







SECTION I: Framing the Water Challenge

The Water for People, Food, and Planet Challenge

Water for People

2.2 billion lack clean drinking water

3.5 billion without safe sanitation

400,000 children under 5 die each year from unsafe water, sanitation, and hygiene

Urban population facing water scarcity projected to **double globally by 2050**

Water for Food

0.5 billion farmers (~ 80%) are "smallholders" and vulnerable to erratic rains and low access to inputs (seeds, fertilizers etc.)

Only 6% of farmland in Africa is irrigated – the world needs to double irrigation to feed the world

80% rainfed agriculture produces 60% food - need climate smart agriculture practices to increase food production

10% of global anthropogenic methane emanates from rice cultivation

Water for Planet

Planetary boundaries for green and blue water have been crossed, altering water cycle and health of planet

4 billion people live in water-scarce areas, with billions vulnerable to floods and droughts

Natural water storage has declined by 27 trillion m³ over 50 yrs due to degradation. Safety of existing built storage needs to be managed

2 million tons of waste are discharged into the world's rivers, lakes, and aquifers every day

83% decline in abundance of freshwater species since 1970

Water Challenge and WBG Strategy

Water for People

2.2 billion lack clean drinking water, **3.5 billion** without safe sanitation

Water for Food

Only 6 % of farmland in Africa is irrigated; water saving, adaptive agriculture

Water for Planet

4 billion people live in water-scarce areas, with billions vulnerable to floods and droughts

Scale Up and Amplify Impact to reach 10% of water insecure people by 2030

[# M people] with access to safely managed drinking water, sanitation, and hygiene

[# M people] with new/improved irrigation and drainage services

[# M people] with flood, drought, and dam failure protection

Resource Inefficiency and Undervaluation

Limited Private Sector Participation

Complex Implementation

- Major investment needed: current spending about \$0.164 trillion/ year, yet > \$1 trillion/ year needed for water SDGs by 2030
- Inefficient resource use: water underpriced; subsidies not benefiting the poorest; weak performance incentives; lots of leakage
- Political-economy difficult: weak policy and institutional frameworks for water sector; lack of basin water sharing agreements;
- Reduce, Recycle and Reuse
- Private sector participation
- Hybrid and innovative financing
- Sustainable irrigation:nourish and flourish
- Scaling farmers' access to tech, credits
- Water productivity benchmarking

- Basin approaches to water management
- Healthy rivers for sustainable water
- Scaling up water storage and hydropower

WBG Implementation Plan: Guarantees, Risk-sharing facilities, Non-sovereign (municipal) borrowing

Enhancing climate adaptation and resilience, exploring more opportunities for mitigation, and tapping climate finance

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Sector-Wide sanss

What is holding the sector back?

Water for People

Water for Food

Water for Planet

- Fragmentation of responsibilities across multiple agencies and weak policy, institutional, and regulatory frameworks
- Limited management of resource, with worsening water quality and increasing conflict over availability
- Sector financially unsustainable, with water underpriced and unable to cover costs or finance needed investments
- Gap between current spending in water (\$0.164 trillion/ year) and financing needs (> \$1 trillion/ year for water SDGs by 2030)
- Existing subsidies poorly allocated and do not benefit the poor or incentivize performance

Resource Inefficiency and Undervaluation

Inefficient utilities, poor quality, limited cost recovery, high losses

Limited wastewater treatment

- Irrigation used for social protection, with lower productivity
- **Lack of regulation** to drive reform and efficiency
- Inadequate results measurement and tariffs and reuse
- Lack of regulation to control river pollution & degradation
- Groundwater overuse / underuse
- Poor allocation and misuse

Limited Private Sector Participation

- Water viewed as a social good
- Limited bankable projects and creditworthy utilities
- Limited business case for 0&M, service delivery
- Lack of smallholder access to markets, tech, credit
- **Limited investment** in storage, flood-drought protection

- Poor coordination, limited capacity
- Lack of community engagement

- **Complex Implementation**
- **Irrigation operators lack customer-centric** approach and accountability towards farmers
- Lack of political leadership and cross-sector engagement



SECTION II: Strategic Objectives

Measuring impact and scale across three strategic objectives to achieve water security

Strategic Objective

Outcomes (Corporate Scorecard)

Progress Results Indicators* (TBD in implementation plan)

Water for People

1 Accelerate universal access to water and sanitation, and hygiene

 Millions of people provided with water, sanitation, and/or hygiene (of which % is safely managed)

 Millions of people receiving quality health, nutrition, and population services [# million people] with access to water,
[# million people] with access to sanitation,
[# million people] with access to hygiene

Water for Food

2 Enhance food production and smallholder livelihoods

- Millions of people with strengthened food and nutrition security
- Net GHG emissions per year†

Water for Planet

Reduce water-related risks and sustainably manage water

- Millions of hectares of terrestrial and aquatic areas under enhanced conservation and management
- Millions of people with enhanced resilience to climate risks

^{*}Progress results indicators can be mapped to the corporate scorecard indicators through the respective standard sub-indicators, or as custom indicators. †Net GHG emissions per year will be measured across all strategic objectives as applicable

Strategic Objective 1: Scale up and speed up universal access to water, sanitation, and hygiene

Reforming Water Pricing

- Move towards cost-reflective tariffs
- Targeted subsidies to benefit the poor & vulnerable
- Economic regulation for setting and enforcement of tariffs and service standards for utilities and service providers

Strengthening **Capacity**

 Public sector capacity building across levels of government, e.g., South-South and North-South exchange; Singapore Water Center and with private sector participation

Accelerating
Utility/Service
Provider
Reforms

- Policy, institutional, and regulatory reforms for access, efficiency, recycle, and reuse
- Utility turnaround (e.g. loss reduction) to improve creditworthiness

Scaling
Sub-National
Financing

- Support fiscal decentralization with a coordinated approach across WBG
- Support creditworthy municipalities and sub-national utilities raise financing without sovereign quarantees

Enablers

Leveraging **Private Sector**

Participation

- Take on board lessons learnt from successful examples as well as past failures:
 - Ensuring strong sector **governance**
 - Leveraging hybrid solutions (blending public and private capital) to maintain affordability
 - Developing local currency solutions
 - Engaging stakeholders esp community-based organizations to build social acceptance
- Tailor type of private interventions depending on level of maturity of market and subsector (urban vs rural, bulk water vs networks etc.)
- Encourage private participation to bring operating efficiency, financial sustainability, and innovation

Strategic Objective 2:

Enhance food production and smallholder farmers' livelihoods

Improving **Pricing**

 Improving tariff structures through volumetric/non-volumetric pricing, quotas, and other market-based mechanisms

Repurposing subsidies

Enhancing **Performance**

- Instilling accountability, transparency, productivity improvements through AI, remote sensing
- Investing in rehabilitation and modernization of existing systems
- Using performance-based contracts for 0&M & service delivery

Supporting Climate Resilience

- Enhancing irrigation access as a climate risk management strategy
- Reducing methane/GHG emissions
- Improving yield and location to avoid encroachment on critical habitats

Accelerating **Value-**

Added Agri

- Enabling soil fertility, nutrient management, and enforcement of water allocation rules through AI, remote sensing, and advisory
- Facilitating smallholder farmer access to inputs, insurance, tech, information, post harvest infra etc.

Enablers

Private Sector Participation

- De-risking smallholder investments through first loss provisions
- Creating Risk Sharing Facilities (RSF) for equipment providers
- Creating buyers' demand for sustainable production (e.g., certification, traceability)
- Financing irrigation infra/ tech and 0&M improvements, including through PPPs where socio-economically viable
- Using guarantees for infrastructure development (e.g., wastewater reuse for irrigation)
- Fostering new market segments through irrigation service providers

Strategic Objective 3:

Reduce water-related risks and sustainably manage water

Reducing Likelihood and Impact of **Droughts and** Floods

- Supporting early warning systems, hydromet, hazard mapping
- Improve dam safety
- Rehabilitate existing storage
- Enhancing green and grey storage
- Supporting land restoration
- Advancing water secure city-regional water systems in collaboration with urban water utilities/service providers.

Restoring **Rivers** and **Aquifers**

- Supporting catchment, river, and aquifer restoration and protection
- Facilitating river clean up and pollution management: wastewater treatment and reuse
- **Enabling biodiversity protection**

Strengthening **Ecological Outcomes** and **Productivity**

- Basin-level planning, management, including monitoring, allocation, and improved water valuation
- **Institution building** (community organizations to transboundary scales)
- Strengthening laws, regulation, enforcement, joint management bodies

Enablers Encouraging **Private Sector Participation**

- Financing wastewater treatment and re-use (e.g., hybrid PPPs)
- Facilitating disaster risk finance (e.g., sustainability-linked and catastrophe bonds, green securitization, catchment funds, pooled risk facilities, carbon market linkages, and parametric insurance)
- Structuring PPPs for revenue-generating activities (e.g., hydropower generation, navigation)
- Performance-based contracts for equipment providers of early warning and hydromet systems
- Fostering increased application of innovative technology through private sector participation



SECTION III: Enabling Private Sector Participation and Commercial Financing

Private sector participation can bring efficiency, innovation and capital but has faced unique historical challenges in the water sector

Value Added of Private Sector

- Focus on operational efficiency (e.g. reduced water losses, water network and energy efficiency)
- **Innovation:** Digitization, smart metering, Al-driven leak detection, energy-efficient technologies, etc.
- Global expertise and best practices with knowledge transfer thanks to operators active in different countries
- Performance-based management incentivizing continuous improvement in service delivery
- Improving creditworthiness and access to capital:
 Focus on financial sustainability leads to creditworthiness and access to large capital pools.

 Visibility of funds allows for multi-year planning for much-needed sector investments
- Accelerating and scaling investments, complementing public resources

Historical Challenges

Water lags other infrastructure sectors in private sector participation.

Three main reasons:

- 1. Water is a social good, leading to resistance to private sector involvement and affordability concerns. There is public skepticism due to high profile failures. This can further lead to regulatory instability with changes in governments.
- 2. Low tariffs make it challenging to achieve profitable operations or cover investment needs.
- 3. Complex and fragmented regulatory oversight, mostly localized and on multiple fronts (quality, public health, environmental protection, pricing, etc.) leading to complex governance structures

Private sector participation key to achieving WBG's ambition, with Joint IFC-MIGA-WB Implementation Plans as the tool to support country-led reform efforts

Foundational Reforms

Governance

Policies

Institutions

Regulations

Fundina

Pricing

Public Sector Reforms

- Partner with governments committed to ambitious reforms
- Reduce regulatory risk by improving policies, institutions, & regulations at local, national, and basin levels
- Use public resources strategically to crowd in the private sector (e.g., guarantees, contingent financing, etc)
- Improve capital planning; allocation & efficiency of public spending; and resource allocations to reduce inefficiencies
- Move towards cost-reflective tariffs; reallocate subsidies; and improve operations and service provision

Leveraging private sector

Efficiency

Sustainability

Climate Goals

Digital Solutions

Private Expertise & Innovation

- Prioritize **non-retail facing** investments such as bulk water production, wastewater treatment, and efficiency (e.g., non-revenue water)
- Urban water is more suitable to private interventions as few truly scalable commercial models in rural
- For distribution utilities, apply different models depending on local context (management contracts, performance-based contracts, affermage, concessions, privatizations)

Financing with De-Risking

Bankable Projects

Guarantees

PPPs

Risk Sharing

Private Capital

- Focus on **hybrid models combining private & public financing** (e.g., concessional finance, viability gap funding). Strategic use of **guarantees for de-risking**; risk-sharing facilities
- Develop **local currency** solutions where possible
- PPPs to expand access, irrigation, hydropower, and reduce pollution; smallholder access to credit

Scaling up support to municipalities & subnational utilities with a coordinated WBG approach to expand financing without sovereign guarantees

- Urban water & sanitation is a local business delivered mostly at the subnational level (either directly by municipalities or through corporatized utilities)
- Creditworthy municipalities/utilities can shift from central government transfers and concessional funding to commercial borrowing aimed at increase investments to improve delivery of public services

Key Challenges

Limited Fiscal Decentralization...

- Regulatory constraints on utilities and municipal governments' ability to borrow, especially from foreign lenders
- Lack of incentives for commercial borrowing due to reliance on subsidized financing from government
- Affordability concerns with commercial debt financing

... hampers ability to deliver basic services

- Limited macro fiscal space reduces room for investments
- Annual budget cycles make long-term planning difficult
- Limited financial and operational rigor due to sovereign guarantee backstop and lack of transparent standalone financials statements for water operations
- Limited capacity in project preparation and E&S compliance

The Way Forward

Coordinated WBG Approach

- Joint efforts on fiscal decentralization and regulatory reforms
- Joint missions with co-financing. Implement recommendations being developed by the WBG Municipal/Subnational Task Force
- Project preparation facilities, including funding E&S assessments
- Concessional finance to address affordability concerns

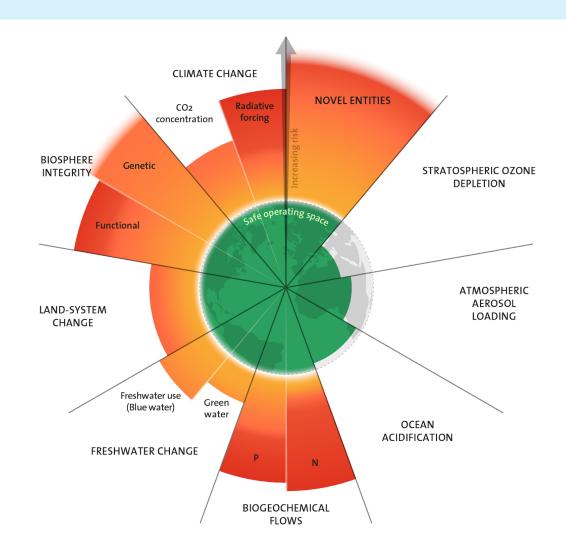
Support Operators based on Performance

- Efficient Operators: Financing directly creditworthy water utilities or municipality without sovereign guarantee
- Inefficient Operators:
 - Technical assistance to improve management, efficiency, and creditworthiness to access capital (including with performance improvement contracts); and/or
 - Bring in private sector/PPPs to improve operations



Annex 1: By changing the water cycle, we are moving beyond the limits of the Earth's adaptive capacity

- The planetary boundaries on water have been transgressed¹ signaling alarming levels of human disturbance of freshwater across the entire water cycle in:²
 - Green water: water available to plants in farms and forests, held in soil.
 - Blue water: Surface water and groundwater; including river regulation and ecosystem integrity.
- River basin, aquifer, and lake restoration and management programs can address many surpassed planetary boundaries in tandem: Freshwater, land system change, biosphere, climate change



¹⁻² Richardson et al., 2023

Key WBG focus areas

Annex 2: Climate resilient irrigation – an overview

Climate resilient irrigation = improved management of rainfed agriculture (green water) better irrigation operation, rainfed conversion to irrigation (blue water) Fully irrigated (blue water) Rainfed (green water) **Conservation agriculture Supplemental irrigation Water harvesting Groundwater and or Surface irrigation Key Stakeholders** Type and scale - Public and Private Led Public sector agencies Farmers Large scale: Multipurpose dams, irrigation dams, canals etc. Smallholders Medium scale: Local storage, check dams, community irrigation schemes Co-operatives Small scale: Distribution infra, field channels, pumps, drip and sprinkler etc. Large holders Both public (government) led and private (farmer) led irrigation schemes operate at Commercial farmers varying scales, and often complement each other towards the objective of increasing Private sector food production **Financiers**

Annex 3: Examples of private sector participation in climate resilient irrigation

Off-farm large and medium-scale irrigation

- Peru: Chancay-Lambayeque irrigation system (CLIS) serves 100,000 ha and provides on demand delivery to 22,000 smallholdings. Irrigation fees recovery rate is high: on average, 80% of the billed fees are paid for
- Morrocco: 30-year build transfer operate (BTO) contract in Guerdane. Distributed contractual risks led to leveraging about US\$36.9 million in investments and US\$10 million in tax revenues
- India: (IBRD) West Bengal Major Irrigation Project: Last mile irrigation service delivery performance-based contracts for private sector irrigation service providers
- Jordan: AS Samra Wastewater Treatment Project, MIGA's political risk insurance helped mobilize US\$205.25 million of total investment, including US\$92.39 million private investment

On-farm small-scale irrigation

- India: Punjab, India: Solar and micro irrigation project for water savings and power generation, 7-year DBOT contract included WUA formation, training, and solar sales to grid and market linkages
- Niger: (IFC) Tapping into US\$1.5 million climate finance for drip irrigation, empowering 900 farmers, of which 60% are women
- Pay-as-you go solar irrigation: various countries- easing the upfront costs of solar installations, providing a more convenient, cheaper alternative to diesel-based pumping.
 E.g., In 2019, SunCulture calculates that they eliminated 4,000 tC02e, added 35,000 tons to annual food production, and USD 7 million to smallholder GDP in Africa
- Kenya: (2030 WRG): Improving access to irrigation (US\$ 1 million) for smallholder farmers using a first loss guarantee
- Morrocco: (IFC) Risk Sharing Facilities (RSF) to scale up farmers' access to photovoltaic and drip irrigation equipment through a US\$36 million loan portfolio
- NBFC and MFIs: Irrigation-specific loan products offered directly to farmers with technical loan officers. E.g., NETAFIM NBFC reached 2.1 million farmers in India on over 4 million hectares in just 5 years, while successfully paying back private equity investors

Annex 4a: Step change needed in how water and its risks are managed

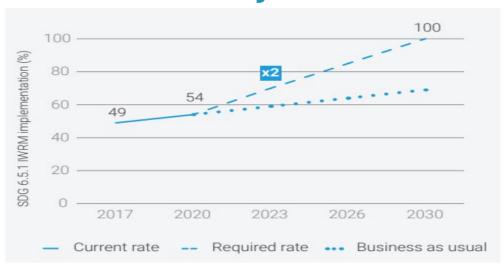
Integrated Water Resources Management (IWRM) -- including River Basin Management - is not improving fast enough

- 87 countries (47 percent) still report "low" or "medium-low" levels of IWRM Implementation
- 107 countries are not making sufficient progress to achieve SDG target 6.5 on sustainable water management
- Rate of IWRM implementation needs to double to meet SDG target.

Key challenges in IWRM

- Lack of coordination
- Insufficient financing
- Weak capacity
- Insufficient monitoring
- Data- and information-sharing outdated or inefficient legal framework
- Lack of appreciation of the value of implementing IWRM

Increased IWRM Needed to Meet SDG Target



Annex 4b: Reduce water-related risks and sustainably manage water

Improved water management is needed to strengthen development outcomes for people, production, and the planet in river basins worldwide by sustainably improving water availability and quality, and reducing disaster-related risks

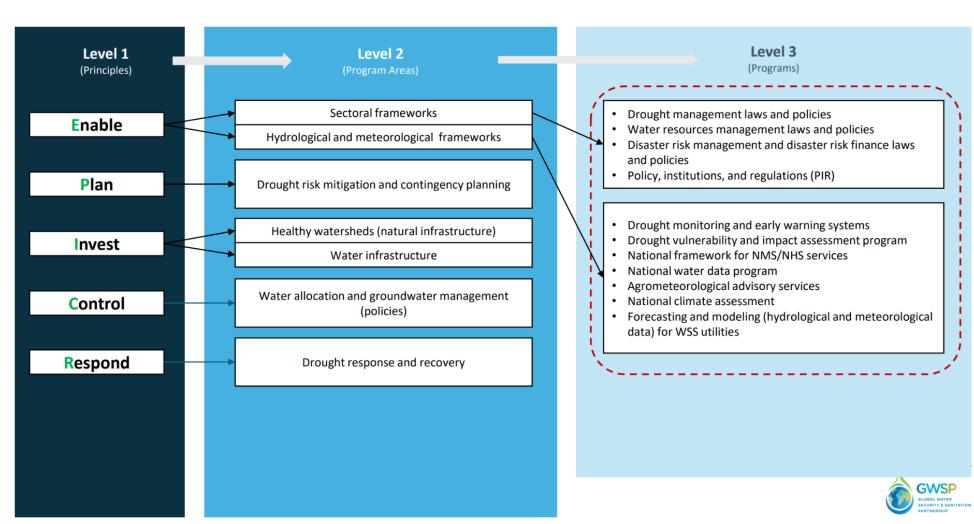
A river, lake, or aquifer basin restoration and management program supports sustainable water use, to build climate resilience and to strengthen integrated management. This encompasses planning, developing, and managing the quantity and quality of water and other natural resources for all users (people and the planet), and to help increase the benefits from the resource (prosperity).

In the context of increased demand, pollution, scarcity and disaster, management requires **institutional reforms**, **information management**, **infrastructure investments** – including nature-based solutions, and multistakeholder platforms.



Annex 4c: World Bank offers a suite of tools to help countries build resilience to water-related risks

Example of
World Bank
Offerings to
Help
Countries
Build Drought
Resilience



Annex 5: Creating the conditions for private sector participation and moving towards a sustainable financing framework

Funding Sources ("3Ts")	Ultimate providers	Challenges	Way Forward
Tariffs	Users	 In most cases, tariffs don't cover operation and maintenance costs, and are rarely sufficient to cover investment needs 	Move towards cost reflective tariffs
Taxes	All tax base in a country	 With current macro-fiscal challenges, little room to increase the 1.2% of government budgets allocated to water sector Billions in subsidies lead to inefficient allocation and use 	 Strengthen government systems and capacity to reduce unspent budget (28%) Redirect & re-allocate existing subsidies to benefit the poor, stop price distortion
Transfers	Foreign Aid	Only 2.5% of Climate Finance (\$31 billion) went to the water sector, even though water is at the forefront of climate adaptation (9 out 10 natural disasters are water related)	Place water at the center of climate adaptation efforts

Annex 6: Guarantee platform to support water sector

Expanding Use of Guarantees to Promote Private and Public Investment

- Leverage new WBG guarantee platform to deliver more and faster to private and country clients
- Use of political risk guarantees (PRI) product to support PPPs and private water projects
- MIGA credit enhancement product (non-honoring of financial obligations) can be used to attract financing from commercial lenders for public water projects
- MIGA trade finance guarantees could be used for purchases of imported goods for water utilities
- Joint engagement with WB/IFC from upstream engagement to jointly developing projects with private participation

Innovations to Support Projects (1) with High Risks, (2) at Sub-Sovereign Level, and (3) with Water Utilities

- Deploy private sector window (PSW)/ MIGA Guarantee
 Facility to support projects in high risk and low-income countries
- Support more projects at sub-sovereign level (including supporting creditworthy water utilities and municipality without sovereign guarantees)
- Work with WB, IFC, other donors, and private sector to develop and support more blended finance projects
- MIGA guarantees to cover performance-based contract/affermage contract to improve water utilities' creditworthiness and water sector's performance
- Strong pre-claim management, in case projects encounter problems and investment disputes with the governments during implementation

Annex 7: Example of Joint IFC-WB-MIGA Implementation Plan: Senegal Water Security 2034

Wastewater Treatment Plant PPP (Eastern Dakar)

IPF PHASE 1

Scale up WWTP from [15]k to [39]k m3/day through PPP (private capital mobilization (PCM) ~\$60m)

- Joint WB-IFC dialogue with GoS-ONAS to inform PISEA preparation. Project approved in June 2024
- WB: to fund prep. studies, gap funding, partial risk guarantee (TBD)
- IFC CTA: requested by GoS to support structuring and tendering the PPP (Scaling ReWater)
- If deemed feasible & GoS endorses:
 - IFC Investment: Debt financing/ syndication, upstream engagement
 - MIGA: Political risk insurance

Water Transfer & Treatment PPP (Lac de Guiers-Dakar)

IPF PHASE 1/2/3/4

Large-scale (>1m m3/day) inter-basin water transfer and treatment PPP to meet water demand and irrigation out to 2050+ (PCM > \$1b)

- If PPP deemed feasible and GoS endorses:
 - WB: PISEA to fund prep. studies, trans. advisory, viability gap funding, partial risk guarantee (tbd)
- IFC CTA: support GoS in structuring and tendering PPP
- IFC Investment: Debt financing/ syndication, potential for upstream engagement
- MIGA: Political risk insurance

Non-Revenue Water (NRW)
Reduction Capex

TBD

Explore the evolution of SEN'EAU's affermage contract to integrate large-scale investments in network rehabilitation and NRW reduction

- New WBG proposal to be discussed with the GoS during PISEA pre-appraisal mission in March 2024, as well as with Suez in due course
- Potential for suite of WBG products;
- Technical assistance (WB)
- Transaction advisory services (IFC CTA)
- Corporate loans to SEN'EAU (IFC Investment),
- Political Risk Insurance (MIGA, provided water quality issues addressed)

Annex 8: 2030 Water Resources Group – supporting innovations and partnerships for scalable impact



4. Enabling scale

3. Supporting implementation

2. Facilitating country platforms

1. Providing evidence for decision-making

Scale up of impact through alignment with World Bank lending operations and World Economic Forum convening

Design of scalable solutions at the **interface of technology, markets,** and financing

Structured platforms to translate stakeholder priorities into impact

Tailored upstream assessments supporting public-private collaboration at the country level

Country Platforms and Select Innovations Chaired by government Government Co-chair from private sector and/or civil society Country Cross-sectoral, bringing together stakeholders **Platform** from water, climate, agri, urban, finance, rural, environment etc. **Private** Civil Sector, **Society** including Balanced participation financiers (no single stakeholder type with majority)

Select Innovations Emerging from 2030 WRG Country Platforms

- PPPs for Municipal Wastewater Treatment and Reuse in the Ganga Basin through a new Hybrid Annuity Model
- East Africa Irrigation Financing Facility
- Mongolia Water Pollution Fee Law, supporting investments in wastewater treatment and reuse
- Launch of a **Digital Platform for Micro-Irrigation** in Uttar Pradesh, India
- Conceptualization of Wastewater Reuse Certificates as a tradeable permit mechanism

About the Global Department for Water

The World Bank Group's Global Department for Water brings together financing, knowledge, and implementation in one platform. By combining the Bank's global knowledge with country investments, this model generates more firepower for transformational solutions to help countries grow sustainably.

Please visit us at www.worldbank.org/water or follow us on X: <u>@WorldBankWater</u>.

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