

Topic Concept Note Template

Thematic Process, 11th World Water Forum

*This template should be completed through collaborative discussions among Topic Coordination Group Members under the leadership of each Topic Coordinator, and submitted to Theme Coordinators **by January 30th, 2026**, after which it will undergo final review by the Co-Chairs of the 11th Forum Thematic Process.*

- **Theme Number: 3**
- **Theme Title: Water for Humans and Nature**
- **Topic Number: 3A**
- **Topic Title: Enhancing Access to Safe Drinking Water Services for All: Guaranteeing safe drinking water as a human right through resilient service delivery, inclusive governance, cost-effectiveness, and nature-based solutions.**
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I. Topic Overview

Rationale and Context

Access to safe drinking water is a fundamental human right and a foundation for sustainable development, public health (it directly prevents water-borne diseases, reduces child mortality, and improves nutrition and well-being), gender equality, and economic growth. This topic adopts a "One Health" approach, recognizing that human health is inextricably linked to the health of the ecosystems that provide our water. Despite substantial gains since 2015, such as 961 million people gaining access to safely managed drinking water and global coverage rising from 68% to 74%, 2.1 billion people still lack safely managed services and deep inequalities persist across income levels, rural/urban divides, and socioeconomic groups. As the world enters the final push toward the 2030 Agenda, the fact that over 2.1 billion people still lack safely managed drinking water makes this topic urgent and central to global water and development debates. The degradation of natural watersheds (natural water resources) and the pollution of freshwater ecosystems directly compromise the quality and availability of drinking water, creating a public health crisis that transcends infrastructure alone. Moving beyond infrastructure-only solutions, the topic reflects a modern, rights-based and systems-oriented approach that integrates resilience, inclusion, innovation, governance, and finance to close/lessen persistent access gaps, especially for marginalized, rural, and climate-vulnerable populations.

Global, Regional, and Local Relevance

Global

Despite progress between 2015 and 2024 (961 million people gained safely managed services), inequalities remain stark across income groups, fragile states, and rural areas. Water, climate, and environmental risks are central to global risk assessments. The "One Water" framework is essential here, viewing all water—whether in an aquifer, a river, or a treatment plant—as a single resource that must be managed to support both human well-being and ecological integrity. According to the Global Risks Report 2026, environmental risks such as extreme weather, ecosystem change, and pollution remain among the most severe long-term threats, even as geopolitical tensions take near-term prominence. Water risks such as drought, scarcity, and infrastructure stress are deeply interconnected with these environmental trends.

Independent assessments also highlight a growing “water bankruptcy” scenario where freshwater supplies are over-exploited, aquifers decline, and water scarcity is widespread, affecting up to 75% of the global population in water-insecure regions. Groundwater supplying nearly half of global drinking water has become critical for universal access, yet it is increasingly threatened by over-extraction and contamination. With increasing trend of development initiatives across sectors, we are intentionally or unintentionally increasing the demand of water. On the other hand, the sources of freshwater is declining day by day because of increased consumption and pollution as development interventions often overlook the environmental sustainability.

Regional

Low-income and climate vulnerable countries must increase progress up to sevenfold to meet basic water targets as per the report of WHO/UNICEF Joint Monitoring Programme (JMP) 2025-2026 report, while fragile and conflict-affected contexts lag by nearly 40 percentage points in safely managed services. In Africa and Asia, climate change-driven droughts, hydroelectric reductions (access to electricity strongly influences water and sanitation outcomes), and underinvestment in resilient water systems exacerbate existing access gaps. Regional strategies must prioritize "Nature-based Solutions" (NbS) to restore the natural infrastructure such as wetlands and forests that filters and stores water, providing a cost-effective buffer for human health against climate shocks. For example, the Horn of Africa experienced prolonged drought, with severe impacts on food security, displacement, and health. Besides, actions to logically resolve existing transboundary water issues needs to be addressed especially the allocation of water from both upstream and downstream from water justice lens. Also, effective governance of water is required to establish from the principles of water governance at regional level.

National

At the National level, disparities persist between urban and rural areas, wealthy and poor households, ethnic minorities, indigenous peoples, extreme marginalized occupational group dependent on water resource, and people with disabilities. Women and girls bear a

disproportionate burden of water collection, affecting education, safety, health, and livelihoods. Local water governance must move toward "Relational One Health," ensuring that the social and cultural values of water are respected alongside its biological and ecological functions to ensure equitable access for marginalized groups.

Present-Day Water Challenges

The topic directly addresses today's intertwined challenges of climate change, rapid urbanization, water scarcity, ageing infrastructure, and governance constraints:

- Challenge - Climate Stress

Response to challenge: Strengthening Resilience and Adaptation through Nature-based Solution

Droughts (e.g., Cape Town, South Africa, Jaipur, Rajshahi, Chapai Nawabganj, northeast Thailand) and floods demand climate-resilient "safe-to-fail" infrastructure such as water systems, groundwater recharge, and diversified sources such as reuse. We must increase investments in ecosystem restoration to enhance hydro-climate services, aquifer recharge, and nature-based solutions improvement (such as rainwater harvesting at both household and industrial levels).

- Challenge: Rural Water Insecurity

Response to challenge: Protecting Public Health via Source to Tap Integrity

In arid and semi-arid regions, groundwater is often the sole source, requiring protection from fluoride, pathogens, and overuse. Emphasizing availability, accessibility, quality, and affordability for all, with special attention to rural and marginalized populations, is essential. Highlighting groundwater protection and sustainable use, which supplies nearly half of global drinking water and over 70% of rural supply. Safely managed drinking water, as defined by WHO, must be available on premise, reliable, and contaminant-free, directly reducing diarrhoeal disease, water-borne infections, and related morbidity and mortality. Health improvements from safe water enable greater workforce participation, particularly among women and children, and reduce healthcare costs tied to preventable illnesses.

- Challenge: Urban and Peri-urban Gaps

Response to challenge: Diversified Water Economies

Decentralized Drinking Water Services (DWS) and hybrid business models offer adaptable solutions where centralized utilities fall short. Hybrid public-private models and community-based management foster adaptability and local ownership. These partnerships help reach underserved populations with safe water while maintaining quality standards that protect health. Institutional reforms, clear regulatory frameworks, and community engagement are critical to scaling effective models.

- Challenge: Operational Inefficiencies

Response to challenge: Integrating Innovation and Technology

Countries such as Australia and Spain show how digital tools (smart metering, leak detection, digital twins) can reduce losses and improve decision-making, while highlighting capacity and regulatory gaps.

Alignment with SDG 6 and Related Goals

- SDG 6 (Clean Water and Sanitation): Ensuring universal access to safe, affordable, and sustainably managed water services. Central to reducing disease.
- SDG 2 (Zero Hunger): Water security underpins food systems and agriculture.
- SDG 3 (Good Health & Well-being): Improved water quality and access directly lower mortality from water-borne diseases and enhance overall health outcomes.
- SDG 11 (Sustainable Cities): Water solutions support livable, resilient urban environments.
- SDG 13 (Climate Action): Water resilience is a core adaptation strategy for climate impacts.
- SDGs 14 & 15 (Life Below Water & Life on Land): Protecting freshwater ecosystems and reducing pollution. Healthy ecosystems underpin safe drinking water by regulating water quality, reducing treatment needs, and limiting pathogen exposure, thereby directly contributing to SDG 3.
- SDG 17 (Partnerships for the Goals): Cross-sector collaboration accelerates financing, technology transfer, and governance reforms.

Integration of Cross-cutting Dimensions

- Climate resilience: Climate resilience includes ecosystem resilience, promotes groundwater protection, alternative water sources, reuse, nature-based solutions, and climate risk modeling to ensure long-term service reliability.
- Gender & youth inclusion: Centers women's leadership, reduces time spent collecting water, improves safety, and uses sex-disaggregated data to inform policy. World Water Day 2026 highlights gender equality, framing water as a human right that empowers agency. The focus is on strengthening women's leadership in water governance and improving health and safety through accessible, gender-sensitive facilities that reduce risks and keep girls in school.
- Digital innovation: Leverages AI, IoT, digital twins, and hydro-climate services for proactive management, transparency, and efficiency. Real-time monitoring and predictive analytics reduce

outbreaks of contamination and provide early warnings for system failures that could compromise health.

- **Partnerships:** Encourages collaboration among governments, communities, private sector, and global networks to scale solutions and share best practices.
- **Financing:** Addresses the global water investment gap through blended finance, improved public spending efficiency, regulatory reform, and private sector engagement.

Objectives of the Topic

1. Technical Objectives

The Forum aims to catalyse concrete technical actions that improve the safety, reliability, and resilience of drinking water services, particularly for underserved and climate-vulnerable populations. Key objectives include:

- **Water Ecosystem Management** to ensure effective management, protection, and equitable distribution of freshwater.
- **Modernizing and expanding water infrastructure** in both urban and rural contexts, prioritizing resilient, “safe-to-fail” systems that can withstand climate stress such as droughts and floods.
- **Operationalizing Water Safety Plans (WSPs)** across the entire service chain from source protection and treatment to distribution and household access to systematically prevent faecal and chemical contamination.
- **Deploying innovative and climate-resilient technologies**, including solar-powered water supply systems, decentralized drinking water services, advanced and low-cost filtration, and water reuse solutions suited to small-scale and rural settings.
- **Strengthening water quality monitoring systems** under “One Health” strategy through rapid, affordable testing for nutrients, algal toxins, pathogens and heavy metals, supported by digital tools, real-time data, and early-warning systems to protect public health.
- **Promoting sustainable groundwater management**, including recharge, monitoring, and contamination control, recognizing groundwater’s critical role in supplying nearly half of global drinking water.

2. Policy and Institutional Objectives

- The Forum seeks to drive institutional reforms and policy alignment that enable sustainable, equitable, and accountable water service delivery. Key objectives include:
- Strengthening regulatory environments by supporting the establishment or reinforcement of independent regulatory bodies, clear drinking water standards, service quality legislation, and effective enforcement mechanisms.
- Improving sector financing frameworks through diversified funding sources, blended finance, reformed tariff and subsidy systems, and greater transparency and efficiency in public spending.
- Advancing inclusive and rights-based governance, with a strong emphasis on gender equality by ensuring women's equal participation and leadership in water decision-making, in line with the World Water Day 2026 focus.
- Enhancing interdepartmental and cross-sector coordination to align water, sanitation, energy, health, climate, and urban development policies, reducing fragmentation and improving outcomes.
- Enabling scalable service delivery models, including hybrid public-private partnerships and community-based management, particularly in urban, peri-urban, and hard-to-reach rural areas.

3. Capacity-Building and Knowledge Objectives

- The Forum discussions aim to translate commitments into sustained action by strengthening human, institutional, and community capacities. Key objectives include:
- Developing a skilled water workforce through targeted training for utility staff, regulators, and community technicians, focusing on system operation, maintenance, digital tools, and water safety management.
- Empowering communities and local institutions by supporting the formation of local water committees, fostering ownership, accountability, and long-term sustainability of water services.
- Promoting knowledge sharing and peer learning through global and regional partnerships, dissemination of best practices, and the creation of practical "knowledge products" that can be adapted across contexts.
- Improving data availability and transparency by establishing centralized water quality and service databases to support evidence-based decision-making, public awareness, and accountability.
- Building institutional learning around innovation and resilience, enabling countries and local authorities to adopt digital solutions, climate risk modeling, and adaptive management approaches.

II. Key Issues, Opportunities, and Scope

Key Challenges

- Water scarcity, climate vulnerability, and environmental degradation.

- Unsustainable groundwater abstraction, weak source protection, and contamination threaten water security.
- Inadequate and aging infrastructure, limited-service delivery models, and slow technology adoption.
- Poor water quality, weak monitoring systems, and significant public health risks.
- Inequality in access, affordability constraints, and exclusion of vulnerable populations.
- Governance fragmentation, weak institutional capacity, and regulatory enforcement gaps.
- Financing shortfalls, inefficient investment, and a lack of sustainable economic models.

Opportunities and Strategic Importance

1. Collaboration Opportunities

- Multi-stakeholder partnerships: Governments, communities, NGOs, and the private sector join forces for inclusive water solutions.
- Cross-sector integration: Align water with energy, health, climate, agriculture, and urban planning.
- Knowledge networks: Share innovations and best practices globally and regionally.

Examples: Hybrid public-private models, linking hydroelectric planning to water resilience, South-South groundwater cooperation.

2. Innovation Opportunities

- Digital technologies: AI, IoT, digital twins, and hydro-climate tools for real-time monitoring, leak detection, and contamination alerts.
- Climate-resilient solutions: Solar-powered systems, decentralized drinking water, advanced filtration, and water reuse for rural and small-scale contexts.
- Nature-based & adaptive approaches: Groundwater recharge, ecosystem protection, and “safe-to-fail” infrastructure for floods and droughts.
- Health-focused innovations: Rapid, affordable water quality testing for pathogens and chemicals.
- Integration of local knowledge: Local and indigenous knowledge needs to be incorporated with modern technologies to implement innovative solutions.

3. Scaling-Up Opportunities

- Service delivery models: Expand hybrid and decentralized systems in areas where centralized utilities fall short.
- Community empowerment: Strengthen local water committees and institutional capacity for sustainable management.
- Financing & investment: Use blended finance, tariffs, subsidies, and public-private funding to close the water investment gap.

- Capacity-building: Train staff, regulators, and technicians in operations, digital tools, and resilience planning.

4. Policy Advancement Opportunities

- Regulatory strength: Independent regulators, enforce drinking water standards, and ensure service quality.
- Inclusive governance: Promote women's leadership and gender-sensitive water planning.
- Rights-based approaches: Recognize safe drinking water as a fundamental human right.
- Climate & environmental integration: Embed water resilience in adaptation strategies and ecosystem protection.
- Data transparency: Centralized water databases for evidence-based decisions, accountability, and early warnings.
- Advancing negotiations of transboundary issues to resolve equitable water.

5. High-Impact Opportunities

- Target marginalized populations: Rural communities, indigenous peoples, and those in conflict-affected areas.
- Promote gender equality and youth engagement: Reduce water collection burdens, improve safety, and strengthen leadership roles.
- Leverage digital innovation for scale: Smart metering, predictive analytics, and remote monitoring can be adopted globally with context-specific adaptation.
- Build resilient infrastructure: Climate-adapted, diversified water systems can prevent service disruptions during droughts and floods.

Proposed Priorities of the Topic / Guiding Questions

1. How can expanding access to safely managed drinking water be accelerated in low-income, fragile, and lagging contexts to significantly reduce water-related illnesses and child mortality, while ensuring equitable health benefits for all populations?
2. How can drinking water services be protected, restored, and sustainably managed in fragile, conflict-affected, and humanitarian contexts?
3. How can drinking water policies and investments be designed to systematically reduce inequalities across gender, income, geography, disability, ethnicity, and urban–rural divides?
4. How can governments strengthen institutions, governance arrangements, and accountability mechanisms to improve efficiency, service quality, and long-term sustainability of drinking water services?
5. How can financing strategies be restructured to meet massive investment needs while ensuring affordability, targeting the poor, crowding in private capital, and delivering high economic and social returns? Also, what financing mechanisms can be adopted to value the "ecosystem services" provided by Nature-based Solutions to provide resilient,

- inclusive, and cost-effective water services for the most vulnerable climate shocks like draughts and floods?
6. How can innovation, digitalisation, and hydro-climate services be effectively adopted and scaled to improve water quality monitoring, resource management, climate resilience, and decision-making in diverse contexts?
 7. How can integrated and adaptive service delivery models, including decentralized systems, hybrid business models, inter-municipal cooperation, and linkages with energy access, be scaled while ensuring equity, regulation, and community ownership?
 8. How can the One Health framework be operationalized in water utility management to ensure that ecosystem health is treated as a core operational metric for human safety?

Proposed Sessions of the Topic

1. Closing the Access Gap – Equity, Health, and Universal Drinking Water Services
2. Financing, Governance, and Service Delivery Models for Sustainable Water Access
3. Building a Water-Secure Future – Climate Resilience, Secured Water Ecosystems, Energy, Alternative water sources (Desalination, fog harvesting, managed aquifer recharge), and Digital Innovation

III. Expected Outcomes and Deliverables

Policy and Strategic Outcomes

- Consolidated policy recommendations to accelerate progress toward SDG 6.1, with emphasis on low-income, fragile, rural, and marginalized populations.
- Strategic guidance on equity-based drinking water service planning, including youth and gender-responsive and disability-inclusive approaches.
- Frameworks to strengthen alignment between water, health, social protection, climate, energy, and digital strategies, reinforcing prevention of water-related disease.
- Policy guidance on governance and regulatory reforms to enhance accountability, affordability, and long-term sustainability of drinking water services.
- Strategic direction on integrating climate resilience, energy efficiency, and digital innovation into national and sub-national water policies.
- Integration of ecosystem protection into drinking water policies to reduce contamination risks and improve public health outcomes.

Technical and Knowledge Deliverables

- Synthesis notes summarizing global and regional progress, gaps, and inequalities in access to safely managed drinking water and associated health impacts.

- Practical methodologies for using disaggregated data to identify underserved populations and guide investment prioritization.
- Curated case studies and lessons learned from innovative service delivery models, including decentralized systems, hybrid business models, and inter-municipal cooperation.
- Operational insights on the application of hydro-climate services, digital tools, and data platforms for improved planning, forecasting, and service management.
- Knowledge products highlighting energy–water nexus solutions that reduce costs, emissions, and urban–rural disparities.

Partnerships and Financing Outcomes

- Identification of pathways to close the financing gap for drinking water services through improved public expenditure efficiency and mobilization of private capital.
- Strengthened engagement with development banks, climate finance mechanisms, and bilateral donors to support resilient and inclusive water services.
- Frameworks for responsible private sector participation, ensuring equity, affordability, and public oversight.
- Exploration of blended and innovative financing models to support scaling of climate-resilient and digitally enabled water systems.
- Partnerships to advance capacity building, innovation uptake, and knowledge exchange across regions.

Actions and Initiatives for Implementation

- Launch of pilot and demonstration initiatives focused on equitable, climate-resilient, and digitally enabled drinking water services.
- Commitment to integrated water–health–social protection initiatives, particularly targeting child health outcomes.
- Development of local and basin-level initiatives showcasing resilient service delivery models in diverse contexts.
- Capacity-building programs addressing institutional, regulatory, and skills barriers to innovation adoption.
- Establishment or strengthening of multi-stakeholder networks and coalitions to support implementation and scaling beyond the Forum

Communication and Visibility

- Clear, compelling key messages positioning universal access to drinking water as a foundation for equity, health, and climate resilience.

- Contributions to the World Water Forum Ministerial Declaration and outcome documents, reinforcing commitments to SDG 6.1.
- Public communication opportunities highlighting innovative solutions, partnerships, and financing commitments emerging from the sessions.
- Increased visibility for the role of data, digitalization, energy integration, and climate resilience in securing sustainable drinking water services.
- Forum legacy messaging focused on action, accountability, and measurable follow-up beyond the event.

IV. Monitoring and Post-Forum Action

Long-term Forum legacy

- Outcomes from the sessions will establish a knowledge base on equitable, resilient, and innovative drinking water solutions, which can guide future policies and investments.
- Recommendations will strengthen global and national commitments to SDG 6, creating a lasting reference for water access initiatives.
- Documentation of best practices, case studies, and business models will serve as a repository for utilities, governments, and communities worldwide.
- Establish monitoring frameworks that track ecosystem condition, water quality, and health outcomes as interconnected indicators.

Follow-up Initiatives toward the 12th World Water Forum

- Session conclusions will inform thematic working groups and pre-Forum consultations, ensuring continuity into the next Forum.
- Key action points (e.g., decentralised service models, digital tools, hydro-climate services) will feed into pilot projects and regional implementation initiatives.
- Monitoring frameworks can be developed to track progress on commitments, including equity, governance, and innovation indicators.

Contributions to Global Agendas

- Evidence and recommendations will contribute to UN processes, including SDG 6 reporting, UN Water dialogues, and High-Level Political Forum sessions.
- Insights on climate-resilient and digitalised water systems can support UNFCCC processes such as COP climate negotiations and global adaptation strategies.
- Lessons from inter-municipal cooperation and decentralized service delivery can inform transboundary basin networks and international water management platforms.

Continued Partnerships, Knowledge-sharing, and Monitoring Mechanisms

- Strengthen networks between governments, utilities, the private sector, NGOs, and research institutions for ongoing collaboration.
- Facilitate digital knowledge-sharing platforms for replicating best practices and innovations in water access.
- Establish monitoring and reporting mechanisms to track implementation of session recommendations at national, regional, and local levels.

V. Proposed Cross-Process Dialogue Areas

Thematic Dialogue Ideas

1. **Finance and Climate Resilience:** Aligning investment models with climate-resilient water infrastructure.
2. **Governance and Innovation:** Linking regulatory reform with the adoption of decentralized systems and digital tools.
3. **Equity and Service Delivery:** Ensuring affordability and inclusion in all financing and service models.

Joint Process Dialogue Ideas

1. **Ministerial Dialogue:** Co-develop policy frameworks for sustainable financing, accountability, and governance of water utilities.
2. **Local and Regional Authorities Dialogue:** Collaboration on inter-municipal cooperation and decentralized service delivery.
3. **Basin Authorities Dialogue:** Implement hydro-climate services and digital monitoring for transboundary water security.

Regional Process Dialogue Ideas

1. **Sub-Saharan Africa:** Addressing financing gaps and governance challenges in low-income and rural contexts.
2. **Sub-Saharan Africa:** Energy–water integration and adoption of digital tools to improve access in underserved regions.
3. **Latin America and the Caribbean:** Focusing on innovative service delivery and inter-municipal cooperation in diverse regulatory environments.
4. **South and Southeast Asia:** High vulnerability to climate extremes, rapid urbanisation, and water stress.