

GRAPHIC NEWS



GRAPHIC News n° 1

January 2016

Dear GRAPHIC members,

Happy new year and best wishes for 2016!

Since its launch in 2004, the UNESCO International Hydrological Programme (IHP) GRAPHIC (Groundwater Resources Assessment under the Pressures of Humanity and Climate Change) project (www.graphicnetwork.net) has provided water practitioners with a platform to exchange information on groundwater and climate change through case studies, thematic working groups, scientific research, and communication.

The idea of a newsletter arise to meet our need for information and exchange. Each quarter, GRAPHIC NEWS will give you an overview of recent research publications, studies and projects related to groundwater and climate change, and announce events that may be of interest to you.

This newsletter is yours! We invite you to inform us concerning your activities, publications and projects, and to give us feedback about this newsletter.

Please, contact and join us at email : t.carvalho-resende@unesco.org



Launch of GRAPHIC Position Paper at the COP21

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The COP 21 and groundwater

At the 21st Session the Conference of the Parties to the United Nations Framework Convention on Climate Change - COP21, one day was fully devoted to water and adaptation to climate change (December 2nd). Although water is not mentioned in the Paris Agreement, groundwater was discussed with greater depth and detail than at any previous UN climate conference through numerous debates and side agreements. Twenty percent of Member States submitted climate adaptation targets at national level which have explicit reference to groundwater. Such proposals mainly consist on integrated water resources management, monitoring, and artificial recharge.

COP21 was a new kind in its genre because of its partnership and multi-actor approach for renewed multilateralism. For the first time at a conference of this type, projects developed at sub-state level by economic and institutional actors (companies, NGOs, local authorities, ...) were recognized as having a vital importance in the global fight against climate change. COP21 process triggered major non-governmental actors initiatives related to groundwater. For instance:

- Adaptation: Launch of the GRAPHIC Position Paper and signature of the Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers which has already secured \$1bn funding.
- Cities: UNESCO organized the first international conference devoted to the theme of water and megacities (<http://eaumeqa2015.sciencesconf.org/>) which had a strong focus on groundwater. Additionally, a group of 20 megacities, home to 85 million people also teamed up to form the Mega Cities Coalition – a knowledge exchange platform and launch pad for water stewardship projects.
- Business: Twenty-seven businesses including GSK, Saint Gobain, Veolia, Danone and Diageo launched a new coalition called the Business Alliance for Water and Climate Change.

Finally, at the heart of debates, we found discussions on international funding mechanisms like the Green Climate Fund which has acknowledged the importance of water security in its portfolio by including a \$23.6 million project on groundwater in the Maldives as part of its 8 first projects.

Water occupied a privileged place in COP21 due to its cross-cutting nature and its potential mitigation and adaptation aspect. The future of our groundwater resources is compromised in many regions in the face of climate change. This has serious implications for water supply and food security at national and international levels. Similarly it is critical to consider freshwater resources very carefully in planning our adaptation strategies to climate change. The message that we need to carefully consider from COP21 is that discussions on groundwater are gaining momentum.

Paris Pact

A major event of the COP 21 was the signature of the Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers. The Paris Pact is a big step in the right direction. Indeed it is the first international agreement to consider groundwater management in climate change impacts and adaptation.

Presented on December 1st, the Paris Pact was initiated by the International Network of Basin Organizations (INBO) with the support of its regional components. Already more than 305 institutions have signed the Paris Pact in 87 different countries.

Main engagements of the Paris Pact are:

- Reinforce capacity development and knowledge
- Adapt basin management planning to climate change
- Reinforce governance
- Ensure adequate financing

More information at:

<http://www.riob.org/eletter/COP21-Signatures-Pacte-EN.html>



GRAPHIC at COP21: Launch of the Position Paper

Through GRAPHIC, UNESCO – IHP took the opportunity of the COP21 to launch a Position Paper that highlights the important role groundwater has in meeting the demands for drinking water, agricultural and industrial activities, and sustaining ecosystems, particularly in the context of adaptation to and mitigation of the impacts of climate change.

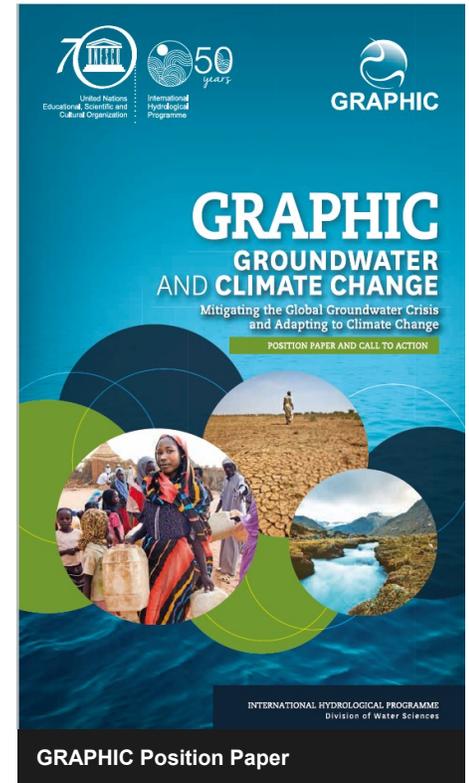
The GRAPHIC Position Paper was launched on December 1st at COP21 by Dr Alice Aureli (UNESCO-IHP) during the signature of the Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers. This paper is a call for action, and outlines several key recommendations that are particularly relevant for future international climate negotiations.

Among these recommendations, we find the creation of an adequate basis for governance through political commitment and leadership, construction of effective institutions, promotion of groundwater management strategies to reduce vulnerabilities, and collaboration with partners of specialized knowledge.

The Position Paper was also presented to stakeholders during a workshop (December 2nd) on groundwater and climate change led by Marc Leblanc (University of Avignon), Laurent Longuevergne (University of Rennes), Alice Aureli and Tales Carvalho Resende (UNESCO-IHP). Presentations included insights on groundwater resources status, trends and challenges, as well as innovative methods to assess groundwater resources such as the application of satellite observations (GRACE mission).

To download a copy of the Position Paper follow this link :

<http://www.graphicnetwork.net/about/publications/>



Recent publications by GRAPHIC members:

Goderniaux, P., Orban, P., Compère, J. M., & Dassargues, A. Climatic change impacts on the main groundwater tank supplying the town of Liege (Belgium) In 94ème Congrès de l'ASTEE. 2015.

<http://orbi.ulg.ac.be/handle/2268/182537>

Candela Lledò L., Tamoh, K., Olivares Cerpa, G., Assessment of water resources under climate and land-use changes the Tordera basin (NE Spain). Aqua-LAC. Revista del Programa Hidrológico Internacional para América Latina y el Caribe. 2015, 7(13): 1-10

<http://rua.ua.es/dspace/handle/10045/46868?locale=en>

Hassane, A., Leduc, C., Favreau G., Bekins, B., Margueron, T. Impacts of a large Sahelian city on groundwater hydrodynamics and quality: example of Niamey (Niger). Hydrogeology Journal. 2015

<http://rd.springer.com/article/10.1007%2Fs10040-015-1345-z>

Jasechko, S. and Taylor, R.G., Intensive rainfall recharges tropical groundwaters. Environmental Research Letters, Vol, 10, 124015. 2015

<http://iopscience.iop.org/article/10.1088/1748-9326/10/12/124015/pdf>

International Association of Hydrogeologists, Resilient Cities and Groundwater

<https://iah.org/wp-content/uploads/2015/12/IAH-Resilient-Cities-Groundwater-Dec-2015.pdf>

Symposium on The Value of Groundwater (23 September 2015, Nieuwegein, The Netherlands) with speakers from the World Bank, water boards, water supply companies, science and groundwater users such as Heineken. Presentations available at <http://www.hydrology.nl/iahnews/484-the-value-of-groundwater-presentations-available.html>

GRAPHIC in the Press

During COP21, GRAPHIC members contributed to several articles in the press:

Scientists Urge Greater Attention to Groundwater in Climate Adaptation

<http://www.circleofblue.org/waternews/2015/world/scientists-urge-greater-attention-to-groundwater-in-climate-adaptation/>

Water Gained Stature at Paris Climate Talks

<http://www.circleofblue.org/waternews/2015/world/water-gained-stature-at-paris-climate-talks/>

Water Resources Highlighted in Climate Adaptation Plans

<http://www.circleofblue.org/waternews/2015/world/water-resources-highlighted-in-climate-adaptation-plans/>

GRAPHIC upcoming events



Call for contribution from ECHN

The Early Career Hydrogeologists' Network (ECHN) of the International Association of Hydrogeologists (IAH) and GRAPHIC will promote thematic group articles in Hydrogeology Journal to showcase the valuable, breakthrough research carried out by early career researchers (i.e. researchers within 10 years after graduation and with a degree in hydrogeology or a related discipline).

The call for contributions goes out to promote innovative research on groundwater and climate change. Articles exploring theoretical and multidisciplinary aspects, including studies on global water cycle will be privileged to case studies at local level.

Prospective authors should first submit an abstract to ECHN-IAH and GRAPHIC together with a one page CV.

DEADLINES

Abstract submission: 31 March, 2016

Manuscript submission: June 30, 2016

For information and abstract's submission, please contact: echn.iah@gmail.com

Call for contribution to international conference on Sustainable Groundwater in Agriculture

The University of California is organizing an international conference “**Toward Sustainable Groundwater in Agriculture – Linking Science and Policy**”, which will be held in Burlingame, California (near the San Francisco, International Airport) from June 28-30, 2016 (<http://ag-groundwater.org/>). A GRAPHIC workshop will be held during the conference.

Abstracts will be accepted until January 15, 2016. For information and abstract's submission, please contact: Dr. Thomas Harter - thharter@ucdavis.edu

What's next?

The next newsletter will provide insights in the consideration that has been attributed to SIDS during COP21. While SIDS contributed little to the problem of climate change, they are the ones which are already suffering the most devastating effects of climate change, especially when it comes to water. The vulnerability of SIDS is directly affected by limited freshwater (groundwater and surface water) resources that are likely to be seriously compromised due to rising sea levels and climate variability and change. Some SIDS are entirely dependent on groundwater as the only source of potable water; consequently, a sound management of groundwater is crucial for SIDS adaptation to climate change. In this connection, GRAPHIC members supported the first global assessment of groundwater resources in SIDS led by UNESCO. The assessment revealed that population density appears to be the main driver of water stress, and that around 70% of islands are at risk of water scarcity with a peak of 91% for low-lying islands. Additionally, the risk due to groundwater anthropogenic pollution affects 73% of all 42 assessed islands. GRAPHIC will share with you a publication revealing the current state of groundwater on SIDS, the potential impacts of Climate Change on SIDS groundwater, and the importance of groundwater in climate change mitigation and adaptation strategies for SIDS.

This newsletter is brought to you by GRAPHIC Coordinators (Jason Gurdak, Marc Leblanc and Tales Carvalho Resende). The authors deeply acknowledge the support of students in hydrogeology (Bachelor and Masters) at the University of Avignon: Louis Cabot, Sébastien Dollé, Jonathan Gallois, Florian Raoult-Satorres