



Rethinking Sustainable Groundwater Management

Ancestral Knowledge and Techniques as an Inspiring Source of Innovation

From Indian sacred stepwells and Moroccan 'foggaras' to Iranian 'qanats', or underground canals. From Mediterranean cisterns, wells and systems of rainwater harvesting to Chilean 'socavones' and other ancestral hydro-technologies.

The Global Network of Water Museums contribution to UN-WATER Groundwater Summit

Paris, 6-8 December 2022

The Event organized by the Global Network of Water Museums (WAMU-NET) consists of 3 activities:

- (1) A Thematic Session** aimed at rethinking sustainable groundwater management
- (2) An Exhibition** on ancestral knowledge and techniques as an inspiring source of innovation
- (3) A Field visit** to the Musée des Egouts of Paris

All activities will aim at fostering debate among the Summit participants on the following questions: how can ancestral groundwater management practices and inherited techniques for rainwater harvesting can inspire policy makers and institutions to address the current sustainability challenges of groundwater uses? What lessons do these management practices and practical know-how offer for future resilience planning?

Agenda

December 6 (12,00 – 13,00 CET): Thematic Session (hybrid event in English on Zoom - no translation)
 December 6 (17,30 – 19,00 CET): Visit of the Sewage Museum of Paris (transfer on foot from UNESCO)
 December 7 (16,00 – 16,30 CET): Opening of the Exhibition as part of the Summit official Coffee Break
 December 8 (17,30 – 19,00 CET): 2nd visit to the Sewage Museum – City of Paris (on demand - TBC)



Venue

UNESCO headquarters, Place de Fontenoy, Paris

Organized by

The Global Network of Water Museums (acronym: WAMU-NET) - a *flagship initiative* of UNESCO-IHP (Intergovernmental Hydrological Programme)

Main partners

The Italian Permanent Delegation to UNESCO

The Netherlands Permanent Delegation to UNESCO

Netherlands National IHP-HWRP Committee

IGRAC (International Groundwater Resources Assessment Centre – UNESCO Centre cat.2)

IHE Delft (Institute for Higher Education – UNESCO Centre cat.2)

NICHE (The New Institute, Centre for Environmental Humanities at Ca' Foscari Venice University)

UNESCO Chair 'Water, Heritage, Sustainable Development' at Ca' Foscari Venice University

Living Waters Museum (India)

Supported by

ABC Waterworks, Naples, and Water Museum of Naples (TBC)

In cooperation with

Musée des Egouts, Municipality of Paris; UNESCO Chair at the Polytechnical Univ. of Barcelona, Spain;

University of Limoges, Spain



From left to right: the monumental well of San Patrizio (Orvieto, Italy) and the system of 'qanats' in Iran (underground canals and system of aerial wells). Copyright: Municipality of Orvieto, Italy, and ICQHS, Iran.



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MUSÉE
DES ÉGOUTS
DE PARIS

Objectives

- **Stress** the relevance of historical/ancestral groundwater management practices, concepts, and farsighted visions as a source of inspiration for just and sustainable planning
- **Provide** new ideas for innovations in groundwater management to the global audience.
- **Highlight** the role that science and natural history museums, awareness centers, 'extended museums', and community based / eco- museums, can play to make the Invisible Visible and raise awareness about groundwater vulnerability
- **Stimulate** museums, awareness centres and other institutions to consider groundwater vulnerability and its historical uses as key topics to be disseminated further through permanent and temporary exhibitions
- **Build** a communication campaign with a dedicated video to be promoted after the side event in Paris takes place
- **Spark** momentum for further creation of new Groundwater/Aquifer Museums worldwide

Target audience

All participants of the UN-WATER Groundwater Summit (approx. 400 participants including high-level National Delegations), representatives of National IHP Committees and Embassies, museum keepers, curators, and staff, professionals working on groundwater (policy/research/practice), general public.

Description of the side event

"Making the Invisible Visible" (groundwater) is this year's theme of World Water Day. In this context, today it's crucial to make another invisibility visible: the relevance of ancestral or traditional management practices of aquifers. Such a heritage (and water history) still today can serve as a source of inspiration for just and sustainable groundwater management.

With this Side Event, WAMU-NET and its partners are aiming to build an important bridge to fill the gap that separates ancestral and traditional farsighted visions of groundwater management and technical solutions and technologies used to face the contemporary challenges of water shortages.

Good practices and knowledge handed down through immemorial generations include ancestral hydro-technologies for managing groundwater from Asia, Africa, Europe and American countries. These ancestral practices need to be further considered to increase public awareness on groundwater



vulnerability and to stimulate discussion, new research, and ideas to re-think today the just and sustainable use of groundwater. For example, ancestral practices stress environmentally friendly solutions for future resilience planning, also considering the crucial involvement of local people and communities for public monitoring of groundwater levels, quality and use. Similar practices are implemented today as citizen science projects, but their practice is rather limited. Throughout history, the social management of groundwater facilitated equitable and transparent management through culturally acceptable techniques and practices that considered, above all, the just use of water resources for future generations.

Solutions based only on the use of powerful technologies and technocratic approaches are not always sustainable in the middle and long run. Today water museums play a key role in transmitting a water history and culture that can stimulate new research and ideas for just and sustainable use of aquifers. The visit at the Musée des Egouts (Paris) will show the importance of combining both groundwater quality protection and improved sewage efficiency to make the Seine River swimmable again.

Key messages

- Ancestral systems of groundwater management offer lessons for future resilience planning
- The use of groundwater for human development can combine new technologies and ancestral/indigenous know-how related to groundwater uses, recharge, and heritage
- Active participation and involvement of local communities in monitoring of groundwater quantity and quality is promoted further through water museums and institutions
- Educational activities on sustainable water uses and new permanent and temporary exhibitions on the history of groundwater management contribute to raise public awareness

The key messages that will be delivered to policy makers, institutions, and museum managers will focus on strengthening further water awareness educational programmes, learning from past practices and water history to foster more farsighted management of groundwater, and encouraging the creation of new water museums and information centres on aquifers worldwide.



Expected results

- Greater awareness among the UN-WATER Groundwater Summit participants (policy/research/practice) on the relevance of traditional management practices of aquifers as a source of innovation for sustainable groundwater management
- Museums and members affiliated to WAMU-NET (more than 70 in 31 countries) are stimulated to build new exhibitions (concepts, audiovisual) on groundwater vulnerability
- Training activities promoted for scientific journalists by universities and research centres

Thematic Session (6 December)

The planned Thematic Session will present case studies about historical or ancestral groundwater management practices, drawing from museums and members affiliated to the WAMU-NET network. By showcasing relevant examples of traditional ways to manage groundwater resources sustainably, the session is aiming to inspire the UN-WATER Groundwater Summit participants and the broader target audience with ideas for sustainable groundwater management based on ancient hydro-technologies and past practices that show tangible 'sustainability'.

Programme

Opening

- Eddy Moors (Rector of IHE Delft and President of the Global Network of Water Museums)
- Francesca Tarocco (Director of NICHE, The New Institute – Centre for Environmental Humanities, Ca' Foscari University of Venice).

Keynote by

- Jordi Morato Ferreras, UNESCO Chair at Technical University of Barcelona, Spain
Ancestral Hydro-technologies as a source of inspiration for Groundwater Security

- Elizabeth Lictévout, Director of IGRAC

Title TBC

Panel of experts

- Sara Ahmed (Living Waters Museum, India)
- David Gentilcore (Venice University, Italy)
- Monica Cardillo (University of Limoges, France)
- Amine M. Saidani (CIRAD, Algiers, Algeria)



Conclusions

- Henk Ovink (Netherlands Water Envoy)
- Massimo Riccardo (Italian Ministry of Foreign Affairs)

Exhibition

The exhibition aims at providing a visual display of topics and ideas presented and discussed during the thematic session. The exhibition will be located at UNESCO headquarters and will last for 10 days. The exhibition will illustrate 8 case studies and good practices aiming to highlight bridges between historical uses of groundwater for development of human civilizations all over the world and contemporary sustainable uses of aquifers.

1. The sacred cisterns, temples, and stepwells of India
2. The Venetian system of cisterns and wells for rainwater harvesting
3. The system of 'qanats' (underground canals) in Iran
4. The system of 'khattara' (underground canals) in Morocco
5. The system of 'socavones' (underground canals) in Chile
6. The heritage of Roman aqueducts and system of underground water conservation in Naples
7. Adapting the traditional circular irrigation system to 'modern' agriculture in the Sahara, Algeria
8. Case of sustainable use of groundwater promoted by the Netherlands

Visit to the Musée des Egouts, Paris

A museum visit to the Musée des Egouts of Paris is planned to showcase the good practices of museum communication and exhibition of both traditional and modern sewage systems and techniques. The present challenges of wastewater treatment in relation to groundwater quality will be illustrated with a focus on technological innovation made in recent years in order to make the Seine River swimmable again. Location: Alma bridge face 93, Quai d'Orsay, Place Habib Bourguiba.

<https://musee-egouts.paris.fr/en/>