



International Association of Hydrogeologists

the World-wide Groundwater Organisation

IAH's position paper for the 2026 United Nations Water Conference

Why Groundwater is Core to Sustainability across all Interactive Dialogues

Background

Groundwater is the invisible part of the water cycle, a resource often overlooked, despite its indispensable role in our world. It provides half of our drinking water worldwide, and about 100% in rural areas, 40% of irrigation water and a third of industrial water needs, while also supporting ecosystems, sustaining river flows and wetlands, and preventing land subsidence and marine saltwater intrusion. Groundwater use continues to grow at alarming rates across most parts of the world, due to its many beneficial and strategic properties, including better quality than surface water, large natural storage and steady supply. Groundwater contributes to the achievement of all Sustainable Development Goals. It is particularly central to more than 50 of the 169 SDG targets. Groundwater is a key part of the water cycle and cannot be considered independently from surface water; they are interconnected and must be considered together through a One Water approach in water sciences, management and policy frameworks.

Water for People

Although groundwater is often of good quality, it can be affected by natural contaminants like arsenic and fluoride, and by Human activities: agriculture, industry, and poor waste and wastewater management can further degrade groundwater quality through pesticides, nutrients, microplastics, pharmaceuticals, and microbial contaminants. Many of these contaminants have short- and long-term negative impacts on human health and ecosystems. Moreover, **once polluted, groundwater is costly and difficult to remediate, with potential irreversible or long-term consequences on water security. Protecting human health and ecosystem health requires groundwater protection: preventive contamination at source and regulations**, including proper land use management and protection of critical ecosystems, groundwater recharge areas, and groundwater supply sources. It also requires the enforcement of health-protective standards for regulated substances and the **urgent development of regulatory frameworks to address emerging contaminants**. Safeguarding groundwater for future generations requires a multi-decadal perspective, recognising that the decisions made today will determine the availability and quality of groundwater resources for generations to come. Such multidecadal perspective can be brought by Indigenous Peoples as they have been able to monitor and govern their groundwater resources since time immemorial.

Water for Prosperity

Groundwater, besides being a key resource for water supply globally, is of wider strategic importance for sustainable development, including for ecosystem conservation, resilient cities and industries, food security, livelihoods, critical mineral extraction, geothermal energy

production, land and coastal protection. Through this, groundwater helps ensure poverty reduction, the realization of human rights, and gender equality. What's more, **the development of coherent policies designed to simultaneously address integrated (ground)water-related uses and issues, including climate and natural risks, guarantees the implementation of the Sustainable Development Goals.** Nevertheless, groundwater must not be treated as a commodity only, and it must be governed as a public good.

Water for Planet

The large natural storage and slow movement of water in most groundwater systems offers a buffering capacity supporting exceptional drought resilience and is of key importance to enhance water security for a wide range of water users, as well as for biodiversity. However, this buffering capacity is subject to various pressures leading to decreased groundwater availability. Undermining groundwater systems can decrease climate and drought resilience, putting communities and ecosystems at risk. This requires appropriate integrated approaches, including nexus approaches, conjunctive surface-water and groundwater management, together with integrated land and water resources management. Adaptation measures should involve the use of indigenous knowledge for water and managed aquifer recharge.

Water for Cooperation

Given the growing reliance on groundwater resources, including resources that are shared across jurisdictional boundaries, the need for cooperation across borders becomes increasingly urgent. Despite 426 identified transboundary aquifers, only a few are governed by international agreements or arrangements—far fewer than the 600 international agreements governing transboundary surface waters. At the same time, major knowledge gaps persist: information remains limited for many of them, with uncertainties in aquifer delineation, characteristics and groundwater dynamics. **Countries must take ownership of their transboundary aquifers** including the monitoring, assessment, management and protection of groundwater and sustainable financing for these activities, in cooperation with neighbouring states. Strengthening political awareness and will and establishing effective cooperation and financing mechanisms, based on equitable and sustainable use, are essential to address potential asymmetries between neighboring states and ensure the sustainable and peaceful use of critical groundwater resources. Strengthening international scientific cooperation on groundwater among scientists, professional networks and public authorities would support groundwater knowledge exchange and informed policymaking. **Aquifer-sharing states should therefore strengthen joint assessment, monitoring, data exchange and cooperative arrangements for the sustainable and equitable management of shared groundwater resources.**

Water in Multilateral Processes

Groundwater remains insufficiently represented in the Sustainable Development Goals (SDGs), with no specific targets or indicators addressing its critical role. Therefore, **groundwater must be recognised and better represented through specific sustainability targets and indicators in the frame of all Interactive Dialogues.** Current efforts led by the International Groundwater Resources Centre (IGRAC) are underway to develop indicators based on monitoring and in situ data. It is essential that the international community, supported by IAH, actively collaborates and advocates for the integration of groundwater into the SDGs and into any future global development frameworks.

Investments for Water

Strengthening national capacities across vocational and academic levels, from Bachelor's to doctoral programs in hydrogeology, the technical science of groundwater, is crucial, including transdisciplinary approaches involving notably natural sciences, engineering, social sciences, policy, law, arts and economics. Each country or region must establish its own training hub. This is necessary to educate, empower and support the youth, early career and future groundwater specialists, scientists and managers who will have the responsibility for this resource, as well as groundwater drilling professionals. The adoption of recognised standards and good drilling practices are also essential. Groundwater education is not enough: **creating a robust, attractive, and sustainable job market is essential** to ensure these local experts can sustainably manage groundwater resources. Groundwater experts should also be trained to **engage with other actors in the water sector**, including decision makers, so that groundwater is effectively integrated in all policy areas. Sustainable groundwater stewardship also requires the integration of local, societal, and Indigenous knowledge systems, and solutions, together with the active participation of communities, civil society organisations, women, youth, Indigenous Peoples, vulnerable and underserved groups, and other stakeholders in decision making. **Art, culture, education and communication** relating to groundwater – the cultural and spiritual significance of which should also be recognised – are just as essential to make groundwater visible and strengthen its protection. **Strong 'One Water' institutions and regulatory frameworks**, at both local and national levels, are also essential to recognise and govern surface water and groundwater as a “One Water” resource and ensure that protection policies are properly implemented. **Investment should therefore support not only hydrogeological education and technical capacity, but also institutions, career pathways, interdisciplinary skills, stakeholder participation, knowledge exchange and public awareness.**

We cannot manage what we don't see or measure: **monitoring must be undertaken to track groundwater quantity and quality, which are intrinsically related, over time.** This is essential to understand aquifers' functioning and detect threats such as over-abstraction, contamination, or decreasing recharge due to climate and land-use change. Monitoring is a long-term and often costly effort, but a strategic investment. **Improved knowledge of all groundwater abstractions** (including private), particularly in densely exploited areas, is essential to prevent overexploitation, enhance water-use efficiency, and support the sustainable management of shared aquifer resources. Monitoring should be accompanied by robust quality assurance and timely interpretation and, where appropriate, complemented by conceptual and numerical modelling to check data reliability and its fitness for water resources management and protection. Monitoring generates the evidence required to make the case for dedicated and sustained investment in groundwater protection and its resilience

Governments and financing partners should therefore prioritize sustained investment in long-term groundwater monitoring networks, abstraction data, hydrogeological assessment and accessible groundwater information systems.

About the organisation

The International Association of Hydrogeologists (IAH) is an international scientific and educational non-profit organisation for scientists and water professionals involved in the development, management, and preservation of groundwater resources. Since its founding in 1956, the IAH has

expanded to include more than 4,500 members worldwide. The mission of IAH is to further develop the understanding, wise use, and protection of groundwater worldwide and, with this objective, to work with national and international agencies and a wide range of stakeholders at local to global levels.

The IAH is a cornerstone knowledge sharing, networking, and advocacy platform for the water community, with a focus on groundwater and hydrogeology. This is achieved through more than 50 national chapters, 7 commissions, 6 networks, annual world congresses, open-access education tools, including “The Groundwater Project”, the peer-reviewed journal “Hydrogeology Journal”, and early career mentoring programs.

IAH contributes its scientific and technical expertise through its longstanding cooperation with UNESCO’s Intergovernmental Hydrological Programme (IHP) focused on groundwater science, policy and capacity-building, as an NGO in official partnership with UNESCO, with Associate status. IAH is also a UN-Water Partner. The IAH Liaison with UN Activities (LUNA) Network supports this cooperation and IAH’s engagement within the wider United Nations system, notably its participation in global water-related processes and preparations for the 2026 United Nations Water Conference.

This position paper was prepared by the IAH LUNA Network, on behalf of the IAH.

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Key partner: UNESCO-IHP

Endorsing organisations: [link to full list of endorsing organisations](#)

- French National Research Institute for Sustainable Development (IRD)
- French Geological Survey (BRGM)
- The National Centre for Groundwater Training and Research (NCGTR), University of Zimbabwe
- International Water Resources Association (IWRA)
- IHE Delft Institute for Water Education
- Indigenous Science, Mexico
- The Groundwater Project