



Grupo Português
da Associação
Internacional
de Hidrogeólogos



International Association
of Hydrogeologists
The World-wide Groundwater Organization



Announcement of the Webinar

“Making Groundwater Visible in Arid and Semi-Arid Regions”

To celebrate the GROUNDWATER SUMMIT 2022

(1st December 2022, 13:30 Kabul Time/UTC/GMT+4:30 hours)

Location	New York (USA)	Lisbon/London	Afghanistan	Australia (Sydney)
Local Time	4:00 AM	9:00 AM	13:30	20:00

A webinar titled "Making Groundwater Visible in Arid and Semi-Arid Regions" will be organized by the Afghanistan Groundwater Group (AGG), the Portuguese Chapter of the IAH (AIH-GP), the Afghanistan National Section of the International Association for Promoting Geoethics (IAPG-Afghanistan). It is held under the auspices of the International Association of Hydrogeologists (IAH), the International Association for Promoting Geoethics (IAPG), the Centro de Investigação da Terra e do Espaço da Universidade de Coimbra, Portugal (CITEUC), The Groundwater Project (GW-Project), and Instituto Água Sustentável (IAS), to play a role in the United Nations Groundwater Summit 2022.

This webinar will take place online on the 1st of December, at 13:30 Kabul Time (UTC/GMT + 4:30 hours). Interested people from academic institutions, the private and public sectors, and all others who are involved in the water sector or interested in this field are kindly invited to participate in this webinar.

For attendance, please register before the end of November through the following link:

<http://bit.ly/3USHABv>

Brief information about the Groundwater Summit 2022 and groundwater in Afghanistan

This year it was the first time that the UN-Water dedicated the classical World Water Day, on the 22nd of March, to groundwater. Important conferences took place along 2022, as the Paris IAH "Groundwater, Key to the Sustainable Development Goals", in May, the 49th IAH Online Congress, in September in China, the October 5th CEG Conference in Slovenia, and others, focusing on the almost invisible groundwater, aiming to make it visible for everyone. This is what motivated IAH to name 2022 as "The Year For Groundwater". To close the year, the Groundwater Summit 2022, or UN-Water Summit on Groundwater, will take place on December 7–8, 2022, at the UNESCO HQ, Paris. The main purpose of this summit is to make groundwater more visible in order to better manage and protect it. This summit aims to bring attention to groundwater at the highest international level.

Freshwater is a fundamental and essential natural resource that mainly occurs in rivers, streams, lakes, glaciers, snow, rain, springs, soil and groundwater. Groundwater alone accounts for more than 98 percent

of its liquid form, is a part of the global water cycle, and resides in constant motion within the aquifers, which are water saturated soils and rocks below the Earth's surface. After precipitation, a part of rainwater or snowmelt infiltrates and percolates into the subsurface through the pore spaces and fractured rocks, creating groundwater storage, outflows to feed rivers, lakes, wetlands, discharges to the sea and is removed by evapotranspiration, water wells and induced drainage. Groundwater as freshwater is basically used for irrigation purposes (its major use worldwide), domestic use, in industry, and energy production. Protecting groundwater for the present and the future, at the same time than accessing clean freshwater sustainably will be a serious challenges for this resource around the globe, in particular in a climate change context.

Groundwater conditions, including groundwater storage and groundwater quality, are considerably related to the amount of precipitation, present and in the past. Groundwater is more likely to exist in areas with high annual precipitation and low temperature. People are primarily concerned with groundwater storage depletion in areas with lower precipitation, higher runoff and hot summers favoring loss to the atmosphere and by poor aquifers bellow. Areas with heavy precipitation, favorable conditions for infiltration and a stable temperature, on the other hand, have a high potential for groundwater existence, in the condition of being underlain by a favorable geology with vast porous and permeable rock formations. The groundwater situation in arid and semiarid regions is not stable, due to climate variability and emerging change, and people are mostly faced with freshwater storage depletion and drinking water scarcity.

Arid regions are defined as having annual precipitation of less than 250 mm and an aridity index of 0.05-0.2. It includes all hot and cold deserts. The arid area is devoid of any significant natural vegetation because of a moisture shortage in the upper soil. When the amount of precipitation is between 250 and 750 mm, the region is classified as semiarid. The aridity index of semiarid regions is 0.2–0.5 .

Afghanistan is a mountainous country with very dry weather that is located in the arid subtropics at 37° north of the equator. The continental climate of Afghanistan is arid and semi-arid, which is caused by the cold winters and hot summers. The areas in the south and southwest part of the country are in arid regions, and other parts of the country have a semiarid climate. Furthermore, the lowlands (plains), located in the southern part of the country, experience very extreme seasonal variations and changes in temperature, with the average summer temperature exceeding 33°C and a mean winter temperature of about 10°C. In addition, most parts of the country are located at high altitudes that experience low temperatures during most of the year, averaging about 15°C. The temperature there goes below zero during the winter.

Climate Change, Global Warming and other factors, such as overuse of groundwater resources for drinking, agricultural, and commercial purposes, land use and land cover changes, urban development, and population growth and settlement in urban centers, have decreased the groundwater quantity and deteriorated the groundwater quality throughout the country. Groundwater is used for all purposes in the big cities of the country, and the big cities face severe water scarcity and water quality degradation.

In rural areas, groundwater is its main use and is expected to increase. Its conjunctive use with surface water, with more efficient irrigation, and improvements in infiltration, may contribute to a better protection of groundwater and surface water, the rural economy, and the wellbeing of populations.

This seminar is a contribution, a first step, to making groundwater in Afghanistan, an area with an arid and semi-arid climate, visible. Other steps will follow. We count on you.