

2026 United Nations Water Conference

Interactive Dialogue 1: Water for People

Concept Paper

I. Introduction

Water is fundamental to life and essential for health. Access to safe drinking water, adequate sanitation and personal hygiene (WASH) is not only a cornerstone of human health, dignity and well-being, but is also recognized under international law as a fundamental human right. Ensuring that everyone, irrespective of identity, location or circumstance, has access to sustainably managed WASH services is a prerequisite for building inclusive, resilient and prosperous societies. This right is central to the 2030 Agenda for Sustainable Development, particularly Targets 6.1 and 6.2. The Water Action Agenda, an outcome of the 2023 United Nations Water Conference, has brought new momentum to global water governance and reinforced political commitment to the realization of water-related rights.

Since the 2023 UN Water Conference, global progress has been made in policy commitments, data collection and coverage in certain service areas. Furthermore, a number of countries and regions have demonstrated scalable success through institutional innovation, major infrastructure investments, strengthened local governance, and digital management, offering replicable models for other contexts.

Nonetheless, the world remains significantly off track to achieve universal and equitable access to WASH services by 2030. Hundreds of millions of people, especially the poorest and most marginalized, are still excluded from basic services. Emerging and intensifying risks- including climate change, conflict and displacement, rapid urbanization, global public health crises and increasingly complex forms of water pollution- exacerbate existing inequalities, threaten hard-won gains, and further hinder service access for the most vulnerable populations.

This interactive dialogue, “Water for People”, will explore how human-rights principles can be translated into concrete actions to remove barriers to WASH access. The Dialogue will pay special attention to the needs and rights of vulnerable groups- including women and girls, children, persons with disabilities, indigenous peoples, refugees and displaced persons, and residents of informal urban settlements and remote rural communities. It will seek to catalyze renewed action by sharing experience, disseminating innovative solutions, and strengthening partnerships to accelerate the realization of the human rights to water and sanitation, thereby laying the foundation for healthier societies and stronger economies.

II. Status and Trends

In recent years, the world has made some progress in expanding access to water, sanitation and hygiene (WASH) services, yet current trajectories remain insufficient to achieve Sustainable Development Goal 6 by 2030. The Joint Monitoring Programme (JMP) for Water Supply, Sanitation and Hygiene (2000–2024) reports that, as of 2024, approximately 74 per cent of the global population had access to “safely managed” drinking-water services; nevertheless, an estimated 2.1 billion people remained without such services. Further disaggregation indicates that of these 2.1 billion people, about 1.4 billion relied on “basic” drinking-water services, 287 million on “limited” services, some 302 million on unimproved sources, and roughly 106 million continued to depend on untreated surface water. In sanitation, only about 58 per cent of the global population had access to safely managed services in 2024, leaving approximately 3.4 billion people without such services, including around 354 million people practicing open defecation. The JMP also indicates that, at current rates of progress, achieving SDG 6.1 will require a significant acceleration, with the current rate of progress needing to increase roughly eightfold. These authoritative data underscore the significant gap between coverage gains and the attainment of quality, sustainably managed services.

Inequalities between regions and groups are particularly stark. Rural areas, least developed countries, small island developing States and rapidly burgeoning informal urban settlements lag significantly behind global averages. While overall urban coverage is rising, the absolute number of people who are unserved or underserved is actually increasing in some areas due to rapid urbanization and population growth. This highlights that 'increased coverage' does not always equate to 'universal access'. Vulnerable groups, including women, children, persons with disabilities, indigenous peoples, refugees, and displaced persons, are disproportionately affected in terms of access, safety, privacy, and dignity related to WASH services [1, 2].

Inadequacies in service quality have become a core issue requiring urgent attention. Many water and sanitation facilities counted as “covered” do not meet “safely managed” standards. Widespread problems include contaminated water sources, intermittent supply, insufficient water quality monitoring, and the unsafe disposal of excreta and sludge, all of which pose persistent health risks and environmental burdens. Furthermore, a significant number of key public institutions, such as healthcare facilities and schools, still lack basic WASH services, compromising the quality of health services, disease control efforts, and the safety of children's education .

Environmental and climatic factors pose a growing challenge to WASH services. Climate change—manifesting as droughts, floods, glacial retreat, and sea-level rise—not only alters the spatiotemporal distribution of water resources but also leads to the salinization of water sources, deterioration of water quality, and frequent damage to infrastructure. Extreme weather events increase the risk of water supply disruptions and sewage overflows. At the same time, pollution from industrial and agricultural sources, along with the spread of emerging contaminants like pharmaceutical residues and microplastics, is driving up the cost and technical

complexity of water treatment, presenting new challenges to water security [2,4].

The combined pressures of urbanization, the expansion of informal settlements, and insufficient local governance capacity are mounting. In many cities, particularly in developing countries, the influx of new residents is outpacing the financial, planning, and service-expansion capacities of local governments, leaving informal communities in a prolonged service vacuum. In most cities, sewage collection and treatment systems fail to cover all sources. Moreover, on-site sanitation facilities, such as septic tanks, often release large volumes of untreated wastewater due to improper design, operation, or maintenance, consequently polluting the environment and drinking water sources [5].

Regarding governance and financing, while many countries have integrated WASH into their policy frameworks, there is often a disconnect along the policy-planning-budgeting-implementation chain. Many nations lack costed national financing and funding strategies. Public finances are limited, and shifting established spending priorities and inertia is difficult. Insufficient long-term investment in operations and maintenance means that existing infrastructure often fails to deliver sustained benefits. Although international aid and private sector participation are increasing, designing financing models that are inclusive, sustainable, and protective of the interests of the poorest populations remains a significant challenge [2,6,7].

Although monitoring systems and data capacities have improved, critical gaps continue to constrain decision-making: disaggregated data by sex, age, disability and settlement type (formal/informal) are insufficient; routine monitoring of WASH in health-care facilities and schools has not been fully institutionalized; and continuous environmental monitoring of wastewater and water quality remains weak in many countries. These data gaps impede the identification of the most vulnerable groups, the precise targeting of resources, and the robust evaluation of policy effectiveness [1,2].

Concurrently, technological advances and innovative governance approaches provide new opportunities to narrow these gaps. Digitalization and smart water management, affordable and context-appropriate technologies, decentralized and nature-based solutions, and hybrid management models that combine community leadership with professionalized service delivery have shown feasibility and cost-effectiveness in a number of countries and cities. Some countries, through large-scale investment, cross-sector coordination, information management, and institutional reform, have materially improved coverage and service reliability, offering replicable pathways for other nations [5,6].

In sum, the global WASH landscape is characterized by: rising coverage in name, coupled with persistent deficits in service quality and inclusiveness; pronounced regional and social inequalities; increasing climate and pollution risks; and clear financing and governance constraints. To achieve universal access to safe and affordable drinking water and sanitation by 2030, the focus must shift from merely expanding coverage to improving service quality and inclusiveness; from one-off projects to institutionalized, long-term investment and governance capacity building. Crucially, protecting the rights of vulnerable groups must be placed at the

core of all policy and financing decisions.

III. Challenges and Emerging Issues

Building on observations and assessments since the 2023 UN Water Conference, this section highlights key challenges and emerging issues that have emerged or intensified in the pursuit of the “Water for People” objective, analyses their systemic root causes and outlines their linkages with other SDGs. The challenges are multi-dimensional, interdependent, and have transboundary and long-term impacts. Addressing them requires comprehensive, systemic, and operationally robust strategies that go beyond policymaking and priority-setting alone.

1. Social Governance: Disconnects in the Policy-Planning-Budgeting-Implementation Chain

Many countries have adopted policies and targets, yet the conversion of commitments into actionable plans, budget allocations and sustained implementation frequently falters. Causes include unclear institutional mandates, weak fiscal transfer and performance-based mechanisms, limited local planning and contract management capacity, and fragmented sector governance. The result is premature infrastructure obsolescence, inadequate operations and maintenance funding, and exclusion of informal settlements and other marginalized communities from durable service delivery. Weak accountability and remedy mechanisms further limit recourse for affected groups and reduce public trust.

2. Climate change: Exacerbating Risks and Demanding Enhanced Resilience and Resilience Deficits

Climate change is altering water availability and quality through droughts, shifting rainfall patterns, extreme floods, glacier retreat and sea-level rise, thereby escalating supply variability and infrastructure vulnerability. Extreme events are increasing both frequency and severity, causing recurrent service disruptions and accelerating asset deterioration. Vulnerable communities bear disproportionate impacts, which aggravates social inequities and health burdens. Addressing these trends requires integrating climate risk assessments into WASH planning, prioritizing adaptive investments, promoting diversified and redundant supply approaches, and leveraging climate finance for resilience-building.

3. Water Source Quality and Technology Adaptation: Constraints from Pollution, Wastewater, and Localization

Safe drinking water depends on the protection of water source quality, adequate treatment and comprehensive wastewater and sludge management. Deficiencies in wastewater treatment coverage, persistent industrial and agricultural pollution and emerging contaminants (pharmaceutical residues, microplastics and other pollutants) are degrading water bodies and complicating treatment. Technology choices often overlook local maintenance capacities and spare-part markets, leading

to premature failures. Strengthening source protection, enhancing industrial effluent control, promoting locally appropriate and maintainable technologies, and developing regional maintenance supply chains are imperative.

4. Vulnerable Groups, Gender Equality, and Women's Rights: Lack of Inclusion and Neglect of Specific Needs

Realizing universal access requires prioritizing vulnerable populations. Women and girls disproportionately shoulder water fetching and domestic hygiene responsibilities, constraining their education and economic participation and increasing their risks to safety and health. Menstrual hygiene needs, privacy and dignity considerations remain inadequately addressed. Persons with disabilities confront physical and information barriers. Displaced persons, refugees and residents of informal settlements face compounded access challenges. Inclusion demands statutory integration of gender-responsive and disability-inclusive design standards into projects and budgets, coupled with social-protection mechanisms (targeted subsidies, fee waivers or cash transfers) to protect affordability for the poorest.

5. Digital Transformation and the Digital Divide: Risks and Inequalities Amidst Opportunity

Digital tools and smart water technologies can improve monitoring, loss detection, operational efficiency and customer service. However, they also bring risks- including data privacy and cybersecurity concerns- and, if rolled out without attention to equity, may exacerbate exclusion. Smaller utilities, remote communities and low-income countries frequently lack the digital infrastructure and skills required to benefit. Investments in digitalization should be accompanied by capacity building, inclusive access strategies and robust data governance to ensure technology enlarges, rather than narrows, equitable participation.

6. International Cooperation: Complexities in Transboundary Governance, Regional Coordination, and the Humanitarian–Development Nexus

Transboundary river basins and cross-border pollution issues require cooperative frameworks for shared monitoring, joint contingency planning and equitable management. In humanitarian settings, emergency WASH provision must be planned and financed to transition into durable, institutionalized services- a linkage often insufficiently addressed. Regional collaboration, multilateral financing and South–South technical cooperation are essential to tackle transboundary challenges and to support capacity building and technology transfer.

7. Financing: Insufficient Scale, Structural Imbalances, and Long-Term Operational Risks

Scaling up to meet SDG 6 will require substantial additional resources and better allocation. Many countries face constrained public finances; while international aid and private investment have increased, gaps remain. Financing models often disproportionately prioritize CAPEX over OPEX, undermining long-term service sustainability. Attracting private finance necessitates predictable regulation,

risk-sharing instruments and social safeguards; marginalized regions will remain dependent on public and concessional support. National strategies should adopt full life-cycle cost accounting, promote blended finance and results-based approaches, and institute performance-linked fiscal transfers to protect affordability and support operations and maintenance.

8. Legal and Regulatory Frameworks: Lagging Standards, Weak Enforcement, and Inadequate Judicial Remedy

Legal and regulatory frameworks in some countries lag behind evolving technical, environmental and human-rights requirements, leading to ambiguous responsibilities, weak enforcement and insufficient access to remedies for excluded populations. To improve the legal system, it is necessary to clearly define the responsibilities of the government, regulators, and service providers, update design and operational standards that align with international norms, establish independent and transparent mechanisms for regulation and judicial remedy, and incorporate rights protection into policy and fiscal accountability systems, so as to promote the equity and sustainability of services through legal means.

These eight challenges outlined above are deeply intertwined and closely linked to climate, health, education, food security, and social stability. Addressing them through isolated technologies or standalone projects will not suffice; instead, systemic integration, fiscal sustainability, capacity-building, and international cooperation must be advanced at a higher level. Specifically, the human right to water and sanitation must be translated into enforceable legal and fiscal arrangements; climate resilience, ecological protection, and wastewater management must be prioritized within WASH investment agendas; digital and performance-driven mechanisms should be leveraged to enhance governance efficiency; targeted measures must close digital divides and counter social exclusion; innovative financing must ensure that both CAPEX and OPEX are covered while safeguarding affordability for the most vulnerable; and cross-sectoral and transboundary collaboration must be strengthened to bridge humanitarian and development efforts. Only a systemic, rights-based, and long-term integrated strategy can secure “water for the people” by 2030.

IV. Solutions

Under the “Water for the People” framework, a human-rights-based, inclusive and resilience-driven approach must guide systemic, evidence-based and replicable action. This section presents a mutually reinforcing package of policy and practice options covering institutions and governance, financing and investment, technology and operations, capacity-building and innovation, and a scalable integrated rural water-supply model, intended for adaptation to diverse national contexts.

All measures should be anchored in the core human-rights principles of availability, affordability, non-discrimination, participation and accountability;

integrate policies and resources through cross-sector, multi-level coordination mechanisms; secure life-cycle financial sustainability for both construction and long-term O&M; and enhance transparency and accountability through strengthened data monitoring and social participation. Climate resilience and environmental protection must be mainstreamed throughout project design, implementation and management, with priority given to the most disadvantaged groups.

1. Institutions and Governance

1) Legal and policy frameworks: Incorporate the human right to water and sanitation into national legal and development frameworks; clarify responsibilities across levels of government for financing, regulation, service delivery and redress; update technical and accessibility standards; and embed these standards in project approval and performance assessment processes.

2) High-level coordination and tiered implementation mechanism: Establish a national WASH coordination committee led by high-level government officials to integrate ministries of finance, health, education, urban-rural planning, social protection, and environment, and formulate cross-sectoral roadmaps. At the local level, implementation and oversight mechanisms aligned with national objectives should be formed, with clear conditions and performance indicators for central-to-local fiscal transfers.

3) Independent regulation and performance accountability: Create or enhance independent regulators to oversee service quality, environmental compliance and tariff policy; introduce periodic third-party evaluations and public reporting and align fiscal incentives with demonstrable performance improvements.

4) Inclusive participation and remedies: Institutionalize participatory mechanisms that ensure representation of women, persons with disabilities, indigenous peoples and displaced populations in planning, implementation and oversight; and establish accessible complaint and remedy channels.

2. Financing and Investment Strategies

1) National financing strategies: Undertake full life-cycle cost assessments to determine CAPEX and OPEX requirements and develop phased financing road maps to secure long-term operations and maintenance.

2) Diversified financing instruments: Mobilize a mix of public finance, concessional finance, climate funds, blended finance and private investment supported by guarantees and results-based arrangements. Prioritize concessional and public funding for underserved areas to protect affordability.

3) Fiscal safeguards and subsidy mechanisms: Design targeted subsidies, cross-subsidy arrangements and maintenance funds to sustain service delivery in poor and remote communities while ensuring fiscal transparency and efficiency.

4) Scale and replication: Standardize technical specifications and procurement,

leverage economies of scale, and use South–South cooperation and multilateral funding to support replication and affordability.

3. Technology and service mode

1) Technology selection guided by demand and the environment: roll out large, centralized water-supply and sewerage systems in urban and densely populated areas, while promoting decentralized, small-scale centralized or point-source treatment in rugged or sparsely populated regions. Give priority to technologies that are easy to maintain, energy-efficient and matched to local water-quality conditions.

2) Prioritize O&M and spare-part supply chains: design the operation-and-maintenance system in parallel with technology selection, establish a parts market and regional service centers, and secure rapid-repair capacity and controllable costs throughout the equipment's life cycle.

3) Digital and intelligent management: roll out remote monitoring, smart metering, GIS and data platforms for leak detection, consumption tracking and maintenance dispatch; digital tools should also serve customer services, billing and transparent reporting, boosting operational efficiency and governance capacity.

4) Safe wastewater and sludge management: Establish wastewater treatment pathways suited to both urban and rural contexts, promote the balanced development of sewer networks and on-site treatment systems, and strengthen the governance and discharge oversight of industrial wastewater to reduce environmental and health risks.

4. Capacity Building and Professionalization

1) Vocational training and certification systems: Establish multi-level training and professional certification systems covering operations, maintenance, regulation, and planning to develop a skilled workforce of technicians, engineers, and regulators.

2) Professionalized service delivery: Support the development of public utilities, regional operational entities, and qualified private operators to promote professionalism and financial sustainability in service provision. For small-scale, remote water supply units, promote regionalized or multi-village consolidated operational models to achieve economies of scale and technical support.

3) Enhancing grassroots management capacity: Provide capacity building for local governments and community organizations in financial management, procurement, contract management, and social participation to ensure the sustained effectiveness of funds and projects.

5. Innovation, Knowledge Sharing, and Technology Diffusion

1) Encouraging technological innovation and piloting: Support the testing and validation of new technologies, business models, and service innovations. Establish national or regional innovation funds to finance demonstration projects and distill replicable models through rigorous monitoring and evaluation.

2) Knowledge-sharing platforms and South-South cooperation: Promote proven models and standardized toolkits through multilateral institutions, regional cooperation mechanisms, and bilateral technical cooperation to facilitate technology transfer and human resource development.

3) Synergy between the private sector and civil society: While safeguarding the public interest, leverage the technical and managerial strengths of private enterprises and mobilize civil society organizations to enhance community engagement and education campaigns for behavior changes.

6. Replicable Practice: An Implementation Pathway for Rural Drinking Water Security

China has built the world's largest rural centralized water-supply system by population served, becoming the country that has most drastically improved rural drinking-water conditions. By the end of 2025, tap-water coverage in rural China is expected to reach 96%. The country's successful experience in securing rural drinking-water safety shows that stand-alone infrastructure is not enough; institutional design, engineering standardization, long-term O&M and digital oversight must operate in concert. This pathway can be summarized as an integrated “four-in-one” system — institutional guarantee, engineering guarantee, operational guarantee and information-based supervision—whose core elements are as follows.

1) Institutional Guarantee (Top-Level Design and Fiscal Policy):

① Integrate rural drinking water security into national development and poverty alleviation assessment frameworks, clarifying the responsibilities of all levels of government. Support construction and O&M in weaker regions through dedicated central or provincial fiscal transfers.

② Implement preferential policies to reduce project costs and incentivize investment, such as prioritizing land use for rural water supply, offering preferential electricity tariffs, and providing tax relief or subsidies for projects facing operational difficulties.

2) Engineering Guarantee (Standardization and Scale):

① Promote standardized construction, quality supervision, and disaster-resilient design. Where feasible, advance the integration of urban-rural water supply and large-scale projects, leveraging backbone water sources and urban networks. In dispersed areas, upgrade small-scale, standardized water supply projects.

② Implement phased renewal plans for aging pipe networks, water plants, and sources, prioritizing the protection and enhancement of key drinking water sources to guarantee water quality from the source.

3) Operational Guarantee (Professionalization and Long-Term Maintenance):

- ① Establish O&M systems centered on regionalized operations or township-level professional management. Ensure the sustainability of O&M funding through a combination of contract management, performance assessments, and appropriate user fees (complemented by subsidies).
- ② Promote settlement and repair funds for small-scale supply units, as well as cooperative financing models with commercial banks to support equipment renewal and rapid response to failures.

4) Information Monitoring and Supervision (Digital Registries and Performance Monitoring):

- ① Create national or regional digital registries for rural water supply projects, documenting basic information, operational status, maintenance records, and water usage data. Integrate key indicators like water quality and supply continuity into a regular monitoring system via remote sensing or periodic sampling.
- ② Link information disclosure with service performance, using it as a basis for fiscal subsidies, performance-based disbursements, and accountability to create a closed-loop management system.

5) Points for Promotion and Internationalization:

The integrated approach outlined above has already proven effective in scaling up successful rural water-supply experiences in several countries and regions. China, for example, actively shares its domestic know-how within sub-regional initiatives. The six Lancang-Mekong countries have jointly developed the project pool named “Lancang-Mekong Water Benefits for People” and are urged to broaden financing channels to support concrete cooperation projects and related activities. Hosted under the Lancang-Mekong Cooperation framework, the program aims—through joint work on water-resources management and hydraulic infrastructure—to improve people’s access to water and their disaster-prevention capacity across the basin, advance sustainable development and deliver win-win regional outcomes. Within this mechanism, the six riparian states pursue practical cooperation that upgrades livelihoods; China, in particular, has shared its experience in securing resilient access to clean drinking water with Cambodia, Laos, Myanmar and others, and has supported local construction and sustainable O&M of rural water-supply schemes. These efforts jointly foster regional prosperity and contribute to the attainment of SDG 6.

When replicating and internationalizing this model, top-level policy backing and fiscal support, engineering standardization at scale, specialized long-term O&M, and digital oversight should be applied to raise coverage and service reliability. Replication must stress simultaneous localization, fiscal-feasibility assessment and

capacity-building, and should use regional demonstrations, South-South cooperation and multilateral financing to help resource-constrained countries design and implement comparable integrated packages.

7. Humanitarian and Connecting the Development Pathway

In conflict- or disaster-affected scenarios, emergency WASH response and the restoration of long-term services must be planned together: while meeting immediate water needs, design mechanisms for infrastructure repair and hand-over to permanent O&M, and establish technical standards and financing channels that can be activated for post-disaster reconstruction. The UN system and aid agencies should tighten coordination with national authorities, steer humanitarian funds toward long-term capacity-building and infrastructure recovery, and forge a seamless “emergency–recovery–development” pathway.

8. Monitoring, Evaluation, and Feedback Mechanisms

Establish a trackable indicator framework, including coverage rates (disaggregated by sex, age, and disability), proportion of safely managed services, supply continuity, water quality compliance, O&M cost recovery, and benefit rates for vulnerable groups. Implement periodic, evidence-based evaluations and use the findings to adjust policies and funding allocations. Encourage third-party and civil society oversight to enhance transparency and public trust.

9. Partnerships and International Cooperation

Advancing these solutions requires multi-level partnerships: national governments for policy and financial assurance; local authorities for implementation and regulation; the private sector for technical and operational capacity; civil society organizations for community mobilization and oversight; and multilateral development banks and UN agencies for technical assistance and financing support. Experience and technology can be disseminated through South-South cooperation, regional platforms, and multilateral channels to jointly advance inclusive and sustainable "Water for People" action.

Achieving safe and dignified water and sanitation for all requires a foundation of robust institutions, supported by financial security, enabled by technology and operations, and assured by inclusivity and data-driven approaches. The systemic solutions outlined above, which integrate policy, engineering, operations, and digital supervision and draw on replicable comprehensive models, offer a pragmatic and viable path for countries to achieve SDG 6. Through international cooperation and local implementation, we can accelerate progress towards the goal of leaving no one behind.

V. Recommendations and conclusions

Achieving “Water for people” is not only a basic human-rights and

public-health imperative, but also a cornerstone of sustainable development, social equity and inclusive economic growth. Countries should therefore adopt a systemic, rights-based and actionable policy package that delivers coordinated moves in five inter-locking areas—governance, financing, technology, capacity and partnerships. The recommendations below are intended to give national and local governments, development partners and the private sector clear policy direction and trackable pathways so that, by 2030, every person can access safe, affordable and dignified water and sanitation services.

1.Translate the right to water and sanitation into actionable legal and policy frameworks:

1) Codify the rights to drinking water and sanitation explicitly within national laws and development strategies, using this foundation to design fiscal allocation and accountability mechanisms. Policies and legislation must clearly define the responsibilities of all levels of government in financing, provision, regulation, and remedy, ensuring the priority rights and access of vulnerable groups.

2) Integrate rural water security and WASH in schools and healthcare facilities into national performance assessment frameworks and budgeting processes. This will help channel fiscal resources toward priority areas for achieving safely managed services. As demonstrated by several countries, including water security in poverty alleviation or rural revitalization assessments creates strong political momentum and ensures long-term investment.

Establish accessible remedy and grievance mechanisms to safeguard the rights of excluded or underserved populations, thereby enhancing the accessibility and credibility of the system.

2.Strengthen cross-sector governance and local implementation capacity:

1) Establish or strengthen high-level, government-led inter-sectoral coordination mechanisms for WASH to align the policies and resources of ministries responsible for health, finance, education, urban planning, environment, and social protection. This should include developing a cross-sectoral roadmap with phased targets and clearly assigned responsibilities.

2) Clarify the division of responsibilities between central and local governments in financing, regulation, and service delivery. Optimize fiscal transfer and performance-linked mechanisms to ensure local governments have stable financial and technical support when undertaking service expansion and O&M responsibilities.

3) Promote regulatory reform by establishing independent or functionally distinct regulatory bodies to oversee service quality, tariff setting, and environmental compliance. Promote third-party evaluations and regular public reporting to enhance transparency and accountability.

3. Build a sustainable, diversified and mainly inclusive financing system.:

1) Develop national WASH financing strategies based on full life-cycle costing (CAPEX and OPEX) to prioritize investments. Integrate long-term O&M funding into regular fiscal arrangements to avoid the "build-and-abandon" cycle.

2) Mobilize diverse funding sources: a foundation of public budgets complemented by development loans, climate and green funds, grants from development partners, impact investments, and risk-shared private capital. For poor regions and vulnerable groups, financing should be primarily public or concessional to ensure affordability.

3) Promote results-based financing and blended finance instruments. Use tools like interest subsidies, guarantees, or initial grants to de-risk projects and attract commercial finance for medium- to long-term infrastructure and regionalized operations.

4) Strengthen project selection, budget execution, and auditing mechanisms. Promote performance-based disbursements to ensure the efficient use of funds and enhance the sustainable impact of external aid.

4. Promote appropriate technologies and service-oriented operations:

1) Adopt context-specific technology pathways based on geography, population distribution, and water resource conditions. Prioritize large-scale, centralized systems in urban and high-density areas, while promoting standardized small-scale, decentralized, or point-of-use treatment and purification technologies in remote and dispersed regions, with an emphasis on low maintenance, local operational capacity, and readily available spare parts.

2) Encourage regionalized or multi-village consolidated operational models to achieve economies of scale and professionalized services, enhancing the technical support and financial sustainability of smaller supply units. Community-managed models should be paired with professional technical assistance and long-term financial arrangements.

3) Promote digital water management: establish asset registries, remote monitoring systems, water quality and operational data platforms, and public performance dashboards to support decision-making, fault prediction, and fiscal disbursements. Digital applications must be paired with capacity building and robust data governance to prevent a digital divide and mitigate security risks.

4) Strengthen the safe management of wastewater and fecal sludge. Promote a dual approach of sewerage and on-site sanitation, enforce strict industrial discharge regulations, and enhance environmental and health co-benefits through resource recovery and reuse.

5. Strengthen capacity-building, professionalization and local maintenance systems.

1) Establish regular training and professional certification systems for O&M

personnel, regulators, and community managers to improve service stability and technical proficiency.

2) Protect the health and labor rights of frontline workers. Promote the professionalization and formalization of the sanitation and maintenance workforce to enhance the sector's attractiveness and service continuity.

3) Incorporate long-term O&M funding and maintenance plans from the project design stage. Establish repair funds or annual operational assurance mechanisms to ensure the sustainable operation of facilities throughout their life cycle.

6. Inclusive design for vulnerable groups and its connection with social protection.

1) Develop and enforce gender- and disability-responsive design standards for WASH facilities to ensure that schools, healthcare centers, public spaces, and households meet needs for privacy, safety, menstrual health, and accessibility.

2) Integrate WASH into social protection and poverty alleviation systems. Use targeted subsidies, fee waivers, or cash transfers to ensure affordability for the poorest households and prevent service costs from becoming a barrier to access.

3) Pay special attention to the long-term service access for displaced persons, refugees, and residents of informal settlements, establishing mechanisms to transition from emergency water provision to regularized services.

7. Enhance the integration of climate adaptation, environmental protection, and nature-based solutions.

1) Systematically integrate climate risk assessments and adaptation design into all WASH investments and planning. Prioritize source water protection, enhance the redundancy of supply systems, and adopt multi-source water strategies.

2) Promote nature-based solutions (e.g., constructed wetlands, ecological source water protection, stormwater management) to improve system resilience, reduce operational costs, and protect ecosystem services.

3) Mobilize climate finance to support adaptation investments in the WASH sector, particularly for the retrofitting and maintenance of long-life infrastructure in the most vulnerable countries and regions.

8. Improve Data, Monitoring, and Accountability Systems for Evidence-Based Policy Adjustment

1) Establish WASH monitoring systems disaggregated by sex, age, disability, and settlement type (formal/informal), covering households, schools, healthcare facilities, and public spaces, as well as environmental monitoring of wastewater and water quality.

2) Develop a set of trackable core indicators (e.g., coverage, service quality, affordability, O&M sustainability, benefit rates for vulnerable groups) and link performance results to fiscal disbursements, regulatory assessments, and public information disclosure.

3) Encourage and institutionalize third-party evaluations and social oversight. Utilize citizen science and civil society participation to expand monitoring coverage and enhance transparency and public trust.

9. Strengthen the Humanitarian-Development Nexus and Long-Term Service Assurance in Fragile Contexts

1) In conflict and disaster settings, ensure that emergency WASH responses incorporate elements of long-term rehabilitation, capacity building, and institutional transition to avoid creating long-term dependency on temporary solutions.

2) Establish financing and implementation mechanisms for the emergency-recovery-development nexus to facilitate a smooth transition from humanitarian aid to the construction and maintenance of national and local long-term service systems.

10. Foster Partnerships, Knowledge Sharing, and the Scaling-Up of Replicable Practices

1) Leverage multilateral development banks, the UN system, and regional organizations to promote South-South cooperation and technology transfer. This includes advancing replicable integrated practices, such as incorporating rural water security into national development assessments, promoting engineering standardization, and establishing regional O&M with digital registries.

2) Distill replicable policy toolkits and technical norms through demonstration projects, regional training centers, and knowledge-sharing platforms to support resource-limited countries in implementing appropriate solutions adapted to local conditions.

3) Encourage the private sector to provide technical and operational solutions within a framework that safeguards public interest and regulatory compliance, while using contractual clauses to protect the service rights of vulnerable groups.

In short, turning “water for the people” into reality demands a durable alignment of elevated political commitment, institutionalized governance, predictable financing and sustained capacity investment. Experience shows that stand-alone infrastructure may boost coverage briefly, but only by embedding the right to water in law and accountability systems, locking O&M into long-term budgets, advancing technology hand-in-hand with digital oversight, and keeping access for the most vulnerable at the center of every action can services expand sustainably and inclusively. Against the compound risks of climate change, pollution and urbanization, resilience and ecological protection must be non-negotiable pillars of all WASH interventions. Global and regional partners must scale up cooperation—through

finance, technology and knowledge—to help the most fragile countries build rights-based, institutionally sound, financially viable and context-appropriate WASH systems. Only then will the promise of “water and sanitation for all” become a shared reality by 2030, fully delivering on the pledge to leave no one behind.

VI. Guiding questions for the interactive dialogue

To guide deliberations, the following questions are recommended for plenary and breakout discussions, with suggested agencies and stakeholders invited to contribute.

1. Core discussion questions

1) Rights into practice: How can States most effectively translate the human right to water and sanitation into enforceable laws, budgets and accountability mechanisms? Which instruments best ensure that persons in vulnerable situations are prioritized in decision-making and implementation? (Invite OHCHR, WHO, UNICEF for elaboration.)

2) Data and monitoring: How can gaps in disaggregated data for vulnerable groups be rapidly addressed and integrated into budgeting and investment decisions? Which low-cost monitoring technologies and citizen-engagement models show promise? (Invite UN-Water, JMP, World Bank and national statistical offices.)

3) Financing and affordability: How can fiscal and tariff policies be designed to ensure operational sustainability while remaining affordable for vulnerable groups, without sacrificing universal access? What innovative financing instruments can unlock significant funds in the short term? (Invite World Bank, regional development banks, GCF and private investors.)

4) Climate and resilience: Under compound climate risks, which technical and policy priorities best protect services for vulnerable communities? How can climate finance be more effectively mobilized for WASH? (Invite UNDP, IPCC authors and climate fund representatives.)

5) Urban and informal settlements: What legal and planning reforms can remove institutional barriers to WASH access in informal urban settlements? Which incremental upgrading or phased expansion approaches are most scalable? (Invite UN-Habitat, municipal representatives and civil society.)

6) Humanitarian–development nexus: How can emergency WASH interventions be designed to lay foundations for durable, institutionalized services? (Invite UNHCR, OCHA, IFRC.)

7) Technology and maintainability: Which technologies and operational models are most sustainable in remote and resource-constrained settings? How can local maintenance and spare-parts systems be established? (Invite WHO, UNICEF,

technical institutes and universities.)

2. Suggested participants

1) UN system entities, such as WHO, UNICEF, UN-Water, UN-Habitat, UNDP, OHCHR, UNHCR, OCHA);

2) Representatives of international finance and development institutions, such as the World Bank, the Asian Development Bank, the African Development Bank, regional development banks, the Global Environment Facility (GEF), and the Green Climate Fund (GCF).

3) Representatives of professional organizations and civil society: WaterAid, IRC, International Water Association (IWA), Global Water Partnership (GWP)

4) Private sector and technology providers: water-utility representatives, international infrastructure investors, digital-water platforms and technology suppliers.

5) Representatives of national and sub-national governments: ministerial-level delegates from both developing and high-income countries, as well as exemplar urban and rural practitioners.

6) Representatives of academia and research institutions: universities and think tanks with empirical research in WASH, climate adaptation, and public health.

7) Representatives of vulnerable communities: women's organizations, organizations of persons with disabilities, indigenous peoples' representatives, and refugees/internally displaced persons' representatives.

3. Expected outputs and formats

1) Encourage formation of actionable partnership proposals (financing, technical cooperation and capacity building) and follow-up through multilateral platforms.

2) Organize thematic breakout sessions to surface replicable practices and roadmaps, and include a matchmaking segment for commitments and partnership development.

3) Propose a concise “Water for People” call to action or draft roadmap that identifies priority areas and trackable indicators to guide post-2026 follow-up.

References

[1]WHO & UNICEF Joint Monitoring Programme (JMP). Progress on household drinking water,

sanitation and hygiene 2000-2024: special focus on inequalities. Geneva: World Health Organization and UNICEF; 2025

[2]UN-Water.SDG6 Synthesis Reports and UN-Water analytical products; Global analyses and policy brief son water and sanitation equity and SDG6 progress.UN-Water resources.<https://www.unwater.org/publications>

[3]WHO&UNICEF.Water,sanitation and hygiene in health care facilities:Global baseline report2019.World Health Organization and UNICEF;2019.<https://www.who.int/publications/i/item/9789241515504>

[4]United Nations Environment Programme(UNEP).A Snap shot of the World's Water Quality:Towards a global assessment.UNEP;2016/2017.
<https://www.unep.org/resources/report/snapshot-worlds-water-quality>

[5]UN-Habitat&World Health Organization.
Progressonwastewatertreatmentandthestateofurbansanitation:SDG6.3.1 globalstatusandacceleration needs.UN-Habitat&WHO;2021.<https://www.unwater.org/publications/progress-on-wastewater-treatment>

[6]World Bank.Financing and governance analyses related to water,sanitation and hygiene;sector reports and country studies.World Bank Group publications.
<https://www.worldbank.org/en/topic/water>

[7]OECD. Financing Water and Sanitation:Issues,instrument sand therole of the private sector. OECD analyses and policy papers.
<https://www.oecd.org/environment/resources/financing-water.htm>

2026 United Nations Water Conference

Interactive Dialogue 2: Water for Prosperity

Concept Paper

I. Introduction

Water is a cornerstone of human survival and prosperity. According to a Worldwide Fund for Nature (WWF) report, the annual economic value of water and freshwater ecosystems reaches approximately US\$58 trillion, equivalent to 60% of global GDP. It supports agricultural, industrial, and domestic water use, directly generating about US\$7.5 trillion in benefits, while contributing an additional US\$50 trillion through "intangible services" such as water purification and climate regulation. As such, water plays an irreplaceable role in sustaining human life, supporting socioeconomic development, and ensuring ecological security.

The United Nations Sustainable Development Goal 6 (SDG 6) explicitly aims to "ensure availability and sustainable management of water and sanitation for all". It encompasses key targets such as access to safe drinking water, universal sanitation, improved water-use efficiency, and protection of water-related ecosystems. Achieving SDG 6 is fundamental to the success of other sustainable development goals. However, water scarcity and the degradation of freshwater ecosystems are undermining progress, leaving billions worldwide without access to clean water and sanitation, and hindering sustainable socioeconomic development.

Efficient water resource utilization lies at the heart of achieving sustainable development goals. Currently, global water resources management faces multiple severe challenges: rapid population growth and urbanization are driving a sharp increase in water demand; climate change is further exacerbating the uneven spatial and temporal distribution of water resources; water pollution and ecological degradation threaten water environment security; and significant issues of high water consumption and low recycling rates persist in certain industries. To address these challenges, it is imperative to strengthen water conservation, improve water-use efficiency, enhance water recycling, promote the integrated management of the water–energy–food nexus, and advance cross-sectoral water governance. These efforts are essential to achieving a global balance between water supply and demand, ensuring the sustainable use of water resources, and fostering worldwide economic prosperity.

II. Status and Trends

Against the backdrop of a deepening global imbalance between water supply and demand, the efficient utilization of water resources has become a critical issue for

sustaining economic and social development, safeguarding ecological security, and promoting regional stability. Approximately 70% of the world's freshwater resources are locked in glaciers and permanent snow cover, with only 0.2% available for direct human use. According to UNESCO's United Nations World Water Development Report 2023, 2 billion people lack access to safe drinking water, 4.6 billion lack safely managed sanitation services, and between 2 and 3 billion people experience water scarcity for at least one month each year. Against this backdrop of water scarcity, significant disparities in water use efficiency exist across sectors and regions. Agriculture, which accounts for 70% of global water withdrawals, shows a pronounced efficiency gap. In developing countries, influenced by traditional irrigation methods, the effective utilization rate of agricultural water generally remains around 40%, far below the 70%-80% seen in developed countries. Industry is undergoing a transformation in water use models driven by circular economy principles. While water recycling rates in developed countries have exceeded 80%, the rate in developing countries remains below 50%.

Faced with growing constraints on conventional water sources, the development and utilization of non-conventional water resources have become a critical strategy for global water security. New-generation nanotech desalination membranes demonstrate significantly higher water permeability compared to traditional membrane materials. Bio-inspired atmospheric water harvesting technology, which uses biomimetic materials to efficiently capture moisture from the air even under low-humidity conditions, offers a decentralized, low-energy solution for water supply in arid regions. While these technological innovations lay the foundation for enhancing water use efficiency, the existence of technical barriers is widening the recycling gap. Many developing countries continue to face "bottleneck" constraints in accessing core technologies.

Research indicates a significant synergistic relationship between efficient water resource utilization and socio-economic development, where effective water management directly bolsters economic growth and social stability. A new global paradigm is emerging that treats water as a core economic factor and guides its allocation through precise valuation mechanisms. A notable international example is Jordan, where agricultural restructuring—shifting from low-value, high-water-consumption crops to high-value alternatives—increased the average economic value of water from 0.40 to 1.10 Jordanian dinars per cubic meter. This policy adjustment not only enhanced water use efficiency but also secured more stable agricultural incomes. Furthermore, economic globalization and trade agreements are profoundly reshaping the spatial distribution of global water resources through virtual water trade. Studies show that economic integration agreements incorporating water management clauses can increase virtual water trade volumes by 42.8%, significantly surpassing the 16.4% growth observed in agreements without such provisions. This mechanism of regulating water resource allocation through trade policy offers a novel instrument for mitigating global water distribution imbalances.

Looking ahead, the growing impacts of climate change will further expose the vulnerability of water resource systems, making the transition from fragmented, quantity-oriented management toward integrated, precision-driven approaches an imperative for global economic prosperity and sustainable development. Building a water governance system that embodies resilience, efficiency, and equity is crucial to

navigate uncertainties intensified by climate change, deepening globalization, and evolving demographic patterns. Such a system should be anchored in three core pillars: systemic thinking that treats river basins as interconnected "water-ecology-food-energy" nexuses and breaks down institutional silos to enable cross-sector and transregional synergies; technology enablement through frontier innovations such as digital twins, artificial intelligence, and advanced materials to achieve precise and intelligent water management; and institutional innovation coupled with collaborative governance, establishing effective multi-level frameworks that incentivize participation from diverse stakeholders, balance competing interests, and span from local to transboundary scales.

III. Challenges and Emerging Issues

3.1 Emerging Challenges Relating to Water Resources Utilization and Socio-Economic Prosperity

Since the 2023 UN Water Conference, the global water sector has faced a series of new challenges that are growing increasingly urgent and complex. Addressing these through collective international action is not only essential to overcome current bottlenecks but also a prerequisite for developing effective solutions and advancing water security.

Systemic barriers continue to hinder the implementation of the "Cherishing Water" principle. While the importance of cherishing water has gained global recognition, translating this consensus into large-scale and efficient action remains profoundly challenging. Key issues include structurally embedded inefficiency and wastage in water use. Agriculture, as the largest water consumer, still operates with low average irrigation efficiency globally, with many regions relying on outdated practices such as flood irrigation. In industry, water-saving technologies and processes are not yet widely adopted, and water recycling rates fall far below potential. Urban water systems are often characterized by high leakage rates in distribution networks and underutilization of non-conventional sources such as reclaimed water and stormwater. This structural inefficiency and wastage mean that we are generating less socio-economic value from our limited freshwater resources than what is achievable.

Furthermore, inadequate endogenous motivation and incentive mechanisms for water conservation persist: many regions and sectors have yet to establish effective market mechanisms or regulatory systems that reward water savers and penalize wasteful practices. Economic instruments such as water pricing often fail to fully reflect water scarcity and environmental costs, leaving both enterprises and households with insufficient motivation to conserve. Meanwhile, the high upfront costs and long payback periods associated with water-saving technologies and infrastructure further inhibit their widespread adoption. Translating the "Cherishing Water" principle from a slogan into daily behavior remains one of the most profound challenges. Public awareness of water crisis urgency, understanding of virtual water footprints, and willingness to adopt conservation practices still require sustained guidance and reinforcement through education campaigns, public outreach, and accessible public services.

The water–energy–food nexus is under growing strain. Competition for resources and insufficient cross-sectoral coordination present another critical challenge. As global population grows, economies expand, and urbanization accelerates, resource competition among the three key sectors—water, energy, and agriculture—has intensified. Substantial scientific evidence confirms complex interdependencies within the water-energy-food nexus, where policy or investment decisions in one sector frequently generate spillover effects on the others. For instance, strategies to meet rising food demand—such as cropland expansion and agricultural intensification—while supporting Zero Hunger (SDG 2), often exacerbate regional water security challenges (SDG 6) and trigger ecological degradation (SDG 15). Without effective management, these inter-sectoral trade-offs can lead to policy counteraction and even systemic resource crises. Compounding the issue, ongoing demographic and socioeconomic trends are further straining nexus relationships. According to the UN World Water Development Report 2023, the urban population facing water scarcity is projected to increase from 930 million in 2016 to between 1.7 and 2.4 billion by 2050. Rapid urbanization not only drives surging water demand but also alters land use patterns and hydrological cycles, thereby amplifying pressures across the water-energy-food system. As classified by the International Science Council, such challenges represent “rapidly changing conditions requiring new solutions”, underscoring that conventional resource management approaches are increasingly inadequate in addressing emerging pressures driven by global urbanization and demographic shifts.

The sustainable utilization of water resources faces two particularly pressing issues: inefficient water use and inadequate wastewater management. As reported by UN-Water, the world remains far from achieving the targets of Sustainable Development Goal 6 (SDG 6) on clean water and sanitation. Globally, water use efficiency requires significant improvement, while wastewater treatment and reuse rates remain disproportionately low, compounded by increasingly severe water pollution. These challenges not only lead to the wastage of water resources but also contribute to environmental degradation and ecosystem deterioration. Of particular concern is the prevalence of economic water scarcity in low- and middle-income countries. Despite often having relatively abundant water resources, these regions struggle to provide reliable water services due to inadequate infrastructure and financial constraints. Meanwhile, emerging contaminants and challenges related to non-conventional water sources are becoming more prominent. Industrial development and changing lifestyles have introduced new threats to water security in the form of pharmaceuticals, personal care products, endocrine-disrupting compounds, and other emerging pollutants that conventional treatment processes are often unable to effectively remove, posing potential risks to both human health and aquatic ecosystems. Furthermore, the development and utilization of non-conventional water resources—such as treated wastewater reuse and desalination—face multiple barriers, including technical limitations, economic constraints, and social acceptance issues. The International Science Council has categorized such challenges as "emerging and future water issues", emphasizing the need for innovative solutions, including the development of effective methods for removing emerging contaminants from wastewater.

3.2 Emerging Issues in Relation to SDG 6

Scientific research has increasingly clarified the close interlinkages and synergies between SDG 6 (clean water and sanitation) and other Sustainable Development Goals. According to the analysis in Research on Earth Big Data for Supporting Synergies and Trade-offs among Sustainable Development Goals: Progress and Prospects, SDG 6 exhibits the highest degree of synergistic relationships with other goals, indicating that achieving water security can significantly facilitate progress across multiple SDGs. For instance, in the water-energy nexus, effective water conservation measures reduce the energy consumption required for wastewater treatment; in the water-food nexus, water security forms the foundation for sustainable agricultural development. Aligning with the vision of “water for prosperity”, these interconnections are giving rise to new research and policy agendas.

Building a multi-level water governance framework. Establishing an integrated and inclusive framework for water resource management is a top priority in addressing the current global water crisis. Such a framework should strengthen institutional and legal foundations for water governance, promote diversified financing and investment in water management, and establish mechanisms for monitoring and data sharing.

Water technology innovation and digital empowerment. Technological innovation and digital transformation are key drivers for addressing water challenges and achieving water prosperity. Efforts should focus on developing water-saving and recycling technologies, advancing digital water management and early warning systems, and promoting cross-sectoral technological integration.

IV. Solutions

To address the aforementioned challenges, we must adopt systemic and multi-pronged solutions. The following framework aims to provide Member States and various stakeholders with an action-oriented reference pathway.

4.1 Strengthening Policy and Governance Innovation

1. Implementing Integrated Water Resources Management

Establish high-level national water coordination bodies to break down sectoral silos, holistically manage domestic, industrial, and ecological water use, and ensure tight integration of water resources planning with national socio-economic development plans and climate change adaptation strategies.

2. Improving Economic Incentive Mechanisms

Introduce tiered and differential water pricing to better reflect supply costs and resource scarcity. Establish conservation incentives and penalties for excessive use to motivate all consumers to save water. Meanwhile, water rights trading markets can be leveraged to optimize water resource allocation through market-based mechanisms.

3. Developing and Promoting Water Efficiency Standards

Mandatory water efficiency standards should be established for high-water-consumption sectors—such as agriculture, thermal power, and textiles—as well as for key water-using products like sanitary ware and irrigation equipment. A corresponding certification and labeling system will guide greener production and consumption patterns.

4.2 Accelerating the Technology-Driven Efficiency Revolution

1. Agricultural Sector

Scale up the adoption of high-efficiency irrigation technologies, including sprinkler, micro-, and drip-irrigation systems. Integrated with IoT, big data, and artificial intelligence, these technologies enable the development of precision agriculture, allowing irrigation to be tailored to crop needs and substantially improving field-level water productivity. Initiatives such as the Global Rice Science Partnership (GRiSP) have made significant progress in breeding drought-resistant crop varieties and optimizing irrigation techniques.

2. Industrial Sector

Mandate water balance assessments for enterprises and promote the adoption of series water supply, recycling, and wastewater reuse technologies. By benchmarking against international best practices, companies (such as FCX’s initiatives) are encouraged to continuously enhance water use efficiency per unit of product through technological upgrades and process optimization. Programs focusing on clean-in-place efficiency and steam system optimization have demonstrated substantial water and energy savings.

3. Urban Sector

Invest in smart water management systems that utilize sensors and intelligent meters to monitor water supply networks in real time, enabling prompt detection and repair of leaks to minimize pipeline loss rates. At the same time, vigorously promote the use of non-conventional water resources such as reclaimed water and rainwater, positioning them as the city’s “second water source”.

4.3 Building Diversified and Sustainable Financing Models

1. Developing Green Finance and Blended Financing

Establish dedicated water resource funds and issue green bonds to support projects on efficient water use and water environment management. Actively promote blended financing models by using public or development assistance funds as guarantees or seed capital to attract multiple times more private investment into the water sector.

2. Promoting Public–Private Partnerships (PPP)

In sectors such as water supply, wastewater treatment, and seawater desalination,

attract private sector participation by establishing a clear legal framework and risk-sharing mechanisms. Leverage private expertise in technology, management, and financing to enhance the construction and operational efficiency of water infrastructure.

3. Exploring innovative payment mechanisms

Promote mechanisms such as Payments for Water Ecosystem Services (PWES) to incentivize upstream regions to protect water sources, while downstream regions and enterprises that benefit from these services provide financial compensation. This approach establishes a long-term investment mechanism for water ecosystem conservation.

4.4 Global Exemplary Initiatives and Projects

Translating theory into practice requires learning from successful global experiences. The following projects and initiatives are noteworthy for their innovation, impact, and replicability.

1. Multinational Water Cooperation: The Central Asia Water Productivity Improvement Project

Funded by the Swiss Agency for Development and Cooperation (SDC) and implemented by the International Water Management Institute (IWMI), this project spans all five Central Asian countries. By introducing advanced irrigation technologies, improving water management policies, and strengthening farmer capacity, it aims to systematically enhance agricultural water productivity across the region. The project demonstrates a viable pathway for addressing transboundary water challenges through international cooperation, technology transfer, and policy dialogue. Its multi-tier capacity-building and knowledge-sharing network—engaging stakeholders from national to local levels—offers valuable insights for other transboundary basins facing similar challenges, such as the Nile and Mekong River Basins.

2. A Global Benchmark in Urban Water Recycling: Singapore's NEWater Initiative

As a highly water-stressed city-state, Singapore has pioneered the NEWater initiative, which treats municipal wastewater through advanced membrane technologies and ultraviolet disinfection to produce ultra-pure, high-grade reclaimed water for industrial use and indirect potable supply. This system achieves a remarkable level of water recycling and represents far more than a technological breakthrough—it is an integrated, systematic approach combining national strategy, scientific innovation, rigorous quality control, and sustained public engagement. NEWater demonstrates how determined political will and consistent technological investment can transform wastewater into a valuable strategic resource. For major cities worldwide facing water scarcity, the NEWater model offers a proven blueprint for achieving water sustainability and enhancing climate resilience.

3. Integrated River Basin Management: China's South-to-North Water Diversion Project

As the world's largest water transfer initiative, this megaproject channels abundant water resources from southern China to the arid northern regions through eastern, central, and western routes, fundamentally reshaping the nation's water allocation strategy and securing water supply for hundreds of millions of people while supporting regional economic development. More than an infrastructure achievement, the project has systematically embodied the principle of “conservation before diversion, treatment before transfer, and environmental protection before utilization”, driving industrial upgrading and enhancing water governance along the transfer corridors. Its strategic vision, systematic planning, and execution capability in addressing severe spatial and temporal imbalances in water resources offer invaluable lessons for other large countries facing similar water scarcity challenges.

4.5 Building Innovative Multi-stakeholder Partnerships

No single actor can independently solve complex water challenges. Establishing cross-sectoral, interdisciplinary, and transnational partnerships is essential for meaningful progress.

1. Deepening and Expanding Public-Private Partnerships

Move beyond conventional Public-Private Partnership (PPP) models toward "Public-Private-Community Partnerships" that integrate local communities and water users into project design, oversight, and management. A representative example is Chile's SUIZAGUA CHILE initiative, where the Swiss government collaborated with Chilean enterprises and academic institutions under a PPP framework to promote water footprint assessment and efficient water-use technologies, enabling businesses to advance sustainable practices.

2. Government-Academia-Industry Innovation Ecosystems

Foster a synergistic ecosystem where governments provide policy direction and seed funding, academic institutions drive cutting-edge R&D and talent development, and the private sector accelerates technology commercialization and market deployment. A leading example is the Water Council in Milwaukee of the United States, which has successfully transformed a traditional industrial city into a globally recognized "Water Technology Hub".

3. Basin-Scale Multi-Stakeholder Governance Alliances

Drawing inspiration from models like the Global Water Partnership (GWP), establish consultative and decision-making platforms at the river basin or regional level that bring together government agencies, private enterprises, non-governmental organizations, farmers' water user associations, and community representatives. These alliances would jointly develop integrated basin water management plans, negotiate resolutions to water-use conflicts, and oversee project implementation.

V. Recommendations and conclusions

Efficient water resource user serves as a critical lever for sustainable socio-economic development. The path forward is clear: we must respond to global water challenges with stronger political commitment, more innovative technologies, diversified financing mechanisms, and closer collaborative partnerships.

Recommendation 1: Establish a "Global Water-Efficiency Solutions Dynamic Database"

It is recommended that UN-Water take the lead in formally launching an open-access online platform during the conference. This platform should not only document outstanding cases presented in this dialogue but also continuously curate successful projects worldwide—covering agricultural irrigation efficiency, industrial water recycling, urban smart water systems, and Nature-based Solutions (NbS). Each entry should include technical specifications, economic models, policy contexts, implementation challenges, and solutions, forming a practical "manual for action" for global policymakers and practitioners. For common challenges, such as agricultural water conservation in arid regions or emission reduction in high-water-consumption industries, successful experiences should be packaged into accessible "toolkits". These would include policy templates, technology selection guides, financing models, and community engagement plans, thereby lowering the barriers to adoption for other countries and regions.

Recommendation 2: Establish an Innovative "Water Action Partnership" Mechanism

An innovative "Public-Private-People Partnership for Water Efficiency" platform should be established to precisely align policy priorities, private-sector technology and capital, and local communities' practical needs and indigenous knowledge. For instance, flagship water-efficiency initiatives could be launched around specific river basins or metropolitan areas, engaging governments, technology firms, financial institutions, and local NGOs in coordinated action. Developed countries and multinational corporations should be encouraged to commit—through this dialogue—to opening specific water-saving technology patents or offering preferential technology transfer packages to developing nations. Meanwhile, successful South-South cooperation experiences in adaptive technologies and cost-effective solutions should be actively scaled.

The success of this Interactive Dialogue will be measured not only by the depth and breadth of discussions, but by its ability to translate global consensus into tangible action. By focusing on scalable solutions, building innovative partnership structures, and anchoring outcomes within a measurable voluntary commitment framework, this Dialogue can become a powerful engine advancing global water-use efficiency—delivering decisive contributions to economic prosperity, social equity, and environmental sustainability, thereby strongly supporting the full implementation of the 2030 Agenda for Sustainable Development.

VI. Guiding questions

This Interactive Dialogue aims to identify the most impactful innovative solutions in the field of water use efficiency through in-depth discussion and experience sharing, while fostering practical partnerships among stakeholders. The following guiding questions are designed to help participants focus on key themes, share concrete practices, and jointly explore sustainable pathways forward.

6.1 Experience Sharing and Case Analysis

1. In your country, which specific policies, regulations, or national programs have achieved the most significant results in improving water use efficiency in agriculture, industry, or urban settings? What have been the key drivers of their success, such as pricing mechanisms, technology subsidies, or public awareness campaigns? What cultural or institutional barriers might other countries face when attempting to adapt these models?

2. Could you share a specific government-led case that has successfully achieved efficient and equitable water use at the local level? In such cases, how were traditional knowledge and local techniques effectively integrated with modern technologies?

3. In what ways are digital technologies—such as IoT, big data analytics, artificial intelligence, and remote sensing—transforming water resources management? Please share examples where smart technologies have successfully enhanced water monitoring, early warning systems, or management efficiency. How can these technologies support policymakers in making better informed decisions on water allocation?

6.2 Partnerships and Multi-stakeholder Engagement

1. Which types of international and regional cooperation have proven most effective in the field of water resources management? Could you share successful cases of transboundary or cross-sectoral collaboration, particularly practical experiences in managing international river basins or protecting shared aquifers?

2. How can collaboration between the public and private sectors be effectively strengthened in water resource projects? When establishing public-private partnerships, how should cooperation mechanisms be designed to balance public interests, investment returns, and environmental sustainability? What risks should be mitigated?

3. Please envision and describe an ideal "Water Efficiency Partnership" model. What specific roles should governments, businesses, research institutions, and civil society respectively play in this framework? How can an effective coordination and decision-making mechanism be designed to balance the interests and demands of different stakeholders?

6.3 Monitoring, Evaluation and Future Action

1. Looking ahead, how can we nurture and sustain the "seeds of action" planted today to ensure the 2026 UN Water Conference becomes a true turning point in global

water governance? In what concrete ways can each of us become active participants and steadfast advocates in this transformative process?

2. How can a scientific and effective monitoring and evaluation system be established to track improvements in water use efficiency? What international standards and good practices can be referenced in terms of data collection, indicator setting, and reporting mechanisms?

3. Following this conference, what specific commitments and actions does your country or organization plan to take to advance water use efficiency? How will you ensure these commitments are translated into tangible results, and what forms of international support or cooperation is needed?

2026 United Nations Water Conference

Interactive Dialogue 3: Water for planet

Concept Paper

I. Introduction

Water is the lifeblood of the Earth, the cornerstone of all ecosystems, and the wellspring of life, civilization, and economic prosperity. It sustains biodiversity and underpins global social and economic development. Yet the global water cycle is undergoing unprecedented, far-reaching and intensifying change, driven by climate change, population growth, rapid urbanization and unsustainable patterns of production and consumption. These impacts transcend conventional scientific understanding in both scope and intensity.

In recent years, extreme weather events have occurred with increasing frequency and intensity, showing a dual pattern of both drought and flood extremes occurring simultaneously. Floods strike with greater suddenness, wider reach and heavier losses, while chronic warming degrades habitats and accelerates biodiversity loss. Delayed early warnings and limited emergency-response capacity further exacerbated disaster losses and undermined urban resilience.

The current water crisis is no longer a local or sectoral issue, but a "systemic crisis" that spans environmental, economic, social, and political dimensions. Its manifestations include frequent extreme hydrological events, continuous loss of freshwater biodiversity, escalating land desertification, threats from emerging contaminants to ecosystems and human health, and the cascading spread of flood and drought disaster risks. These challenges pose severe threats to global food security, energy supply, public health, economic stability, and even regional peace.

Water is a central element and nexus of the 2030 Agenda for Sustainable Development (SDGs). In addition to being the sole focus of Sustainable Development Goal (SDG) 6, water is indispensable to achieving SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action). Ensuring water security is therefore a cornerstone of the entire sustainable development agenda.

In light of global geopolitical shifts, post-pandemic economic recovery, and opportunities presented by the new wave of technological revolution, we must address water challenges with fresh perspectives and collaborative models. Against this backdrop, the Interactive Dialogue on "Water for planet" is crucial. It seeks to explore innovative pathways for water governance adapted to global changes, with the ultimate vision of ensuring every drop of water contributes to a more resilient planet.

II. Status and Trends

1. Water and Climate Change

Status: Global warming is disrupting the water cycle in unprecedented ways, causing severe spatiotemporal imbalances in precipitation patterns and reinforcing a polarized trend of "the dry gets drier and the wet gets wetter." Currently, arid and semi-arid regions face intensifying water resource pressures, while humid areas are increasingly exposed to more frequent and intensified extreme rainfall events. This trend has been clearly evidenced by recent extreme events, such as major floods in Europe and century-level droughts in Africa. Meanwhile, rising sea levels continue to threaten coastal and island regions, leading to saltwater intrusion, degrading freshwater ecosystems, and undermining water supply security.

Trends: According to projections by authoritative institutions like the IPCC, the extremity of the global hydrological cycle will further intensify, making the "coexistence and rapid alternation of droughts and floods" a new normal. Specific manifestations include increased duration, spatial extent, and frequency of extreme drought events; concurrently, major rainstorm-induced floods will also become more frequent and destructive. Furthermore, accelerated glacial melt poses a dual threat: in the short term, it raises the risk of disasters such as glacial lake outburst floods and glacier-related flooding; in the long term, it directly endangers the stable water supply for hundreds of millions of people globally who depend on glacial meltwater.

2. Water and Biodiversity

Status: The WWF's Living Planet Report indicates that monitored populations of vertebrates declined by an average of approximately 73% between 1970 and 2020. The Biodiversity Intactness Index has decreased at a rate of about 0.3% per year over the past two decades, with freshwater species populations declining even more sharply. While covering less than 1% of the Earth's surface, freshwater ecosystems are home to over 10% of known species. The rate of biodiversity loss in these ecosystems significantly outpaces that in terrestrial and marine environments, with wetlands showing particularly pronounced degradation.

Trends: Since the UN 2023 Water Conference, global attention to freshwater ecosystem conservation and biodiversity protection has significantly increased. Biodiversity loss undermines the capacity of freshwater ecosystems to provide essential services, such as water purification and flood regulation. This degradation forms a vicious cycle with water pollution, further intensifying the global water crisis. In the context of globalization, water pollution and invasive species contribute to this cycle, exacerbating the crisis. There is now broad recognition that protecting freshwater biodiversity is fundamental to ensuring the sustainability of water resources themselves.

3. Water and Desertification

Status: More than 40% of the world's land area are dry lands, which are home to more than 2.5 billion people. Many countries continue to face severe challenges from sediment and soil erosion, while water scarcity is a major driver of land degradation and desertification. Overgrazing, deforestation, and unsustainable agricultural irrigation practices are leading to falling groundwater levels and soil salinization, transforming fertile land into desert. Regions such as Sub-Saharan Africa, the Middle East, Central Asia, and northwest China are among

the most severely affected.

Trends: Increasing drought severity under climate change, coupled with growing demands for food driven by population growth, is placing greater pressure on the already limited water resources in dryland regions. Desertification not only leads to loss of land productivity and food crises, but can also trigger ecological displacement, social instability, and regional conflicts.

4. Water, Environmental Health, and Integrated Land-Sea Management

Status: Billions of people globally still lack access to safe drinking water and sanitation facilities, with the threat of waterborne diseases persisting. The state of water quality presents a complex picture of "overall improvement alongside localized deterioration": North America, Europe, and some countries with active governance have achieved notable progress, but many developing regions, plagued by severely inadequate wastewater treatment, commonly face contamination from traditional pollutants like pathogens and heavy metals. Concurrently, eutrophication-induced algal blooms are occurring frequently in global lakes and coastal waters, creating "dead zones" that damage both ecosystems and economies. Land-based pollution entering the oceans through the water cycle underscores the profound interconnection between terrestrial and marine health.

Trends: Moving forward, water environment governance faces the challenge of shifting from traditional pollutants to emerging contaminants (such as pharmaceuticals and microplastics). These pollutants are numerous, complex to monitor, and their long-term ecological and health risks urgently require effective regulation. The international community increasingly recognizes that SDG 14 (Life Below Water) must be addressed from land-based sources, such as agricultural pollution and plastic waste, promoting holistic "source-to-sea" governance.

Under this concept, integrated land-sea management is moving from consensus to practice: over 70 countries worldwide are now exploring ecosystem-based marine spatial planning, aiming to integrate the management of terrestrial, coastal, and marine areas and coordinate various maritime activities. This marks a new phase of synergistic land-sea coordination in water governance.

5. Water-related Disaster Response and Resilience

Status: The global situation of flood and drought disasters is severe and exhibits globalized characteristics. In the summer of 2025, frequent flooding occurred in regions such as Asia and the Americas, while many areas in Africa and Europe grappled with severe droughts. Issues like glacial melt, extreme temperatures, and imbalances in water resource distribution are becoming increasingly prominent, posing severe challenges to integrated risk management in urban and rural areas.

Although some countries and regions have established relatively comprehensive flood control and disaster reduction systems, globally, the governance capabilities for addressing flood and drought disasters and the level of cross-border coordination remain inadequate to tackle the compound challenges posed by climate change.

Trends: Future flood and drought disasters will exhibit new trends characterized by the "co-occurrence and regional alternation of floods and droughts, with escalating intensity and cascading effects." A single disaster may trigger a series of chain reactions. For example, a typhoon can successively unleash multiple crises such as storm surges, urban waterlogging, geological hazards, and environmental pollution.

The approach to disaster management is shifting from passive defense to proactive resilience building, promoting the establishment of integrated prevention and control systems that coordinate across entire river basins and regions. At the international level, the World Meteorological Organization is integrating data from multiple countries to advance the upgrade of Global Flood Awareness System (GloFAS). China is also enhancing its disaster prevention and control capabilities by developing an integrated "Space-Air-Ground-Water-Project" integrated monitoring and perception system and Four Precautionary Measures (forecasting, early warning, simulation, and contingency planning). Concepts such as Nature-based Solutions (NbS) and adaptive governance are increasingly recognized as core pathways for enhancing systemic resilience.

III. Challenges and Emerging Issues

In the context of globalization, water and related sectors face new challenges:

1. Water and Climate Change: The Threat of Intensifying Hydrological Extremes

Climate change is exacerbating water scarcity pressures in arid regions, while humid areas face increasingly frequent threats of heavy precipitation. Extreme droughts are occurring more often in regions such as the Amazon, Southern Africa, and the Mediterranean, with longer duration and greater intensity. At the same time, the frequency and severity of extreme rainfall and flood events have increased markedly in places like Pakistan, Germany, and Henan, China. Hydrological extremes are projected to intensify further, with droughts potentially evolving from seasonal phenomena to persistent conditions. The uncertainties introduced by climate change pose severe challenges to water resource management and engineering systems that rely on historical data, underscoring the urgent need for more forward-looking and adaptive management mechanisms.

2. Water and Biodiversity: Accelerated Degradation of Freshwater Ecosystems and Insufficient Countermeasures

Despite increased global attention to freshwater ecosystem conservation, pressures from habitat degradation, pollution, over-extraction, and water infrastructure development continue to intensify. The rate of freshwater species loss significantly outpaces that of terrestrial species. However, developing countries, constrained by limited funding, technology, and monitoring capacity, have achieved limited success in protection efforts. Global investment in ecological restoration remains insufficient, with projects often limited in coverage and long-term sustainability. More critically, climate change is emerging as a dominant driver of biodiversity loss, potentially altering species distributions, weakening ecosystem resilience, and even transforming carbon sinks into carbon sources, thereby further accelerating species extinction.

3. Water and Desertification: A Growing Threat to Land Systems

The impacts of desertification and efforts to control it are becoming increasingly complex. In China, for example, desertification control has changed the ecological and geomorphological dynamics of river basins. These include alternating channel scouring and silting, riverbed and river regime evolution, altered river-lake relationships, and slower land formation coupled with erosion observed in estuarine deltas. These changes pose new challenges for the flood control safety and ecological security of rivers, lakes, and reservoirs. There is an urgent need to establish a joint mechanism for the prevention, control, and management of soil erosion, to develop sound soil and water conservation standards for production and construction projects, to ensure that governments, enterprises, and the public collectively and substantively shoulder their responsibilities for soil and water conservation, and to integrate desertification control into overall regional development planning.

4. Water, Environmental Health, and Integrated Land-Sea Management: The Invisible Chain of Water-Related Disasters

The deterioration of the water environment is a global challenge. On the one hand, coordination over transboundary rivers remains difficult. Approximately 60% of global freshwater resources originate from transboundary basins, yet the absence of a binding global treaty for their management makes coordination exceptionally challenging. On the other hand, the challenge manifests in the increasingly globalized nature of water pollution due to the tight interconnection between land and sea. Intensified globalization and the global water cycle are making the relationship between marine and terrestrial freshwater systems ever closer. Land-based water pollution leads to marine pollution, as seen in the frequent occurrence of water eutrophication (e.g., cyanobacterial blooms) in global lakes and coastal areas, creating "dead zones" that damage aquatic ecosystems and impact tourism and fisheries. The tracking and prevention of emerging contaminants have also become a new frontier. These pollutants arise from diverse sources, can bioaccumulate and biomagnify along food webs, and their impacts require further assessment. Microplastics, antibiotic residues, and antimicrobial resistance genes constitute a silent threat to the public health, underscoring the need for comprehensive monitoring, prevention, and control systems.

5. Water-related Disaster Response and Resilience: Vulnerability and Capacity in the Face of Shocks

Flood and drought disasters are increasingly characterized by the co-occurrence and regional alternation of floods and droughts, with escalating intensity and cascading effects, highlighting prominent systemic and chain-reaction risks. For instance, a typhoon can trigger multiple disasters such as storm surges, flooding, landslides, and pollution. Defense systems face five major challenges: extreme climate events causing frequent novel disasters like rapid transitions between drought and flood conditions; urban–rural disparities in protection capacity, with rural areas remaining blind spots for early warning; difficulties in coordinating multiple objectives of water resource management; aging infrastructure coupled with insufficient monitoring and response capacity; and technological lags and institutional shortcomings that constrain disaster reduction efficiency. Furthermore, emerging issues such as fragmented governance, funding gaps, data silos, cross-border coordination difficulties, tensions in the water-energy-food nexus, technological ethics risks, and insufficient public participation urgently require systematic responses.

Based on the current assessment, the following emerging issues require urgent attention:

Governance Deficits and Fragmentation: Water resource management spans sectors, administrative levels, and jurisdictions, yet effective coordination mechanisms are lacking. Peaceful dispute resolution and collaborative management of transboundary waters (particularly in international river basins) remain significant challenges.

Finance Gaps and Insufficient Investment: The construction, operation, maintenance, and upgrading of water infrastructure require substantial funding. However, public financial investment is inadequate, and private sector investment remains limited due to the long payback periods and perceived high risks associated with water projects, leaving a significant global financing gap.

Data Silos and Knowledge Gaps: Significant barriers exist in the collection, sharing, and application of water resources data. Major knowledge gaps persist in our understanding of complex water cycle systems, particularly regarding groundwater and soil moisture. Translating scientific knowledge into effective policies and actions remains a considerable challenge.

Equity and Justice Concerns: The impacts of water scarcity and pollution are not equally distributed. Poor countries and regions, along with marginalized communities, often bear the heaviest burden, compromising their right to safe water and sanitation.

Pressure on the Water-Energy-Food Nexus: Water, energy, and food systems are tightly coupled and often compete for resources. Energy production requires water, food production requires both water and energy, and water treatment and distribution require energy. Climate change and population growth are intensifying the strain on this nexus. Decisions in any one of these sectors can generate significant "spillover effects" on the other two.

Ethics and Risks of Emerging Water Technologies: Technologies such as large-scale seawater desalination, cloud seeding, and geoengineering offer potential solutions to the water crisis. However, their ecological impacts, social costs, and associated ethical issues remain unclear, necessitating prudent global-level assessment and the development of regulatory frameworks.

Insufficient Public Participation: There is generally low public understanding of the value of water and awareness of the water crisis, making it difficult to build the broad societal momentum needed for transformative change. Mechanisms for public involvement in decision-making processes need to be strengthened.

IV. Solutions

1. Water and Climate Change

In terms of management, a climate-adaptive water resource management system should be established, coupling climate and hydrological models to develop forecasting and early warning systems on seasonal to decadal scales. These systems would provide scientific basis for water allocation. An early warning and response mechanism for long-term drought should be developed to shift from post-event emergency response to proactive prevention, thereby improving public awareness and adaptive capacity toward climate change.

For infrastructure development, existing design standards of water engineering should be re-evaluated. Climate change factors should be incorporated into the safety assessment of projects, so as to advance the planning and construction of climate-resilient water infrastructure, while full consideration should be given to hydrological changes under future climate scenarios, with adequate adaptive capacity. Moreover, the development of distributed and small-scale water supply systems should be strengthened to enhance the flexibility and redundancy of water resources systems.

In terms of technological innovation, focus should be placed on developing water regulation technologies under climate change, including high-efficiency water-saving technologies, unconventional water use technologies, and intelligent water distribution systems. Climate-adaptive precision irrigation technologies should be promoted, and drought- and salinity-tolerant crop varieties should be developed to mitigate climate change impact on food security. In addition, big data and AI should be leveraged to build smart water management systems that enable real-time monitoring and optimal allocation of water resources.

2. Water and Biodiversity

Develop an integrated management model of "water ecology–biodiversity." A system should be established basin wide for maintaining ecological base flows and ecological flow during critical, so that rivers and wetlands could receive uninterrupted and sufficient flow to sustain ecological processes and species survival. Wetland ecological restoration and reconstruction projects should be promoted to improve water quality and secure habitats.

Support Nature-based Solutions (NbS). There are many successful cases around the world that can be scaled up, for example, Europe's "green infrastructure" (such as green corridors and restoring natural river morphology), vegetation restoration and soil conservation projects in arid regions of Africa, and riparian ecological restoration programs in many Asian countries. These initiatives deliver water, security, flood control, and ecosystem recovery with low costs and high efficiency. Such approaches should be integrated into national policies related to climate, water management, and land-use.

Global monitoring infrastructure should be enhanced through the use of satellite remote sensing, environmental DNA (eDNA), drones, and AI models to improve predictions of species distribution, ecological integrity, and trend changes.

3. Water and Desertification

Promote comprehensive management of small river basins, slope farmland treatment, gully erosion control, and check dam construction as key soil and water conservation engineering. Drawing on China's experience in rehabilitating the Loess Plateau, systematic restoration can transform degraded landscapes from yellow to green. Standards and specifications for soil and water conservation should be improved, and a governance mechanism that shares responsibility among governments, enterprises, and the public should be established, with incorporation of desertification control efforts into regional development plan.

4. Water, Environmental Health, and Integrated Land-Sea Management

Restore ecology and environment of rivers and lakes by implementing ecological water replenishment, improving water resources scheduling, and enhancing ecological flow management.

Strengthen river and lake accountability mechanisms by adhering to river ethics and establishing management systems that prioritize the health of rivers and lakes. For example, China's "River Chief System" designates responsible officials as the primary persons in charge of managing and protecting rivers and lakes within their jurisdictions, addressing previous problem of fragmented governance and ensuring clear accountability.

Enhance legislative safeguards by establishing principles that balance river protection and development. The most stringent ecological protection systems have been applied to river basin governance to coordinate the interests of multiple stakeholders in China. Drawing on the EU's *Water Framework Directive* and China's *Yangtze River Protection Law* and *Yellow River Protection Law*, clear legal requirements for river protection should be formulated.

Advance the concept of "land-sea coordinated" systematic governance. By considering mountain, water, forest, farmland, lake, grass, desert as a shared life community for regional sustainability, ecological civilization should be integrated into all aspects of economic, political, cultural, and social development. The relationship between blue economy development in marine areas and terrestrial development should be coordinated. An integrated governance system should be built that connects the source to the sea.

5. Water, Disaster Response, and Resilience Enhancement

Enhance the resilience of engineering systems by promoting the integration of grey and green infrastructure. While reinforcing and digitalizing traditional "grey" infrastructure such as reservoirs and levees, NbS could be scaled up. For instance, the Netherlands's "Room for the River" and China's sponge city initiative, by restoring wetlands, building rain gardens, and constructing ecological embankments, natural flood retention and water storage capacity across basins have been enhanced.

Strengthen non-engineering measures and build a digital twin system integrating "sky, space, earth, water, and engineering." Leveraging satellite remote sensing, drones, and ground sensors, a system with "three lines of defense" composed of meteorological satellites, radar rainfall monitoring, and ground stations could be developed to achieve real-time perception of rainfall and water conditions. In flash flood-prone areas, the density of automatic monitoring stations should be increased, and direct grassroots-level early warning and response mechanisms should be established. With AI and big data, refined forecasting models can be developed to extend lead time and improve accuracy. A flood and drought digital twin platform covering basins, regions and cities should be established to simulate risks, optimize response strategies, and streamline emergency management.

Innovate governance mechanisms and strengthen society-wide risk management. Flood risk zoning and management should be implemented, integrating risk maps into land use planning to avoid hazards at the source. Flood insurance and disaster relief financial tools should be improved to distribute risks. Community-level disaster preparedness should be strengthened through public education and emergency drills.

To cope with the challenges, systemic, innovative, and inclusive actions are needed. Based on the solutions from five aspects mentioned above, the following directions for action are proposed:

Action 1: Coordinate the governance innovation and policy framework. Promote integrated water resources management and strengthen basin-based comprehensive governance by establishing coordination organizations and institutions that transcend administrative boundaries. For example, China's overarching water management philosophy emphasizes "prioritizing water conservation, balancing spatial distribution, taking systematic approaches, and giving full play to the roles of both government and market," with the concept of ecological civilization and coordinated policy mechanisms. Top-level design should be refined to improve laws, regulations, planning, and implementation systems, forming a water governance framework with clear objectives and responsibilities. Embed "Water-Security-in-All-Policies" to ensure water security planning aligns with energy, agriculture, and spatial development. Mandatory water security impact assessments should be implemented to ensure policy coherence and synergy in line with water security goals.

Action 2: Step up technological innovation and smart management. Develop digital water technologies that apply IoT, big data, AI, and digital twin systems to achieve real-time monitoring, simulation, and optimal scheduling of water resources. Promote water-saving and reuse technologies, develop drought- and salt-tolerant crops, and mitigate the impacts of climate change on food security. Desalination and water reuse technologies should be promoted. Deepen water rights market reform, establish effective pricing and eco-compensation mechanisms, and use economic tools to promote water conservation and protection. Implement NbS to protect and restore forests, wetlands, rivers, and floodplains as natural green infrastructure, improving water retention, flood control, and purification capacities while maximizing ecological and social benefits.

Action 3: Enhance financing innovation and market mechanisms. Create a specialized fund to support developing countries in conducting water resource vulnerability assessments and building adaptive capacities. Diversify financing sources to leverage private investment; issue green and blue bonds; and establish globalized water funds. Promote water price reform to reflect scarcity and environmental costs, guiding water use toward higher efficiency while ensuring basic water access for low-income populations. Encourage private sector investment in climate-resilient water supply infrastructure and establish public-private risk sharing mechanisms. International financial organizations should be encouraged to provide concessional loans and technical assistance for green infrastructure projects.

Action 4: Foster social participation. Strengthen education and awareness by incorporating water education into primary, secondary, and university curricula and enhancing public water literacy through media and outreach activities. Empower women and youth by increasing women's engagement in water management and encouraging youth innovation and entrepreneurship to bring impetus for new water solutions. Build multi-stakeholder partnerships among governments, enterprises, academia, NGOs, and communities for shared decision-making and operation.

Action 5: Advance international collaboration platform. UN agencies should take the lead in building a global water knowledge platform to promote technology transfer, management experience sharing, and best practices from developed to developing countries.

Examples include China's Four Precautionary Measures (forecasting, early warning, drilling and emergency planning) and Bangladesh's community-based early warning model, which could support the development of national flood warning systems in Africa and Southeast Asia. Strengthen transboundary basin management, promote information sharing and joint operation, and enhance cross-border water cooperation. Guided by international water laws, dialogue and diplomacy should be used to transform international rivers from potential conflict zones into collaborative links. New initiatives could be developed to explore innovative pathways for water governance under global change.

V. Recommendations and Conclusions

Water is the lifeline of our planet and the vital link that connects humanity's destiny and future development. Today, we stand at a historic crossroads: will we allow the global water crisis to push us toward conflict and decline, or will we, through collaboration and innovation, work together to build a resilient and prosperous future? In the era of a "Global Village," dialogue is the key to building consensus and driving action. The Interactive Dialogue on "Water for planet" was created for this purpose. It is not just a high-level meeting, but a long-term and open global platform. Governments must take the lead while actively engaging cities, businesses, research institutions, social organizations, and youth groups. Together, we will co-create a "Water Code" for sustainable development and realize our shared vision: to make every drop of water count in building a more resilient Planet.

This dialogue aims to serve as a global platform that bridges high-level discussions and action, taking a holistic and systemic perspective to focus on water security in the context of global environmental change. It seeks to provide strategic guidance and an action framework for promoting sustainable water management worldwide.

Through this dialogue, we aim to achieve a set of consensus outcomes that can be translated into concrete actions:

- **Policy level:** promote the establishment of systematic water environment governance solutions;
- **Legislative level:** advocate for the formulation of dedicated laws and regulations for major river basins;
- **Technological innovation:** launch a global "Water for planet" S&T Action Plan to build multi-stakeholder innovation mechanisms;
- **International cooperation:** establish a global action network to address land-sea coordination challenges, focusing on resolving data silos, knowledge gaps, and disparities in financing and technology;
- **Sustained funding:** promote the establishment of a "Global Water Action" development fund with the participation of governments, financial institutions, and large enterprises, and give priority in supporting ecologically fragile regions and those of global significance.

The dialogue will officially release the "Water for planet" Initiative as a priority agenda

and cooperation roadmap for global water governance in the next five to ten years.

Despite the severe challenges, with scientific planning, technological innovation, adequate financing, and firm political will, the international community is fully capable of building a water resource management system that adapts to global change. The next decade is a critical window of opportunity. Guided by the principle of common but differentiated responsibilities, all countries should demonstrate political commitment and accelerate transformative adaptive actions to ensure that water resources continue to support sustainable development, leaving future generations a secure water supply and a healthy ecological legacy.

VI. Guiding Questions

To encourage in-depth discussion of key issues and solutions, the following guiding questions are proposed:

1. Climate Change Adaptation

- How can climate uncertainty be systematically integrated into national water resource planning and management systems?
- How can climate risks for water infrastructure be scientifically assessed, and dynamic adaptive standards be established?
- How can we balance short-term development needs with long-term climate risks and promote cost-effective adaptation measures?
- How can we accelerate the research, development, and application of adaptive technologies to improve resilience to extreme hydrological events?

2. Biodiversity

- How can poverty reduction and ecological protection be advanced in a coordinated way in developing countries?
- How to establish an effective ecological coordinated management mechanisms for cross-border river basins?
- How can advanced monitoring technologies enhance ecological data support and translate it into effective policies?
- How can we engage public, community, and business participation in biodiversity protection?

3. Desertification Control

- How does desertification threaten the water-related targets of the SDGs — such as food security (SDG 2), clean water and sanitation (SDG 6) and life on land (SDG

15)—and what integrated responses can reverse these trends?

- How can the mutually reinforcing objectives of combating desertification and sustaining food production be reconciled so that ecological security and food security are advanced in a balanced and mutually supportive manner?
- In line with the United Nations Convention to Combat Desertification (UNCCD) and related multilateral instruments, what measures can accelerate the implementation of land-restoration, drought-mitigation and sustainable-development commitments at all scales?
- How can proven technologies and local practices—such as China's straw-checkerboard sand-fixation system applied in the Kubuqi Desert—be scaled up and shared internationally as part of the global technology facilitation mechanism?
- What policy frameworks and financing models can enable developing countries to simultaneously reduce poverty and reverse land degradation, thereby delivering co-benefits for livelihoods and ecosystems?
- How can desertification-control programs be systematically aligned with livelihood- supporting priorities, environmental-protection objectives and broader socio-economic goals to accelerate the achievement of the SDGs?

4. Environment and Land-Sea Coordination

- How should the international community work together to deal with new types of pollutants such as microplastics and antibiotics?
- How can we break through the institutional barriers of separate governance of land and sea and establish an integrated governance framework?
- What technological and policy approaches can effectively control land-based marine pollution and be widely promoted?
- How to build a land-sea data-sharing platform to achieve full-chain monitoring and early warning?

5. Disaster Response and Resilience

- How can digital twin technologies be applied to achieve intelligent decision-making throughout the entire chain of "forecasting – early warning – rehearsal – emergency planning" systems?
- How to establish an early identification system for disaster risk generation and transmission of disaster risks, and build an effective and quick emergency response mechanism for flood and drought disasters?
- How to take into account the differences between urban and rural areas, varying

development levels, and hydrological characteristics to develop precise and tiered disaster prevention systems?

6. Cross-Cutting and Public Issues

- What are the key conditions for the global promotion of successful water governance models?
- How can ecological restoration help mitigate the impacts of extreme climate events on biodiversity?
- How can we innovate market-oriented financing mechanisms and form a synergy with traditional funding models?
- How to establish an effective incentive and trust mechanism for cross-border river basin cooperation?
- How can urban planning enhance climate resilience and disaster prevention in urbanized regions?
- How to optimize the allocation of funds, and give priority to ensuring water security for vulnerable areas?
- How to build an international cooperation framework to jointly address long-term water challenges in sensitive regions?

References:

- [1] IPCC. (2021). *Climate change 2021: The physical science basis. Contribution of working group I to the sixth assessment report of the intergovernmental panel on climate change*. Cambridge University Press. <https://www.ipcc.ch/report/ar6/wg1/>
- [2] World Meteorological Organization (WMO). (2021). WMO atlas of mortality and economic losses from weather, climate and water extremes (1970-2019). WMO-No. 1267. https://library.wmo.int/index.php?lvl=notice_display&id=21930
- [3] WWF. (2022). Living planet report 2022: Building a nature-positive society. WWF International. https://www.wwf.org/la/news_and_reports/living_planet_report_2022/
- [4] World Resources Institute (WRI). (2023). *Aqueduct water risk atlas*. <https://www.wri.org/aqueduct>
- [5] Famiglietti, J. S., & Ferguson, G. (2021). The hidden crisis beneath our feet. *Science*, 372(6540), 344–345. <https://doi.org/10.1126/science.abh2867>

[6] United Nations Convention to Combat Desertification (UNCCD). (2022). *Global land outlook 2022* (2nd ed.). UNCCD Secretariat. <https://www.unccd.int/resources/global-land-outlook/glo2>

[7] United Nations World Water Assessment Programme (WWAP). (2023). *The United Nations world water development report 2023: Partnerships and cooperation for water*. UNESCO. <https://www.unesco.org/reports/wwdr/2023/en>

[8] United Nations Environment Programme (UNEP). (2021). *From pollution to solution: A global assessment of marine litter and plastic pollution*. UNEP. <https://www.unep.org/resources/pollution-solution-global-assessment-marine-litter-and-plastic-pollution>

[9] OECD. (2019). *Good governance for critical infrastructure resilience*. OECD Publishing. <https://doi.org/10.1787/02f0e5a0-en>

[10] World Resources Institute (WRI). (n.d.). *Water, energy & food nexus*. Retrieved June 18, 2024, from <https://www.wri.org/water-energy-food-nexus>

2026 United Nations Water Conference

Interactive Dialogue 4: Water for Cooperation

Concept Paper

I. Introduction

Water is a vital resource for sustainable development, peace, and regional stability. Transboundary and international water cooperation is indispensable for achieving Sustainable Development Goal 6 (SDG 6) and other interrelated goals. Since the 2023 UN Water Conference, although countries and the United Nations have been striving to take various measures to accelerate the achievement of the Sustainable Development Goals, due to climate change, population growth, increasing water scarcity, and even the impact of wars, fully achieving SDG 6 by 2030 remains highly challenging. Addressing water issues through cooperation rather than conflict, and enhancing transboundary water cooperation, international scientific and technological cooperation on water resources, and water governance cooperation, can bring shared economic, social, and environmental benefits, and promote the early achievement of SDG 6.

As a basin country of transboundary rivers, China shares over 150 transboundary rivers with 17 neighboring countries, making it one of the countries with the most transboundary rivers in the world. The basin area of transboundary rivers within China accounts for about one-quarter of China's total land area, and the combined population of China and its neighboring countries sharing these transboundary rivers is nearly half of the global total population. China has always been committed to responsible water resources management and mutually beneficial cooperation, continuously carrying out the rational utilization and effective protection of transboundary rivers. It has established various types of transboundary river cooperation mechanisms tailored to local conditions with neighboring countries, firmly promoting harmony, stability, and sustainable development in transboundary river regions. Through robust bilateral and multilateral mechanisms, China has advanced joint water resources management, scientific collaboration, capacity building, and infrastructure development in shared basins. These efforts have made significant contributions to regional water security, water resources utilization and protection, ecological sustainability, poverty reduction, and the achievement of the Sustainable Development Goals.

II. Status and Trends

Globally, progress on transboundary water cooperation remains slow and uneven. Among the 153 countries sharing transboundary rivers, lakes, and aquifers, only 43 countries have cooperation covering 90% or more of their transboundary waters. Only 26 countries have cooperation covering all their transboundary waters

(UNECE/UNESCO/UN-Water, 2024). The world is not on track to achieve SDG target 6.5 by 2030. Challenges such as data scarcity, financing gaps, and geopolitical complexities persist.

In Asia, China actively participates in water cooperation through various frameworks:

Bilateral Agreements: China has established hydrological data-sharing mechanisms and cooperation agreements with multiple neighboring countries. For instance, China engages in transboundary water cooperation with Kazakhstan, Russia, and Mongolia in basins such as the Khorgos River, Amur River, Kerulen River, and Khalkhin Gol River, focusing on joint construction and operation of boundary river projects, flood control, water quality, and water ecology. China is committed to the reciprocal exchange of hydrological data for the Yarlung Zangbo River (Brahmaputra) with India and Bangladesh during the flood season, working together on basin-wide early flood warning.

Multilateral Platforms: The Lancang-Mekong water resources cooperation mechanism, initiated by China and encompassing Cambodia, Laos, Myanmar, Thailand, and Vietnam, is a prominent example of successful sub-regional water cooperation. Under the Lancang-Mekong water resources cooperation framework, China continuously exchanges hydrological data with downstream countries and has established the Lancang-Mekong Water Resources Cooperation Center to promote joint research, capacity building, and project implementation.

Cooperation with International Organizations: China has engaged in dialogue and cooperation with the Mekong River Commission (MRC), signing a Memorandum of Understanding on Hydrological Data Sharing. China also participates in water-related initiatives under the Shanghai Cooperation Organization (SCO) and cooperates with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Economic Commission for Europe (UNECE).

China's Actions for Implementing SDG 6: China has implemented innovative national policies supporting SDG 6, such as the "River Chief System" and the construction of sponge cities (State Council General Office Guiding Opinions on Promoting Sponge City Construction [State Council Document No. 75, 2015]). China has integrated Integrated Water Resources Management (IWRM) into its national development strategy, comprehensively implemented the integrated management of mountains, waters, forests, farmlands, lakes, grasslands, and deserts, achieving remarkable results. The ecological environment has improved year by year, everyone has access to clean drinking water and sanitary living conditions, drinks clean water, and deaths from waterborne diseases have been effectively controlled. These practices offer valuable experience for other countries.

III. Challenges and Emerging Issues

Since the 2023 Water Conference, several challenges have become more pronounced:

Climate Change Impacts: Accelerated global glacial melt is altering river flow regimes, increasing flood risks in the short term for major rivers like the Lancang-Mekong and Yarlung Zangbo, and creating long-term pressure on water resources availability.

Data Asymmetry and Trust Deficits: Despite improvements, gaps in real-time data sharing and standardized monitoring methods can still hinder trust and effective cooperative management.

Financing Gaps: Significant funding shortfalls exist for establishing and sustaining joint institutions, implementing joint basin management plans, and building resilient water infrastructure.

Ecosystem Degradation: Pollution from agriculture, industry, and urban areas, along with habitat fragmentation caused by infrastructure construction, threatens the health of shared aquatic ecosystems.

Interlinkages with Other SDGs:

International water cooperation is a catalyst for progress across the entire 2030 Agenda. For example:

SDG 13 (Climate Action): Transboundary cooperation is crucial for developing joint climate adaptation strategies, such as the collaborative flood and drought management under the Lancang-Mekong cooperation.

SDG 7 (Affordable and Clean Energy): Cooperation on sustainable hydropower development, as seen in China's joint projects with Laos and Pakistan, can support the clean energy transition, while requiring careful management of transboundary impacts.

SDG 15 (Life on Land): Cooperative efforts to protect transboundary watersheds and wetlands, such as the cooperation between China, Russia, and Mongolia in the Am River basin, directly contribute to terrestrial ecosystem conservation.

IV. Solutions

China's experience offers a portfolio of actionable, innovative, and scalable solutions:

1. **Institutionalizing Cooperation through Joint Bodies:** The establishment of the Lancang-Mekong Water Resources Cooperation Center (2017) provides a permanent institutional platform for dialogue, planning, and project implementation, enhancing the resilience and sustainability of cooperation.

2. **Science-Driven and Data-Based Cooperation:** China is committed to the reciprocal exchange of basin hydrological data with Mekong countries and has developed the Lancang-Mekong Water Resources Cooperation Information Sharing Platform, demonstrating how transparency and knowledge sharing build trust and

enable evidence-based decision-making.

3. **Infrastructure Cooperation with Green Principles:** China and Kazakhstan jointly built the Khorgos River "Friendship" Joint Water Diversion Project, benefiting people on both sides. Simultaneously, China is increasingly integrating environmental and social safeguards into its overseas water infrastructure projects. In the Mekong and Central Asia regions, the emphasis on run-of-river hydropower projects and investments in solar and wind power alongside hydropower reflects efforts to minimize environmental impacts and promote a sustainable water-energy-food-ecosystems nexus.

4. **Capacity Building as a Cornerstone:** Through China's foreign aid programs, thousands of water professionals from developing countries have been trained. Programs cover IWRM, flood control, irrigation, and hydropower technology, fostering a global community of practice.

5. **South-South Cooperation and Green Financing:** China provides grants, concessional loans, and technical assistance for water projects in Africa and Asia through mechanisms like the China-UN Peace and Development Fund and the Silk Road Fund. The potential is growing to align such investments with the "Paris Agreement" and the SDGs.

V. Recommendations and Conclusions

To accelerate the achievement of SDG 6 by 2030, active international water cooperation is essential. The following actions are recommended:

A. **Strengthen Data and Knowledge Sharing:** Upstream, downstream, left-bank, and right-bank countries should reciprocally exchange hydrological data during flood seasons, achieve mutual cooperation, bidirectional sharing, and lasting collaboration, jointly address extreme weather events in the basin, and actively conduct joint scientific research.

B. **Scale Up Innovative Financing:** Innovate financing for transboundary water projects and establish corresponding funds. Develop blended finance models that combine public funding with private capital for sustainable water infrastructure construction in shared basins.

C. **Promote Inclusive and Cross-Sectoral Governance:** Drawing on China's experience with public participation in the "River Chief System," actively involve local communities, Indigenous Peoples, women, and youth in the daily management of transboundary waters. Systematically apply the Water-Energy-Food-Ecosystems (WEFE) Nexus in basin planning, properly handle development and protection, and achieve sustainable basin development.

D. **Leverage Regional Leadership and South-South Cooperation:** Support regional mechanisms like Lancang-Mekong cooperation, China-Central Asia cooperation, the African Ministers' Council on Water (AMCOW), and the Southern African Development Community (SADC) in facilitating transboundary dialogue.

Promote successful South-South cooperation models, including technology transfer and capacity building.

VI. Guiding Questions

1. How can we leverage various successful examples of transboundary river cooperation to accelerate the establishment of operational cooperation schemes for needed transboundary rivers, lakes, and aquifers by 2030?

2. What transformative governance innovations (e.g., digital water management, nexus approaches) can most effectively support inclusive and cross-sectoral water cooperation?

3. How can the international community better utilize water as a driver for peace and reconciliation, including in fragile and post-conflict settings?

4. What are the most effective mechanisms to articulate, promote, and equitably maximize the shared benefits of water cooperation across communities, sectors, and countries?

5. How can the significant gap in funding and financing for transboundary water cooperation be addressed? How can synergies between existing models (e.g., climate funds, South-South cooperation, private investment) be strengthened?

6. How can synergies between climate action and water cooperation be systematically enhanced within global frameworks like the UNFCCC and the implementation of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs)?

2026 United Nations Water Conference

Interactive Dialogue 5: Water in Multilateral Processes

Concept Paper

I. Introduction

Water is the source of life, a fundamental resource for human survival and development, and the foundation of sustainable development, ecosystem balance, and shared prosperity. Today, the global water crisis is becoming increasingly severe. Currently, 3.6 billion people face inadequate access to water at least a month per year, and this is expected to increase to more than 5 billion by 2050, according to UN-Water. The 2030 Agenda for Sustainable Development, adopted by 193 Member States of the United Nations in 2015, set out SDG 6: Ensure availability and sustainable management of water and sanitation for all. Yet the world continues to confront serious challenges in implementing SDG 6, highlighting that it is imperative for the international community to strengthen multilateral cooperation and jointly address water governance issues.

The 2026 UN Water Conference, to be held from December 2 to 4, 2026 in the United Arab Emirates, will serve as another milestone global event on water following the 2023 edition. Under the overarching theme of “Water in Multilateral Processes”, the conference will feature six interactive dialogues to review the progress and prospects of SDG 6, the 2030 Agenda and beyond, and global water initiatives. As an active participant and contributor to global water governance, China has consistently fulfilled its international responsibilities and advanced the building of a fair, reasonable, and mutually beneficial global water governance system.

II. Current State and Trends

Recent years have been marked by increasingly frequent extreme weather events around the world. Water-related disasters such as floods and droughts are becoming more frequent, intense, widespread, and unpredictable, posing complex and uncertain risks. The UN World Water Development Report 2024 highlights that global water security remains under severe threat and continues to pose risks to peace and stability. In terms of access to safe drinking water—a basic human right—**2.2 billion** people still lack safely managed drinking water services, **3.5 billion** are without safely managed sanitation, **296 million** use unimproved water sources, and **115 million** obtain their drinking water directly from surface water sources such as rivers and lakes.

On water quality and biodiversity, as of 2023, 80 percent of the world’s wastewater was discharged untreated, with the proportion rising to **99 percent** in developing countries. Untreated wastewater not only deprives approximately **26**

percent of the global population of access to clean drinking water but also severely threatens biodiversity, leading to widespread river pollution across the globe.

At the same time, water stress is intensifying worldwide. About **40 percent** of the global population lives within transboundary basins, yet only **one in five** countries has formal agreements for the equitable and cooperative management of shared water resources. Roughly **two-thirds** of transboundary rivers lack cooperative management frameworks, further aggravating the water crisis and revealing the critical gaps in transboundary water cooperation mechanisms.

Despite these challenges, the international community has made progress in advancing sustainable water management. The 2023 UN Water Conference adopted the Water Action Agenda, which compiled more than 700 commitments on water-related action covering capacity building, data monitoring, and infrastructure improvement. China, as co-chair of one of the interactive dialogues, submitted 28 voluntary commitments to the Water Action Agenda, many of which are now being implemented with tangible results, injecting new momentum into global water governance.

Multilateral processes play an irreplaceable role in fostering global water cooperation. International organizations such as UN-Water, UNESCO, WHO, and FAO have actively coordinated global water cooperation while mobilizing resources and technical support to promote water and sanitation systems. Upholding the principles of consultation, cooperation and shared benefits, China has advanced water infrastructure cooperation within the frameworks of the Belt and Road Initiative and the Global Development Initiative, supporting partner countries in achieving sustainable development and utilization of water resources.

III. Challenges and Emerging Issues

Achieving SDG 6 remains a long-term and formidable task, as global water security is projected to become even more critical in the coming decades. In many developing countries, inadequate water management and insufficient infrastructure continue to hinder sustainable socioeconomic development. Climate change and water security are closely interlinked. Climate change is intensifying the hydrological cycle, causing more frequent floods and droughts, and posing immediate threats to sustainable water management. At the same time, sustainable water management serves as a key tool for addressing climate change by strengthening resilience and adaptive capacity.

Transboundary water cooperation and global water governance mechanisms require further strengthening. Significant gaps persist in the areas of water data sharing, joint monitoring, and coordinated management, limiting the effectiveness of integrated management and cooperative development in transboundary basins. The *Global Transboundary Water Conflicts and Resolutions* underscores the urgent need to develop innovative water governance models and to enhance international cooperation mechanisms to address these challenges.

The interlinkages between water, energy, and food are becoming increasingly

prominent. Sustainable water management is essential to ensuring both energy security and food security, requiring integrated approaches that maximize co-benefits. However, many countries still face policy, technological, and financial barriers in achieving integrated management of the water-energy-food nexus.

IV. Solutions

To address the above challenges, the international community needs to adopt comprehensive and transformative measures to promote sustainable water management:

First, strengthening integrated water management is crucial. This includes adopting water-saving technologies, improving water use efficiency, and strictly controlling water pollution. With only 6 percent of the world's freshwater resources, China has managed to ensure food and water security for nearly 20 percent of the global population, and has contributed more than 18 percent of the world's economic output. This demonstrates that by implementing national water-saving initiatives, enforcing strict constraints, and establishing integrated water management systems, countries can significantly elevate water use efficiency.

Second, innovative financing mechanisms are needed. It is important to expand financing channels and develop innovative financial instruments to mobilize resources for the water sector. Multilateral development banks and other international financial institutions can play a greater role in this, providing resources to developing countries. Strong support is required for the UN Secretary-General's SDG Stimulus, with increased investment in water and sanitation systems to close financing gaps and accelerate progress.

Third, it is crucial to enhance data and monitoring systems. A global water information system can improve knowledge on water availability, demand, and storage. By introducing integrated policies on land use, water resources, and climate, water management can become a key lever for climate change mitigation and adaptation.

Fourth, technological innovation and capacity building are essential. There is a need to advance scientific research and the application of new technologies, including the adoption of digital and intelligent solutions in water management. China's success in applying digital technologies and data-driven management approaches to water governance provides valuable experience for developing countries.

V. Recommendations and Conclusions

To achieve SDG 6 and the water-related targets of the 2030 Agenda, the international community should forge consensus and take concrete action at the 2026 UN Water Conference:

First, strengthening multilateral cooperation mechanisms. UN should be supported in playing a central coordinating role in global water cooperation, mobilizing resources across the UN system to facilitate Member States in fulfilling

their commitments under the Water Action Agenda. Developed countries should honor their official development assistance (ODA) pledges and provide more financial, technological, and capacity-building support to developing countries to help them achieve SDG 6.

Second, promoting knowledge sharing and capacity building. A global water knowledge-sharing platform should be established to disseminate successful experiences and technological innovations. The capacity of developing countries in water management, water-saving technologies, and hydrological monitoring should be enhanced, particularly through South-South cooperation and triangular cooperation models, to drive experience exchange and technology transfer. Youth engagement and exchange should be encouraged; for example, the trilateral youth cooperation among China, Japan, and the Republic of Korea provides a great model for collaboration.

Third, fostering cross-sectoral and coordinated governance. Integrated policy approaches that align water, energy, and food strategies should be adopted to maximize synergistic benefits. Governments should develop science-based water management roadmaps and place sustainable water use at the center of their national development strategies.

Fourth, enhancing water resilience to climate change. Water resource management should be recognized as a key tool for tackling climate change by strengthening climate risk management in the water sector and improving the resilience and adaptive capacity of water infrastructure. Countries should integrate sustainable water management into their Nationally Determined Contributions (NDCs).

The 2026 UN Water Conference represents a milestone in the global water governance process and a historic opportunity to accelerate progress in SDG 6. China will continue to actively engage in the interactive dialogues, working with all parties to explore transformative solutions and translate political commitments into tangible actions. As demonstrated in the High-Level International Seminar on SDG 6 Progress of ACD Member Countries, China remains committed to the global water governance agenda and stands ready to share its experiences and technologies in water management to enhance global water governance.

The international community should work hand in hand to seize the opportunity presented by the 2026 UN Water Conference, build political consensus, mobilize resources, and embrace innovative cooperation models. Together, we can tackle global water challenges, advance the realization of the water-related targets of the 2030 Agenda, and create a world where everyone has access to safe and sustainable water.

VI. Guiding Questions

The following guiding questions may be used to inform discussions and forge consensus on SDG 6 implementation, the 2030 Agenda and beyond, and global water initiatives, so that the Interactive Dialogue on “Water in Multilateral Processes” at the 2026 UN Water Conference can be productive.

(i) Accelerating multilateral cooperation in the implementation of SDG 6

In light of the overall delay in achieving SDG 6, how can multilateral organizations and national governments coordinate their actions to accelerate progress in key areas such as safe water, sanitation, and hygiene (WASH) in the most cost-effective and impactful manner?

How can strengthened multilateral cooperation mechanisms more effectively support developing countries, particularly least developed countries and small island developing states, in enhancing water governance, monitoring systems, and management capacities to overcome structural barriers to attaining SDG 6?

(ii) Bridging data and knowledge gaps

How can we jointly enhance the collection, sharing, and standardization of water-related data at global and national levels to fill critical information gaps and inform decision-making and integrated water management?

Through international/multilateral platforms, how can successful practices and innovations (e.g., China's experience in building a water-saving society) be better shared in the areas of integrated water management, water efficiency, and smart water governance?

(iii) Mobilizing finance and innovative investment

How can multilateral channels effectively leverage both public and private sector financing to scale up investment in water and sanitation infrastructure? In particular, what catalytic roles can multilateral development banks and international financial institutions play in promoting innovative financing tools (e.g., green bonds and water funds)?

How can we ensure that financing is directed toward the most vulnerable populations and to climate-resilient water infrastructure, addressing both water security and climate challenges simultaneously?

(iv) Addressing emerging challenges and maximizing synergies

Within multilateral agendas, how can we better manage the water-energy-food nexus and promote coherent cross-sectoral policies to optimize resource utilization and enhance synergies among the SDGs?

As climate change exacerbates water-related crises, how can countries integrate sustainable water management into their Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), while strengthening multilateral technical support and cooperation in this process?

(v) Future vision and youth engagement

Beyond the 2030 Agenda, what should be our long-term vision for global water governance? How should multilateral processes evolve to effectively address emerging water challenges in the coming decades?

How can we meaningfully engage youth, women, indigenous peoples, and local communities in multilateral water decision-making to promote equity, inclusiveness, and sustainability in water governance?

These questions are intended to encourage reflection, foster the sharing of experiences and lessons learned, and explore pathways for collaboration, collectively injecting new political momentum and practical action into the global endeavor to realize SDG 6 and the 2030 Agenda for Sustainable Development.

References

- [1] Zhang Yifei. Global Transboundary Water Conflicts and Resolutions. Gezhi Publishing House, 2020.
- [2] IPCC. Climate Change 2022: Impacts, Adaptation and Vulnerability. Cambridge UP, 2022.
- [3] OECD. Financing Water: Investing in Sustainable Growth. OECD Publishing, 2018.
- [4] Rana, Sarwat. “Water Security in the 21st Century: A Global Literature Review and Policy-Oriented Synthesis.”
Academia.edu, 2025.
- [5] UNEP. Status Report on The Application of Integrated Approaches to Water Resources Management. United Nations Environment Programme, 2012.
- [6] UNESCO. The United Nations World Water Development Report 2024: Water for Prosperity and Peace. United Nations Educational, Scientific and Cultural Organization, 2024.
- [7] United Nations. Transforming Our World: The 2030 Agenda for Sustainable Development. United Nations, 2015.
- [8] Water Action Agenda. United Nations, 2023.
- [9] UN Water. Blueprint for Acceleration: Sustainable Development Goal 6 Synthesis Report on Water and Sanitation 2023. United Nations, 2023.
- [10] Summary Progress Update 2021: SDG 6 – Water and Sanitation for All. United Nations, 2021.

2026 United Nations Water Conference

Interactive Dialogue 6: Investments for Water

Concept Paper

I. Introduction

Water is an essential driver of sustainable development. Challenges such as water scarcity, floods, pollution, and the degradation of aquatic ecosystems have direct implications for food security, energy security, ecological integrity, and human health. The 2023 UN Water Conference called for accelerated action, urging the international community to increase investment, enhance technological innovation, and strengthen capacity building to achieve SDG 6 and other related goals. Although global investment in the water sector has increased in recent years, overall levels remain low, with the financing gap reaching hundreds of billions of U.S. dollars. Moreover, climate change, the growing frequency of extreme events, and ongoing socioeconomic transformations have placed even higher demands on water-related investment.

This interactive dialogue aims to bring together governments, international organizations, financial institutions, academia, and the private sector to explore how innovative financing mechanisms, frontier technologies, and systemic capacity building can help to build a sustainable approach to water investment—one that enhances global water security and accelerates shared prosperity.

II. Current State and Trends

The UN Sustainable Development Goals Report 2024 notes that achieving the SDGs on schedule requires bridging an enormous financing gap, both in the short and long term. Annual investment needs in the water sector are estimated at between \$182 billion and \$664 billion, according to the SDG 6 Progress Report. The financing gap for water supply and sanitation amounts to \$116-229 billion per year, for flood management \$23-335 billion per year, and for irrigation \$43-100 billion per year. Water-related management activities also require substantial financial support. As shown by relevant data, achieving SDG 6 would require more than \$1 trillion in annual investment.

Although public finance and international assistance remain the primary sources of funding for the water sector, financing mechanisms are becoming increasingly diversified. Multilateral development banks such as the World Bank, Asian Development Bank (ADB), African Development Bank (AfDB), and Asian Infrastructure Investment Bank (AIIB) have expanded loans and grants for water projects, while also exploring blended finance models to leverage private capital. Mechanisms such as the Green Climate Fund (GCF) and Global Environment Facility

(GEF) have played key roles in financing projects on water and climate resilience, ecosystem restoration, and pollution control. In recent years, blue bonds, green bonds, water funds, and public-private partnership (PPP) models have been introduced in some countries, expanding financing channels.

Technology and innovation have emerged as new priorities in water investment. Cutting-edge technologies such as digital twins, artificial intelligence (AI), big data analytics, remote sensing, and the Internet of Things (IoT) are increasingly applied in water resource monitoring, river basin modeling, disaster forecasting, and smart water governance. Green infrastructure and nature-based solutions (NbS) have demonstrated notable benefits in urban flood control, river basin restoration, and wetland governance. Research and development spending in the global water sector continues to rise, yet the distribution of innovative outcomes remains highly uneven. Technology adoption in low-income countries lags behind.

Capacity building is instrumental in shaping water investment. Over the past decade, a growing number of international training programs, knowledge platforms, and South-South cooperation initiatives have emerged. Examples include transnational training networks established under UN-Water, youth exchange and research programs promoted by the World Water Council and International Water Resources Association, and China's "Belt and Road" Water Talent Training Initiative. Capacity building has evolved beyond technical engineering skills to encompass policymaking, governance frameworks, and financial mechanism design.

Overall, global water investment is shaped by the following trends:

(1) Growing financing demand. Funding needs and expenditures continue to rise, yet the financing gap remains vast.

(2) Diversification of financing mechanisms. Public finance is evolving toward a mix of multilateral, market-based, and innovative financial instruments.

(3) Acceleration of technological innovation. Digitalization and green trends are advancing, though the digital divide persists.

(4) Integration of capacity building. Capacity building is expanding from technical training to encompass institutional, governance, and cross-sectoral capabilities.

III. Challenges and Emerging Issues

While meaningful progress in global water investment has been made in recent years, the water sector as a whole continues to grapple with a complex landscape of challenges and emerging issues. These reflect both the deep-seated structural contradictions that have built up over time and the broader global trends that have come to the fore in recent years.

(i) Consistently huge financing gap

According to World Bank research, achieving water-related SDG targets and addressing decades of underinvestment would require an estimated \$7 trillion in global financing for water infrastructure by 2030. Yet nearly 91 percent of annual water-sector spending currently comes from public sources—governments and state-owned enterprises—while the private sector contributes less than 2 percent. World Bank data indicate that to meet SDG targets 6.1 and 6.2, the annual funding shortfall for water supply and sanitation amounts to \$131-141 billion (in 2017 prices), with an additional \$3.5 billion gap for irrigation. The 2024 Water Funding Gap Report published by Action Against Hunger on March 19, 2024 shows that among 33 surveyed countries, total water financing needs exceeded \$3 billion in 2023, but only 36 percent (\$1.1 billion) was actually met. Although this represents an improvement over 2022, there is still a long way to go before global water investment can adequately support a water-secure world. Significant disparities also persist among countries: financing coverage rates range from as low as 0.7 percent (El Salvador) to as high as 212 percent (Libya, due to emergency funding for reconstruction after the 2023 floods severely damaged water and sanitation infrastructure).

(ii) Low budget execution and inefficient use of funds

The financing gap is only part of the problem, as indicated by World Bank studies. Many countries struggle to fully execute their allocated budgets for water and sanitation, with average implementation rates around 72 percent. Narrowing this execution gap by half could reduce the annual funding shortfall by \$13 billion, nearly 10 percent of required additional spending. For example, the U.S. Agency for International Development reported that Mozambique’s water and sanitation budget execution rate in 2017 was only 49 percent. The priority, therefore, is not merely to increase allocations but to improve budget execution and financial management. A related concern is widespread inefficiency among utilities. Average annual losses for a typical water utility total approximately \$21 million, or 16 percent of operating costs. With thousands of such utilities worldwide, these hidden inefficiencies amount to cumulative losses of hundreds of billions of U.S. dollars each year.

(iii) Climate change exacerbating financial stress

Climate change and the growing frequency of extreme events have increased financial pressures on the water sector. Disasters such as floods, droughts, and storm surges cause massive losses and compel governments to channel funds into emergency responses, often at the expense of long-term adaptation and resilience investments. While climate finance channels have expanded, the share directed toward water remains limited. The recently created Loss and Damage Fund still lacks clear operational arrangements for water-related interventions, constraining its ability to support affected countries effectively.

(iv) Uneven dissemination of innovations

Although new water technologies have been emerging globally, the digital divide and uneven innovation diffusion remain stark. High-income countries are advancing rapidly in smart water management, green infrastructure, and digital twin systems, while many low-income countries have insufficient financial and technical capacity to

adopt these solutions. This technological disparity not only reduces the overall effectiveness of global water investment but also widens the water governance gap between the Global North and South.

(v) Fragmented and insufficient capacity building

The international community has launched numerous capacity-building initiatives, yet most are fragmented and limited in scope. Many programs focus narrowly on short-term training or technical aspects, lacking institutional follow-up and sustainable impact. Cross-disciplinary and cross-sectoral capacity building is still weak, with inadequate integration across finance, governance, law, and engineering. As a result, even when countries secure funding and technology, they often struggle to maintain effective project implementation and management.

(vi) Social equity and vulnerable groups overlooked

Water investment tends to concentrate in major cities and economically developed regions, leaving rural, remote, and vulnerable communities with limited access to resources. Gender equality and youth engagement are still inadequately reflected in water investment planning and execution. In some countries, the introduction of market-oriented mechanisms such as PPPs has led to rising water tariffs that disproportionately burden low-income groups, thereby aggravating social inequality.

(vii) New global governance agendas

New global governance agendas, such as green transition under carbon peak and neutrality goals, mainstreaming nature-based solutions (NbS), and source-to-sea integrated management, have opened new opportunities but also created additional complexity for water investment. For example, unified standards for green finance in the water sector are absent; NbS project financing frameworks remain underdeveloped; and integrating funds across sectors poses significant challenges. Meanwhile, the digital transformation that enhances efficiency also raises concerns regarding data privacy, cybersecurity, and accountability.

In summary, the challenges of water investment stem from overlapping factors: inadequate financing, weak mechanisms, uneven distribution, and persistent capacity gaps. Climate change, digital transformation, and social equity issues have introduced new layers of complexity. Addressing these challenges requires concerted global action across policy, finance, technology, and capacity building, to position water investment as a cornerstone of sustainable development and climate action worldwide.

IV. Solutions

Addressing the global challenges of water investment requires systemic, innovative, and pragmatic solutions that enable water investment to serve as a vital pillar of sustainable development and climate action.

(i) Establishing a diversified financing system

(1) Innovative financial instruments. It is essential to explore results-based payment mechanisms and blended finance approaches that can attract greater private-sector participation in the water sector. Risk-sharing arrangements and guarantee mechanisms can reduce investment barriers for private entities.

(2) Public-Private Partnerships (PPPs). Robust policy and legal frameworks ensure that PPP projects can achieve a balance between public interest and reasonable investment returns without imposing additional burdens on vulnerable populations.

(3) Strengthening the role of multilateral development banks. Multilateral development banks, including the World Bank, ADB, and AfDB, need to play an important role in increasing water financing. They can promote co-financing mechanisms to channel more resources toward least developed countries (LDCs).

(4) Establishing a Global Water Investment Fund. A dedicated Global Water Investment Fund may be established, drawing on the successful experience of the Global Environment Facility (GEF) and the Green Climate Fund (GCF). This fund can focus on key areas such as clean water supply, sanitation, water environment, and aquatic ecosystem.

(ii) Promoting technological innovation and green transition

(1) Digitalization and smart management. Accelerating the application of digital twins, AI, big data analytics, and IoT in river basin management, water-supply network monitoring, and disaster early-warning systems would enhance investment benefits and transparency.

(2) Green infrastructure and nature-based solutions (NbS). Wide adoption of NbS such as ecological embankments, constructed wetlands, and forest restoration is crucial. Integrating these approaches with conventional gray infrastructure would improve flood control, water storage, and water quality.

(3) Cross-sectoral innovation. It is crucial to strengthen investment innovation across the water-energy-food-ecosystem nexus. For example, initiatives such as efficient irrigation technologies, water-efficient energy development, water resource recycling, and clean production can be implemented to drive the transition toward green and low-carbon development.

(4) Technology sharing mechanisms. An international water technology sharing platform that strengthens North-South, South-South, and triangular cooperation is needed. It can promote the dissemination of innovative technologies among countries and therefore help narrow the digital divide.

(iii) Strengthening capacity building and institutional innovation

(1) Comprehensive capacity development. By extending capacity building programs beyond technical and engineering skills to include governance, law, finance,

and data management, countries can enhance their capacities in comprehensive governance and financing.

(2) South-South and triangular cooperation. Enhanced South-South and triangular cooperation can help developing countries share their experiences in water management and irrigation and learn from each other.

(3) Youth engagement and gender inclusion. It is crucial to ensure the participation of youth and women in water investment decision-making and project implementation. More inclusive models for capacity building are needed.

(4) Institutional innovation. Cross-sectoral coordination mechanisms are essential. Integrating water investment into national sustainable development strategies and fiscal planning can ensure policy continuity and financial sustainability.

(iv) Building transparent and sustainable evaluation mechanisms

(1) A unified indicator system. There is a need to develop a globally harmonized performance evaluation system for water investment, covering financial efficiency, social equity, environmental impact, and climate resilience.

(2) Transparency. Transparency in investment processes and outcomes, coupled with enhanced accountability, is essential to bolstering investor confidence.

(3) Dynamic monitoring and adjustment. Data-driven real-time monitoring platforms can be adopted to enable dynamic adjustments to water investment projects in response to changing environmental and social circumstances.

By developing innovative financing systems, advancing technological innovation, strengthening capacity building, and improving cross-border cooperation and evaluation frameworks, the international community can address the challenges of water investment and create a sustainable global approach to water investment. Such an approach would not only contribute to the realization of SDG 6 but also play a pivotal role in climate action, green transition, and social inclusion.

V. Recommendations and Conclusions

Building on the preceding analysis of the current state, trends, challenges, and potential solutions, this section presents some recommendations and conclusions as follows:

(i) Establishing a global partnership platform for water investment

A global partnership platform for water investment under the UN framework should be established to bridge the financing gap and consolidate resources. This platform should bring together governments, multilateral development banks, private-sector actors, philanthropic foundations, and academic institutions to jointly make a global roadmap for water investment. The platform is expected to serve four essential purposes:

(1) Financing facilitation. It should align public resources with private capital through blended financing arrangements.

(2) Knowledge sharing. It should host an international water investment database that collects case studies and best practices.

(3) Policy coordination. It should incorporate harmonized standards and transparent mechanisms.

(4) Partnership and cooperation. It should strengthen South-South and triangular cooperation to facilitate the diffusion of experience.

(ii) Promoting integrated investment across the water-climate-energy-food nexus

Water investment should not exist in isolation; it should be embedded within the integrated governance framework of water-energy-food-ecosystem nexus. Countries should implement cross-sectoral water investment strategies to achieve the following goals:

(1) Climate resilience. Water investment projects should be aligned with Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs).

(2) Energy and food security. Investments should be channeled toward efficient irrigation systems, water-saving energy infrastructure, and sustainable agricultural water use.

(3) Ecosystem protection. Nature-based solutions (NbS) should be prioritized to achieve both water management and biodiversity conservation.

(iii) Enhancing innovation diffusion and capacity building.

Technology dissemination and capacity building are fundamental to achieving equitable water investment outcomes. Recommendations:

(1) International technology-sharing network. Platforms such as the UN Department of Economic and Social Affairs and UN-Water should be leveraged to facilitate collaboration among research institutions and enterprises across countries.

(2) Regional training hubs. Regional capacity-building centers should be established in Africa, Asia, and Latin America to provide long-term training in governance, finance, data management, and technology application.

(3) Youth engagement and gender inclusion. Water investment initiatives should ensure that at least 30 percent of training and employment opportunities are made accessible to women and young people.

(iv) Improving monitoring, evaluation, and oversight mechanisms

Transparency and oversight are prerequisites for building investor confidence and ensuring equitable outcomes. Recommendations:

(1) A globally harmonized indicator system should be developed to assess water investment performance in terms of financial efficiency, social equity, environmental impact, and climate resilience.

(2) A regular reporting mechanism should be put in place. Member States should submit biennial progress reports on water investment to the UN.

(3) An independent oversight body should be created, with a mandate to ensure transparency in the use of funds and to prevent corruption and the waste of resources.

(v) Prioritizing the needs of developing countries and advancing shared benefits

Water investment should be guided by the principles of equity, inclusiveness, and mutual benefit, with particular attention to the needs of low-income countries and vulnerable groups:

(1) Differentiated financial support. Concessional loans, grants, and risk-guarantee instruments should be accessible to least developed countries (LDCs).

(2) Priority for regional cooperation projects. Cross-border financing mechanisms should be harnessed to support basin-wide governance.

(3) Social equity safeguards. Water investment programs should avoid rising water tariffs that negatively affect low-income communities.

Water investment is not merely a question of financial flow; it represents the reshaping of the global governance framework. The next five years will be decisive in determining whether the world can achieve SDG 6 and the 2030 Agenda for Sustainable Development. Countries must work together to advance innovative financing, technology sharing, capacity building, and multilateral cooperation, thereby fostering a transparent, sustainable, and inclusive global approach to water investment. Only through these efforts can the global community realize the vision of “water and sanitation for all” and pave the way for green transition, climate resilience, and shared prosperity for humanity.

VI. Guiding Questions

The following guiding questions may be used to inform the interactive dialogue. These questions cover traditional areas such as financing, technology, and capacity building, while also addressing emerging issues related to climate change, social equity, cross-border cooperation, and new global risks.

(i) Investment and financing mechanisms

1. How to reduce the financing gap in global water investment, particularly in

low-income countries and least developed countries?

2. In what ways should public finance, private capital, and multilateral development banks coordinate to promote sustainable water investment?
3. What are the major barriers to the adoption of blue bonds, green bonds, and blended finance instruments? How can regulatory and legal frameworks be strengthened to overcome them?

(ii) Technology and innovation

4. What measures should be taken to advance the application of digital twins, AI, big data, and IoT in water management while ensuring that developing countries equally benefit from these technologies?
5. Given the proven potential of nature-based solutions (NbS) in urban flood control, river basin restoration, and water quality improvement, what financing mechanisms can be developed to support their large-scale implementation?
6. How can cross-sectoral technological innovation be promoted to achieve synergistic investment benefits across the water-energy-food-ecosystem nexus?

(iii) Capacity building and institutional innovation

7. How can countries strengthen comprehensive capacity building across governance, finance, law, and technology?
8. In what ways can South-South and triangular cooperation play a greater role in the sharing of water investment knowledge and experiences?
9. How to ensure the full and equitable participation of youth and women in decision-making and implementation processes related to water investment?

(iv) Social equity and emerging issues

10. How to ensure that water investment initiatives avoid exacerbating social inequality, particularly ensuring that vulnerable populations are not negatively affected by rising water tariffs or inequitable resource allocation?
11. As digital transformation enhances efficiency, what international mechanisms are needed to address data security and privacy protection challenges?
12. How can water investment be effectively aligned with broader global agendas such as green transition, carbon neutrality, and source-to-sea integrated management?

These questions aim to guide the exchange of experiences and innovative ideas,

with a view to generating concrete, actionable outcomes and initiatives. Through dialogue and cooperation, the global community can foster a more inclusive, transparent, and sustainable approach to water investment.

References

1. United Nations. (2023). *United Nations 2023 Water Conference: Summary Report*. New York: UN DESA.
2. United Nations General Assembly. (2024). *Resolution A/RES/78/327: The 2026 United Nations Water Conference*. New York: UN.
3. United Nations Department of Economic and Social Affairs (UN DESA). (2025). *Concept Note for the 2026 UN Water Conference Interactive Dialogues*. New York: UN DESA.
4. UN-Water. (2023). *Summary Progress Update 2023: SDG 6 — Water and Sanitation for All*. Geneva: UN-Water.
5. UN-Water. (2021). *Guiding Principles on Blended Finance for Water and Sanitation*. Geneva: UN-Water Technical Brief.
6. United Nations Environment Programme (UNEP). (2022). *Nature-based Solutions for Water Security and Climate Adaptation*. Nairobi: UNEP.
7. United Nations Framework Convention on Climate Change (UNFCCC). (2023). *Sharm el-Sheikh Implementation Plan: Outcomes of COP27*. Bonn: UNFCCC Secretariat.
8. OECD. (2022). *Financing a Water Secure Future*. Paris: OECD Publishing.
9. OECD & World Bank. (2021). *Blended Finance for Water Infrastructure: Scaling Investment for Sustainable Development*. Paris/Washington DC.
10. World Bank. (2023). *The Global Water Security and Sanitation Partnership (GWSP) Annual Report 2022–2023*. Washington, DC: World Bank.
11. World Bank & IMF. (2022). *Mobilizing Private Finance for Sustainable Water Infrastructure*. Washington, DC.
12. Asian Development Bank (ADB). (2021). *Water Sector Financing and Innovation Report*. Manila: ADB.
13. African Development Bank (AfDB). (2022). *African Water Facility Annual Report 2022*. Abidjan: AfDB.

14. Asian Infrastructure Investment Bank (AIIB). (2023). *Financing Sustainable Infrastructure: AIIB Annual Report*. Beijing: AIIB.
15. Green Climate Fund (GCF). (2022). *Annual Results Report 2022: Investing in Climate-Resilient Water Systems*. Incheon: GCF.
16. Global Environment Facility (GEF). (2023). *GEF-8 Programming Directions: International Waters and Water Governance*. Washington, DC: GEF Secretariat.
17. Global Water Partnership (GWP). (2021). *Mobilizing for a Water Secure World: GWP Strategy 2020–2025*. Stockholm: GWP.
18. World Water Council (WWC). (2022). *Financing Water for Sustainable Growth*. Marseille: WWC.
19. International Water Association (IWA). (2022). *Digital Water: Enabling Smart and Resilient Water Systems*. London: IWA.
20. UNDP. (2021). *Financing the SDGs in the Water and Sanitation Sector: Policy Brief*. New York: UNDP.
21. Food and Agriculture Organization of the United Nations (FAO). (2022). *Water for Food Security and Nutrition: Policy Guidance Note*. Rome: FAO.
22. Intergovernmental Panel on Climate Change (IPCC). (2022). *Sixth Assessment Report, WGII: Impacts, Adaptation and Vulnerability*. Geneva: IPCC.
23. UNECE. (2020). *The Water Convention and the Sustainable Development Goals: Transboundary Water Cooperation for SDG 6*. Geneva: UNECE.
24. UNESCO. (2024). *United Nations World Water Development Report 2024: Partnerships and Cooperation for Water*. Paris: UNESCO.
25. UNESCO. (2022). *United Nations World Water Development Report 2022: Groundwater – Making the Invisible Visible*. Paris: UNESCO.
26. UN-Habitat. (2021). *Water, Sanitation and Hygiene in the Context of Urban Resilience*. Nairobi: UN-Habitat.
27. World Economic Forum (WEF). (2023). *Global Risks Report 2023: Water Security as a Critical Risk*. Geneva: WEF.
28. International Institute for Environment and Development (IIED). (2021). *Water, Climate and Finance: Innovative Approaches to Scaling Up*. London: IIED.

29. Stockholm International Water Institute (SIWI). (2022). *Water Governance and Finance: Insights from World Water Week 2022*. Stockholm: SIWI.
30. Alliance for Global Water Adaptation (AGWA). (2022). *Financing Climate-Resilient Water Infrastructure*. Washington, DC: AGWA.
31. Closing the \$7 Trillion Gap: Three Lessons on Financing Water Investments from World Water Week ROCHI KHEMKAÅSA KNUDSEN STERTE SEPTEMBER 16, 2024.
32. FUNDING A WATER-SECURE FUTURE: An Assessment of Global Public Spending, World Bank Group, 2024.