jornal Valor Econômico*, in April 2019.

Bringing a Hidden Creek Back to City Life

We worked together with São Paulo City Hall, SABESP, and community leaders to develop a preliminary proposal for revitalizing a segment of the Anhanguera creek in downtown São Paulo (Vila Buarque square). Now we are now in the budget phase and seeking funding to develop and execute the project.

Discussing Technical Criteria for Defining Prices for Charging for Water Use

Raw water withdrawals and effluent discharge are currently undervalued in Brazil and São Paulo state, given the local water stress. The price at which they are set also fails to meet the objectives of such instruments, as stated in national and state regulations.

Based on guidelines developed by the Water Global Practice/ Brazil, we prepared a preliminary work plan to assess the technical criteria and methodology that the river basin committees follow when defining water use prices. We will contract a consultant to undertake this study, while facilitating sectoral debate on the issue.

Optimizing Wastewater Treatment Plants

In partnership with SABESP, the state sanitation utility, we organized a workshop in March 2019 to assess ways to optimize performance and introduce circular economy processes in the São Paulo metropolitan area's wastewater treatment plants (see next page).

Debating corporate water governance and water security issues

In April 2019, we presented the keynote speech at a workshop titled, "Corporate Governance and Water Security: Scarcity, Risk and Corporate Strategies." The workshop was organized by the Business Council for Sustainable Development Brazil and Ecolab, with inputs from 2030 WRG. We also participated in meetings of the UN Global Compact/ Water and provide advisory to the CEO Water Mandate regarding the implementation of the pilot project, "Improving Water Security in the PCJ Basins."

COUNTRY INNOVATION STORY | BRAZIL

Optimizing wastewater treatment plants in the São Paulo metropole

Innovation does not only mean developing new technologies. It also means finding ways to ensure the economic and environmental sustainability of existing resources.

The Challenge

Most wastewater treatment plants in Brazilian cities, whether public or privately operated, have poor technical, financial, and environmental performance. Infrastructure is often obsolete or damaged, and maintenance levels are insufficient to correct the problem or maintain functioning equipment. As a result, wastewater plants are typically energy inefficient and operate below projected nominal capacity, producing final effluent that fails to meet legal environmental quality requirements for discharge into water bodies.

Nearly all of Brazil's wastewater treatment plants were designed in line with international technical standards dating back to the 1960s. These standards have since been rendered obsolete or extremely conservative. The treatment plants were also not designed to handle the volume of gross solids—sand, gravel, organic materials, and trash—that today's big cities produce, making pre-treatment (grit removal) a crucial step in the sewage treatment process.

Across the globe, investments in circular economy processes have seen the by-products of wastewater treatment being put to productive use. Final effluents are being reused by industry, sludge is being used to produce biogas for power generation, and captured bio-solids are being used as fertilizers. This presents an opportunity for Brazil, especially regarding water reuse: selling final effluents from domestic wastewater treatment plants for non-potable, industrial uses can both help alleviate water stress and generate capital for utilities to invest in expanding and upgrading their sewerage networks.

However, unlocking this opportunity requires improvements in the quality of the final effluents generated by most existing public wastewater treatment plants.

The Solution

2030 WRG and SABESP formed the Optimization of Sanitation Services working group to evaluate the potential for optimizing the performance of, and introducing circular economy principles to, the utility's wastewater treatment plants in the São Paulo metropole.

Progress to Date

In March 2019, the working group visited three wastewater treatment plants to identify challenges in their treatment processes. Based on their findings, a second workshop was held on the Barueri wastewater treatment plant in July 2019. This workshop helped define an action plan and investment program to optimize the performance of this key facility.

The Barueri pilot program aims to improve the quantitative and qualitative indicators of the plant's operational performance; increase the plant's treatment capacity without necessarily expanding the facility; and produce and test circular economy strategies, methods, and assessment tools that can be scaled to all SABESP's wastewater treatment plants in the capital city.

SABESP's president directly supports this program, which will require human and financial resources.

KEY PARTNERS

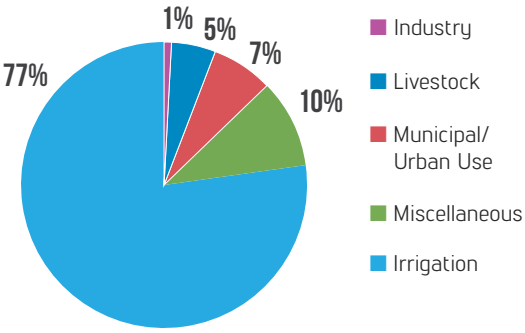
SÃO PAULO STATE, BRAZIL

Marginal Pinheiros, in Sao Paulo, Brazil.

ETHIOPIA

Rapid economic growth and a large, rapidly urbanizing population are driving demand to unsustainable levels, especially in cities. Municipal water losses are high.

Consumptive Water Usage by Sector (2016)



Source: Ongoing and informal consultations on water use with Ethiopian Ministry of Water, Irrigation, and Energy.

Industry is dominated by the textiles and beverages sectors, which are water-intensive and draw heavily on groundwater resources.

The livelihood of a large rural population (about 80%) is based on rain-fed agriculture that is severely impacted by recurring weather events. Per capita water storage is low.

KEY WATER CHALLENGES

- Ethiopia receives geographically uneven, highly seasonal rainfall.
- Rapid economic development is driving groundwater demand and adding to water pollution.
- Insufficient storage infrastructure and catchment treatment means most of the country's surface water leaves its borders unused—and laden with sediment.
- Water use on farms is inefficient, with only a small proportion of arable land under irrigation.
- A rapidly urbanizing population means water demand in cities and towns will be closely matched by, or exceed, supply.

2030 WRG IN ETHIOPIA

In September 2016, the Ethiopian government invited 2030 WRG to explore opportunities for establishing an MSP to support sustainable water management.

To support this process, a national hydro-economic analysis was initiated in 2018. With the guidance of two advisory groups—the Public Sector Advisory Group, and the Private Sector and Civil Society Advisory Group—a draft analysis has been prepared. This analysis is being revised to consider the comments received.

The analysis will collate:

- Freshwater availability versus demand for all of Ethiopia's major river basins, by both season and sector.
- Supply-demand projections for 2030 that consider planned economic development, population growth, and climate change.
- The estimated value of production at risk from water scarcity and droughts, and the impacts on vulnerable groups.
- Opportunities to alleviate water stress through private and public sector interventions.

The analysis is undergoing a revision and approval process.

ETHIOPIA

UPDATE

Ethiopia's textiles and garment industry is expected to grow with a parallel increase in withdrawal of groundwater and generation of wastewater if business-as-usual continues.

Support for Fledgling Beverages Alliance for Water

Beverages is a fast-growing sub-sector in Ethiopia, with more than 120 companies producing alcoholic and non-alcoholic beverages for a growing local market. Even though all beverage producers need water to function, the Ethiopian beverages sector is particularly thirsty compared to international best-practice benchmarks.

Even though declining groundwater is forcing beverages companies to drill ever deeper to reach groundwater, the sector as a whole does little to improve its water stewardship and jointly manage this precious shared resource. Lack of awareness of the risks, poor water regulation, and the perception that water-focused interventions are too pricey for individual companies to undertake are largely to blame for this inaction.

To improve water stewardship, Coca, Nestle Waters and the Ethiopian Bottled Water and Soft drinks Manufacturing Industries Association (EBSMIA) approached 2030 WRG in FY19 to help create a national Beverages Alliance for Water, in the hope that such an alliance will raise awareness of water scarcity; stimulate collective action to lower the sector's water footprint, especially at factory level; drive dialogue around policy frameworks; improve the beverage companies' relationships with their communities; and generally reduce the sector's negative environmental impacts.

With a view to helping convene the alliance, 2030 WRG drafted a concept note to support the association in its effort to solicit donor funding for analytical work and to establish the alliance. The application was successful and a grant from Partnering for Green Growth and the Global Goals 2030 (P4G) was announced in July 2019. The next step is for the association to conduct analytical work to identify and elaborate on concrete objectives and outcomes, in collaboration with other industry stakeholders.

Scoping Study for Textiles and Garment Sector

Ethiopia's textiles and garment industry is expected to grow with a parallel increase in withdrawal of groundwater and generation of wastewater if business-as-usual continues.

Textile factory.

This does not have to be the case. If the sector acts now to institutionalize water efficiency and wastewater treatment and reuse, Ethiopia may be able to position itself as a preferred supplier of sustainably manufactured textiles.

During the year, 2030 WRG Ethiopia embarked on a scoping study to examine the merits of this concept. Based on the outcome of the study, 2030 WRG will consult with relevant stakeholders—including international buyers—to identify constructive forms of collaborative action.

KENYA

Kenya faces a

31%

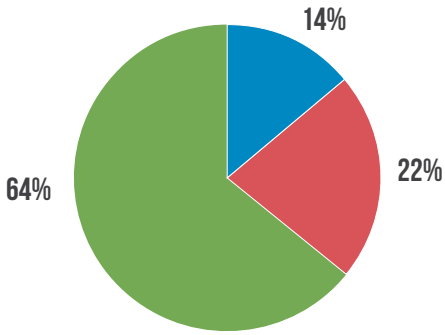
shortfall between freshwater supply and demand in 2030 unless action is taken to improve efficiency now.

Nairobi already experiences a

30%

shortfall—and the situation is expected to worsen.

WATER USAGE BY SECTOR (2015)



Source: AQUASTAT, Food and Agriculture Organization of the United Nations

› **Manufacturing's share of GDP, set to increase from 9.2% to 20% by 2022.**

› **42%**

of municipal water is lost to theft, leaks, and faulty equipment.

› Even though agriculture is the country's biggest water user, only 3% of arable land is currently under irrigation. Government plans to increase this figure to improve food security, which will further drive water consumption.

KEY WATER CHALLENGES

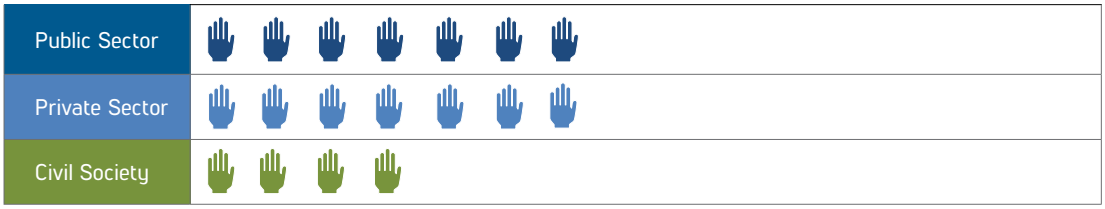
- Rainfall is highly seasonal, with some catchment areas experiencing localized stress..
- Current irrigation systems, while limited in terms of coverage, are highly inefficient.
- Five out of the six catchment areas are severely degraded, contributing to the risk of droughts and floods.
- Pollution is a concern in the more populous southern parts of the country.

2030 WRG IN KENYA

The Kenya MSP was formed in 2015. The table below indicates the composition of the MSP's national Governing Board as at June 30, 2019.

2030 WRG plays an independent supporting role. We facilitate the efficient, effective functioning of the Governing Board and its workstreams by providing secretariat support, developing project concept notes and proposals for solutions, identifying third-party implementers, mobilizing financing for projects, and monitoring project progress, resolving key bottlenecks as required.

Kenya MSP Governing Board membership by sector



Workstreams

Agriculture Water Management works through the Mount Kenya Ewaso Water Partnership and the East Africa Smallholder Irrigation Project (formerly known as the Climate Smart Irrigation Financing Facility).

Industrial Water Management formed the Kenya Industrial Water Alliance (KIWA) in 2016 to address challenges in industrial water management and use. Together with the Urban Water Management workstream, it is supporting the development of a Trade Effluent Management System.

Urban Water Management is developing performance-based contracts to address non-revenue water in addition to the joint Trade Effluent Management System.

KENYA

UPDATE

2030 WRG is working together with Nakuru Water and Sanitation Services Company Ltd, and Nairobi City Water and Sewerage Company Ltd (not the MSP) to develop a Trade Effluent Management System.

Mount Kenya Ewaso Water Partnership

The Mount Kenya Ewaso Water Partnership was formed to ease conflict between upstream and downstream users of the 700-kilometer Ewaso Ng'iro river. The partnership is initiating a pilot to test a management model that sees Water Resource Authorities financially contract Water Resource Users' Associations to carry out specific services at basin level. If successful, the arrangement could be scaled to other areas to improve the relationship between water authorities and users while strengthening users' associations and improving integrated water management.

Farmer-Led Irrigation Assessment

Working with the National Irrigation Board and the State Department of Agriculture, we are undertaking an assessment of potential community-based irrigation schemes to help farmer organizations across Kenya design business models that include climate-smart technologies and financing considerations to sustainably address agricultural water constraints.

Advisory Support

We started providing advisory support to a project in cooperation with the World Bank that involves developing innovative business models, increasing access to finance, and providing market linkages through the National Agricultural and Rural Inclusive Growth project. This project uses community participation and value chain approaches to increase agricultural production while building climate resilience.

Kenya Industrial Water Alliance

Following the planned exit of the GIZ's IWaSP during the review period, 2030 WRG Kenya took over supporting activities, helping the alliance to publish case studies and facilitate learning visits for industrial players to share experiences and lessons learned. In addition, 2030 WRG supported the KIWA Steering Committee in developing a concept note to promote sustainable industrial water management and pollution prevention.

Trade Effluent Management System

2030 WRG is working together with Nakuru Water and Sanitation Services Company Ltd, and Nairobi City Water and Sewerage Company Ltd (not the MSP) to develop a Trade Effluent Management System.

In addition to assisting in drafting the TEMS concept note, 2030 WRG is:

- Providing technical specialists to utilities to design the surcharge mechanism
- Supporting the Water Services Regulatory Board in providing guidelines and regulations for the surcharge mechanism to be scaled up nationally
- Supporting WSPs in convening and facilitating stakeholder forums to build coherence and identify collective action on the benefits of adopting the new sewer surcharge.

Performance-Based Contracts for Non-Revenue Water Reduction

Kenya loses an average of between 42% and 45% of water as non-revenue water due to leakages, theft, illegal connections, and faulty meters, jeopardizing municipalities' financial health and ability to attract private investment. Drawing on technical advice provided by 2030 WRG Kenya during FY19, the national water services regulatory board is helping six public utilities develop performance-based contracts with private sector service providers to reduce non-revenue losses, with the aim of achieving the sector benchmark of 20%. With the Public-Private Infrastructure Advisory Facility, 2030 WRG will help WASREB build national capacity for future performance-based contracts. The regulatory board is also receiving training to enable it to scale such contracts.

COUNTRY INNOVATION STORY | KENYA

Strengthening Industrial Water Management at Basin Level

The Challenge

Despite the very real challenges posed by water scarcity, agricultural over-extraction, and pollution, water is still widely regarded as cheap and expendable in Kenya. The risks posed by water scarcity are poorly understood, and demonstrating the business case for investing in water-efficiency and waste-treatment technologies remains a challenge. Even though some forward-thinking companies have voluntarily introduced efficiency measures and wastewater treatment facilities, many more have yet to take action.

To complicate matters, the responsibility for governing industrial water is shared between the Water Resources Authority, the National Environment Management Authority, and government-owned water utilities. These entities need to work with industry in a cohesive, collaborative, and transparent way if they are to achieve their respective mandates and effectively manage industrial water.

The Solution

During FY19, 2030 WRG helped draft concept notes outlining projects to, among other activities:

- **Produce a central online platform** with tools to help industries benchmark their water use, identify opportunities for improvement, develop intervention plans, and identify expertise and potential funding sources. The platform will help policy-makers make evidence-based decisions, provide regulators with insights into the needs of industry when making allocations, and improve overall understanding of the industry's vulnerability to water-related risks.
- **Develop a Trade Effluent Management System** to enable utilities to levy a surcharge against companies that release hazardous effluent that is based on the specific volume and load of pollution rather than the current flat rate. Plans are under way to develop and pilot a Trade Effluent Management System mechanism, including guidelines for imposing sanitation service levies, trade effluent surcharges, and other related matters, in partnership with the water and sanitation utilities of Nakuru and Nairobi.

These steps will provide decision makers with shared, readily available data. The Trade Effluent Management System, in particular, will support the growing business case for a circular water economy. The project has been designed for implementation at catchment level. Intensive coordination of all stakeholders will be required to ensure its success.

Progress to Date

During the drafting process, 2030 WRG Kenya organized a design thinking workshop to allow relevant stakeholders to provide inputs to the concept note, so ensuring that the goals are commonly agreed and do not unfairly benefit or disadvantage one sector over another.

The concept note was endorsed by Kenya's national MSP in October 2018. The Kenya Association of Manufacturers has agreed to host the project's pilot phase. An MoU detailing the roles of the seven key project partners is being finalized. Meanwhile, the project team is working to secure financing and preparing to implement the pilot.

KEY PARTNERS

KENYA (NATIONAL PARTNERS)

REPUBLIC OF KENYA
MINISTRY OF INDUSTRIALIZATION
AND ENTERPRISE DEVELOPMENT

REPUBLIC OF KENYA
MINISTRY OF WATER & SANITATION

REPUBLIC OF KENYA
MINISTRY OF AGRICULTURE, LIVESTOCK,
FISHERIES AND IRRIGATION

REPUBLIC OF KENYA
MINISTRY OF ENVIRONMENT & FORESTRY

KEY PARTNERS

KENYA (KIWA PARTNERS)

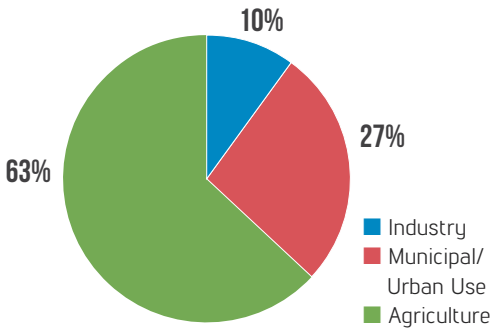
SOUTH AFRICA

South Africa faces a

17%

shortfall between freshwater supply and demand in 2030 unless action is taken to improve efficiency now.

WATER USAGE BY SECTOR



Source: Food and Agriculture Organization of the United Nations (2013 figures).

- **Industry**, specifically mining, is a source of pollution.
- **Non-revenue water accounts for**

37%

of municipal water use.

- **Agriculture**, the thirstiest sector, is highly inefficient.

KEY WATER CHALLENGES

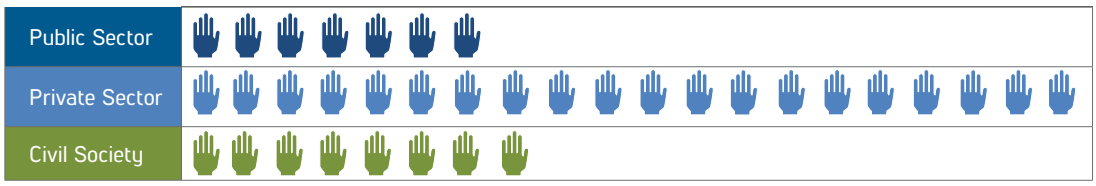
- Average rainfall is low—464mm a year—and unevenly distributed in favor of the eastern coastline and interior.
- High levels of municipal water losses due to poorly maintained infrastructure, coupled with growing domestic demand due to rapid urbanization, are affecting municipal revenue and freshwater availability.
- Water practices on farms are often inefficient.
- Groundwater is unregulated and under-used.

2030 WRG IN SOUTH AFRICA

The Strategic Water Partners Network (SWPN) was formed in 2011. The figure below indicates the composition of the SWPN's national Steering Committee as at June 30, 2019. The committee is responsible for guiding the activities of the workstreams in the country.

The SWPN's vision is to contribute to efficient, equitable, and sustainable water supply and access to water and sanitation for all South Africans by identifying and applying innovative and cost-effective solutions. To date, the SWPN has used 2030 WRG financing of $450,000 to leverage $3 million in additional financing from 15 organizations in South Africa—corporations, development partners, a development bank, and the government.

SWPN's Steering Board membership by sector



Workstreams:

- Agriculture Supply Chain
- Effluent and Wastewater Management
- Water Use Efficiency and Leakage Reduction
- Sanitation
- Skills Development and Transformation
- Water Stewardship

SOUTH AFRICA

UPDATE

SWPN facilitated the process to secure R7 million to upgrade the Vaalharts Irrigation Scheme, potentially saving 40 million cubic meters of water a year.

The Vaalharts Irrigation Scheme Upgrade

SWPN facilitated the process to secure R7 million to upgrade the Vaalharts Irrigation Scheme, one of South Africa's oldest and biggest water schemes, potentially saving 40 million cubic meters of water a year.

Water Administration System

The Water Administration System enables irrigation schemes to manage their water usage, distribution, and accounts online. The system was rolled out to 21 schemes during the year, generating water savings of 268 million cubic meters.

We secured World Bank and GIZ funding for the next step of the project, which involves developing a smartphone app to allow farmers to order water from their homes.

No Drop Program

The No Drop program uses a ratings scorecard linked to rewards and penalties to improve municipal water efficiency and so improve revenue collection. During FY19, water-usage measurements were taken for all municipalities found to have high water losses. The data collected will serve as a baseline indicator for future interventions. A report detailing policy and legislative outcomes, the level of financial leverage created, and improvements in non-revenue water performance was also published.

THE WATER ADMINISTRATION SYSTEM, THROUGH ITS OVER 21 SCHEMES, WILL GENERATE WATER SAVINGS OF

268Mm^3

The Water Administration System enables irrigation schemes to manage their water usage, distribution, and accounts online.

South African mining companies are required to ensure that the water used during mining activities is safely stored away from natural water sources and treated before disposal after closure.

A demonstration project on unmined land has successfully produced two seasons of white maize using mine water for irrigation.

COUNTRY INNOVATION STORY | SOUTH AFRICA

Old mine water, new crops

The Challenge

South African mining companies are required to ensure that the water used during mining activities is safely stored away from natural water sources and treated before disposal after closure. The cost of such treatment, particularly if the water needs to be brought back to potable levels, is prohibitive and not sustainable in the long term. As a result, companies are seeking alternative and productive ways to deal with excess water after mine closure.

The Solution

The Mine Water Coordinating Body is supporting an innovative collaboration to test the potential to use untreated or minimally treated mine water of a suitable quality to grow crops on Anglo American's Mafube Colliery. The project is funded by the Water Research Commission and run by the University of Pretoria with the help of a local farmer. The Department of Water and Sanitation is also a key partner.

The Mine Water Coordinating Body is an offshoot of the SWPN formed in June 2017. It focuses on mines in the Upper Olifants catchment area in the Mpumalanga coalfields. This catchment supplies much of the world-famous Kruger National Park's water.

Progress To Date

A demonstration project on unmined land has successfully produced two seasons of white maize using mine water for irrigation.

The first two seasons of planting saw an average of 12.5 metric tons produced per hectare, compared with 5 tons for dryland farmers. Extensive analysis indicates that the resulting white maize was safe for human consumption. In addition, while dryland farmers generated a loss, the farmer in the pilot project made a profit (excluding some subsidized pumping costs).

Using mine water creates an opportunity to irrigate crops during winter. Stooling rye, which can be used as animal fodder, was planted and irrigated during winter, resulting in a good yield. A further pilot to test cultivation on rehabilitated mining land is being planned.

AN UNMINED LAND PROJECT SUCCESSFULLY PRODUCED AN AVERAGE OF

12.5T

PER HECTARE OF WHITE MAIZE, THE FIRST TWO SEASONS OF PLANTING.

DRYLAND FARMERS ONLY PRODUCED AN AVERAGE OF

5T

PER HECTARE, THE FIRST TWO SEASONS OF PLANTING.

KEY PARTNERS

SOUTH AFRICA

TANZANIA

During dry periods, Tanzania's **national water demand is**

150%

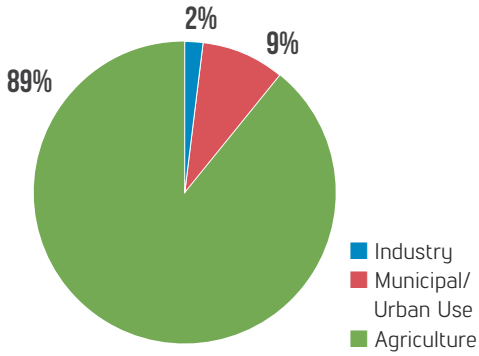
of accessible water.

If nothing is done to address this now, the shortfall during dry periods **will increase to**

216%

by 2035.

WATER USAGE BY SECTOR



Source: National Water Development Strategy 2002–2015

- Industry relies on hydro-electric plants and water-cooled gas-fired plants for power. New hydro-electric plans are under consideration.
- Domestic/municipal use is plagued by high water losses.
- **45%** of water abstracted for agricultural use is lost due to inefficient practices.

KEY WATER CHALLENGES

- Agricultural demand is high, coupled with inefficient irrigation methods and poor storage infrastructure, especially on subsistence farms.
- Water demand in urban centers is growing as more people move to the cities.
- Infrastructure is insufficient, especially at the smallholder level.
- Extreme weather events due to climate change are increasing.

2030 WRG IN TANZANIA

In November 2016, with the support of Tanzania 2030 WRG, the government launched the Multi-Stakeholder Forum under the chairpersonship of the Ministry of Water to break down the institutional silos that pose a challenge to the sustainable management of Tanzania's water resources.

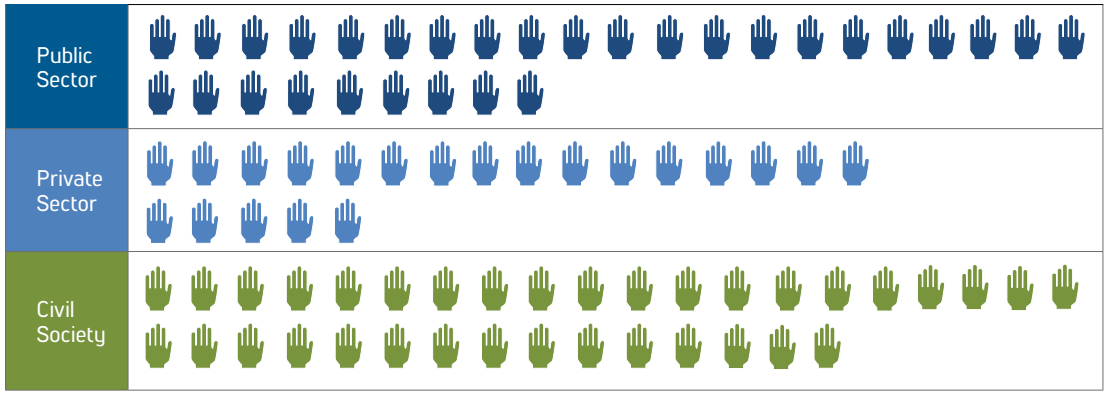
During the year, the forum supported the work of the catchment-level MSPs it initiated in the previous year while also:

- Endorsing the Irrigation Finance Initiative for smallholder farmers
- Improving water stewardship standards
- Initiating the formation of new catchment-level dialogue platforms
- Developing a better understanding of groundwater resources
- Centralizing data for easy access and dissemination.

2030 WRG IN TANZANIA

In November 2018, the national Ministry of Water, which chairs the Multi-Stakeholder Forum, took steps to strengthen the forum, in effect turning it into an advisory platform within the National Water Board.

Multi-Stakeholder Forum Membership by Sector



Catchment-level and thematic partnerships

In addition to the Multi-Stakeholder Forum, four subnational partnerships are active in Tanzania:

- The **Great Ruaha Restoration Campaign** is a catchment-level water stewardship platform convened to address the water crisis gripping the Great Ruaha area in south-central Tanzania.
- The **Kilimanjaro Water Stewardship Platform** (KWSP) is a catchment-level water stewardship platform working in the Pangani water basin.
- The **Irrigation Financing Initiative** aims to help emerging and small-scale farmers obtain financing for water-efficient irrigation projects, so reducing water losses on farms (which currently sits at 45%), while helping the Tanzanian government increase the area of arable land under irrigation to 1 million hectares by 2035.
- The **Private Sector Roundtable** is a newly formed initiative that aims to improve understanding of how the private sector has been engaged in water resources management and identify opportunities for continued formal engagement.

2030 WRG Tanzania acts as a member, facilitator, and funder to these partnerships. Based on the success of the catchment-level Kilimanjaro Water Stewardship Platform, 2030 WRG is engaging with stakeholders in the Rufiji basin to form a similar platform. The national Ministry of Water is also scaling up the concept to other basins in the country (see page 84). Planning is also under way for 2030 WRG to build capacity in other basin water boards to initiate and manage an MSP.

TANZANIA

UPDATE

In July, 2030 WRG Tanzania launched the first-ever private sector roundtable to formalize a dedicated dialogue mechanism between the government and water-thirsty businesses on water management issues.

Irrigation Financing Initiative

The Tanzanian Agricultural Development Bank has asked for technical support to help farmers submit fundable proposals, and a task force to advise on incentives to encourage the private sector to engage in improving irrigation technologies and agro-inputs.

From this request, the Irrigation Financing Initiative (IFI) was developed. The IFI is a dedicated facility to generate a portfolio of irrigation projects by leveraging resources from actors along the value chain from the lead identification, project-level partner coordination, linkage to sources of finance, to portfolio monitoring.

More than 1,366 farmers from the Pangani basin and the Great Ruaha subcatchment were assessed for the initiative in May 2019. Of these, an initial group of 35 farmers will become part of a pilot financing project, with potential to include more farmers (already assessed) in future.

2030 WRG Tanzania's support for the initiative involves ongoing assistance in designing and testing the stakeholder coordination process, coordinating among partners, monitoring, and tracking of outcomes and impacts.

Great Ruaha Restoration Campaign

The Financing Facility's pilot project takes place in the Great Ruaha subcatchment, addressing agricultural irrigation inefficiencies—one of the key priorities identified by the campaign.

Kilimanjaro Water Stewardship Platform

We expanded our catchment stewardship activities through the Sustainable Water Management Usa-River Partnership (SUWAMA) project to three new catchments.

SUWAMA is a stakeholder-led catchment stewardship initiative launched under the KWSP. Jointly led by the KWSP, the Pangani Basin Water Board, the GIZ through the IWaSP, the Upper Kikuletwa Water User Association, the Tanzanian Horticulture Association, and Kiliflora Limited, SUWAMA engages water users all the way down to the village level.

The partnership focuses on improving water governance, water use efficiency, and water quality and supply, and works with the community to collectively identify priorities and strategies to do so.

2030 WRG Tanzania's support for the initiative involves ongoing assistance in designing and testing the stakeholder coordination process, coordinating among partners, monitoring, and tracking of outcomes and impacts.

COUNTRY INNOVATION STORY | TANZANIA

Taking the MSP concept to Tanzania's basins

The Challenge

To allocate water in a just and equitable manner, water regulators need to know how much water is available at any given time, and they need to be able to enforce limits. Tanzania's nine basin-level water boards are financially and administratively autonomous institutions within the country's complicated five-tier water-governance system. They have limited technical and enforcement capacity at their disposal, and they operate in a highly challenging environment marked by conflict between upstream and downstream water users that has, at times, escalated into sabotage and violence.

The Solution

Three years ago—in line with 2030 WRG's strategic approach, which holds that complex water challenges require collaborative, joint action involving all sectors—we formed an MSP focusing on the Kilimanjaro catchment area, one of the main feeding catchments of the Pangani basin. The Kilimanjaro Water Stewardship Platform, as the partnership is called, is chaired by the Pangani Basin Water Board and includes a strong contingent of commercial and small-scale farmers.

Progress to Date

Since its launch, the platform has demonstrated its usefulness as a neutral forum for conflict resolution, collective decision-making, and knowledge exchange. It has shown how corporate water stewardship can contribute to integrated water management and help the Pangani Basin Water Board execute its regulatory role. It has successfully launched projects to rehabilitate waterways, increase smallholder access to irrigation financing, and improve water revenue collection through its working groups. It has also provided development partners with insight into the types of investments and innovations needed on the ground.

In early 2019, the Ministry of Water made the decision to form MSPs in all nine basins, modelled on how the Kilimanjaro Water Stewardship Platform operates and is financed. Because 2030 WRG acted as the Secretariat to both the national and local platforms, we have been able to support the ministry in its efforts to establish these partnerships.

KEY PARTNERS

TANZANIA

LESSONS LEARNED

Over the past nine years, we have learned many lessons about convening multi-sectoral platforms to support collaborative action—lessons that could be useful for catalyzing change in the pursuit of other SDGs that sit at the junction of policy, business, and the environmental sciences. Here, our country teams share some common key lessons emerging from their wide-ranging activities.

Government should take the lead

MSPs thrive when they are led by government. Receiving political support from the highest authority enables other stakeholders to follow suit.

Data is an enabler

Whether you are scoping the potential for collaborative action or developing a project plan, it is useful to first take the time to conduct a comprehensive analysis that identifies potential stakeholders and provides technical clarity with bigger-picture context.

Building trust takes time

Taking the time to build a partnership of trust that gives equal consideration to the interests of all participants and fosters a sense of joint ownership will assure the long-term sustainability of an MSP.

Establishing explicit rules of engagement and a set of values and practices that are acknowledged by all is key to ensuring a safe, respectful space that will allow such trust to grow. Such values and practices could include openness, inclusiveness, respect, legitimate representation, and evidence-based decision-making.

All partners also need to be aware of their roles and responsibilities—based on their particular strengths—from the outset.

Speak your stakeholders' language

Governments have economic and social development goals, companies require a business case, and communities speak the language of justice and equality. Framing stakeholder engagements in terms that are relevant to the stakeholder can help ensure buy-in and alignment under a common vision.

Build capacity across all sectors

Community participation and capacity building are crucial for the success of any large-scale program and should be included in the implementation plan from inception. This could include identifying community leaders to champion behavioral change and educate people on, for example, the importance of healthy river systems. Public awareness and regular training of government officials are also important factors of success.

Innovative approaches are often needed

MSPs are challenging to finance. They remain, at heart, public goods and are not traditional avenues for development finance. Finding creative, entrepreneurial approaches to financing is key. Innovative approaches to building consensus may also be needed in countries with a large social divide.

THE PATH AHEAD

2030 WRG has demonstrated the ability of MSPs to leverage the expertise and financing of multi-lateral financial institutions, governments, the private sector, civil society, and academia.

As we chart our way forward, we need to:

- **Strengthen the sustainability of our MSP funding model.** Healthy, functioning MSPs are built on trust, and trust takes time to develop. Longevity through financial sustainability is a fundamental requirement for the ongoing success of our MSPs and their workstreams.
- **Expand into new countries** that have been identified based on their need, readiness to work collaboratively, and the presence of existing partnerships, among other criteria.
- **Connect with similar platforms in other sectors on the global arena** to intensify our contribution to the SDGs, using SDG 17 as the vehicle.
- **Strengthen and refine our monitoring and evaluation framework,** with particular attention to measuring the effect of our work on women, who have a key role to play in water resource management and who are often disproportionately affected when such management falls short.

FINANCIAL SUMMARY (Unaudited)

2030 WRG obtains funding from various development corporations and public sector trusts. These funds support 2030 WRG activities across 14 countries/states, as well as the operational support provided by the global Secretariat.

Income

Table 1: Donations to the World Bank Group Trust Fund ($)

Donor Name	Total Contributions Amount (in $)	FY19 Contributions Paid-in Amount (in $)
Swiss Agency for Development and Cooperation (SDC)	8,438,296	999,973
Swedish International Development Cooperation Agency (Sida)	8,601,748	1,027,198
Global Green Growth Institute (GGGI)	600,000	
Hungary – IFC Partnership Fund	1,799,407	
Israel - Ministry of Economy & Industry	3,000,000	3,000,000
Public-Private Infrastructure Advisory Facility (PPIAF)	170,000	
Total Contributions from Public Sector through Trust Funds	**22,609,451**	**5,027,170.00**
PepsiCo Foundation	6,500,000	1,500,000
Grundfos Holding A/S	2,500,000	
Nestlé SA	4,999,980	500,000
Dow Chemical Company	500,000	
The Coca-Cola Company	6,250,000	500,000
Anheuser-Busch InBev Procurement GmbH	200,000	200,000
Total Contributions from Private Sector through Trust Funds	**20,449,980**	**2,700,000**
GRAND TOTAL	**43,059,431**	**7,727,170.00**

International Finance Corporation (IFC)		1,000,000

Table 2: FY19 Co-Financing Facilitated by 2030 WRG's MSPs

Name of Program	Donor Name	Total contribution ($US)	In-kind contribution ($US)	Parallel contributions ($US)
Bangladesh	Coca Cola Foundation	250,000		250,000
Ethiopia	P4G	99,970		99,970
Ethiopia	EBSIMA	7,500	7,500	
Ethiopia	Nestlé	9,000	5,000	4,000
Ethiopia	Coca Cola	9,000	3,000	6,000
India National	Government of India	70,481,429		70,481,429
Karnataka	Government of Karnataka	276,000,000		276,000,000
Kenya	PPIAF facility	300,000		300,000
Kenya	CORDAID	63,661		63,661
Kenya	FFI	15,788		15,788
Kenya	SNV	20,327		20,327
Kenya	Membership contributions	8,357		8,357
Maharashtra	Government of Maharashtra	700,000	700,000	
Maharashtra	Maharashtra Water Resources Regulatory Authority (MWRRA)	510,000		510,000
Maharashtra	ITC Limited	70,000	70,000	
Maharashtra	IDH-Dutch Sustainable Trade Initiative	121,965	121,965	
Mexico	Consejo Consultivo del Agua A.C.	100,000	100,00	
Mongolia	Government of Mongolia	100,000		100,000
Mongolia	Government of Mongolia	23,778	23,778	
Mongolia	Millennium Challenge Corporation	97,800,000		97,800,000
Mongolia	Government of Mongolia	22,700		22,700
Mongolia	Mongolia – mining companies	14,363	14,363	
Peru	Companies: Nestlé del Perú, Agroindustrial Camposol, Minera Coimolache, Celepsa, under the Blue Certificate initiative, led by the Peru Water Authority (ANA)	1,151,515		1,151,515
South Africa	Anglo American	287,474		287,474
South Africa	ESKOM Holdings SOC Ltd	23,956		23,956
South Africa	Sasol Group Services (Pty) Ltd	20,534		20,534
South Africa	Nestle South Africa (Pty) Ltd	13,689		13,689
South Africa	Exxaro Resources Limited	10,267		10,267
South Africa	Distell Ltd	6,845		6,845
South Africa	South 32 SA Limited	6,845		6,845
Uttar Pradesh	Dutch Government	47,891		$47,891
TOTAL		**448,296,853**	**1,045,606**	**447,251,247**

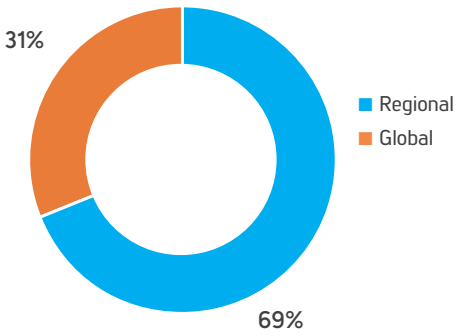
Value of budget allocated/ reallocated for implementation by third parties – $2.1 billion for Mexico's capital investment prioritization system. This is not new financing catalyzed by 2030 WRG, but the use of the 2030 WRG prioritization system for the existing Mexican government water portfolio of $2.1 billion.

Expenses

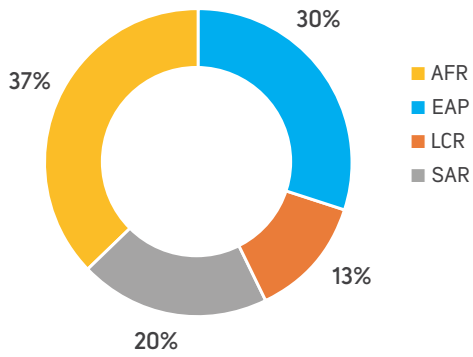
Table 3: FY19 Expenses ($000)

Total Disbursements FY19		
Global		1,650,709
Regional	Africa	1,142,846
	East Asia	475,035
	Latin America	749,933
	South Asia	1,391,561
GRAND TOTAL		5,410,084

FY19 Total Expenses by Type of Activities



FY19 Total Expenses by Region



2030 WRG GLOBAL PARTNERS

Multinational companies

Bilateral donors

Development banks

INGOs and IGOs

Incubated within → WORLD ECONOMIC FORUM

Hosted by → WORLD BANK GROUP Water

Disclaimer

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2030 Water Resources Group

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