



Water Brings People Together to Create a Better Planet

By Walter Staveloz **23.04.2013**

A report

from the 2030

Water

Resources

Group

(November

2009), *Charting Our Water Future: Economic world, water demand will exceed supply by 50 per cent. This is an alarming figure and shows the importance of access to this essential resource. Quick, evidence-based decision-making by national and international policymakers is required to avoid dramatic consequences for the planet and its population.*

However, policy decisions are not always forthcoming. Fortunately, there are some interesting shifts that may change this picture soon. One of the most important is the new vision that significant parts of the scientific community are developing to define its role in the decision-making process, as well as the growing consciousness of global citizens who want to be part of the process. The way forward for evidence-based decision-making is the creation of a triangular relationship among scientists, policymakers and an informed citizenship. Science centres and museums worldwide have the capacity and the willingness to help create that new relationship.

In March 2012, 3,000 scientists gathered in London for the scientific pre-Rio+20 conference, *Planet Under Pressure: New Knowledge Towards Solutions*. Scientific research concerning sustainability was addressed and a *State of the Planet Declaration* was approved, which stated the need to redefine the role of scientists and science in society. It

also noted that: “Research plays a significant role in monitoring change, determining thresholds, developing new technologies and processes, and providing solutions. The international global-change research community proposes a new contract between science and society in recognition that science must inform policy to make more wise and timely decisions and that innovation should be informed by diverse local needs and conditions.”

In order to be a significant part of that new contract, the organizers of the Planet Under Pressure conference launched Future Earth, a 10-year international research initiative that will develop the knowledge to respond effectively to the risks and opportunities of global environmental change and support transformation towards global sustainability in the coming decades. Future Earth will mobilize thousands of scientists while strengthening partnerships with policymakers and other stakeholders to provide sustainability options and solutions in the wake of Rio+20.

One can only applaud this initiative and concur with Secretary-General Ban Ki-moon, who addressed the conference through a video statement: “The scientific community can help us make sense of these complex and interconnected challenges, including by strengthening our understanding ... But policymakers often fail to turn to scientists for advice, or discount it too easily owing to electoral or other political considerations. At the same time, scientific advice is sometimes unclear ... My High-level Panel on Global Sustainability has just recommended that I consider naming a chief scientific adviser or establishing a scientific board to advise me and other organs of the United Nations.”

The Secretary-General is right to point out the importance of electoral considerations for policymakers. The new contract proposed by the scientific community and the Scientific Advisory Board will only be successful if there is significant support from the public. This can only happen through public education on global issues. An

education process that goes far beyond the traditional school system is required. Science centres and museums are ideal partners in explaining the complex science of sustainability to the public, and create various forms of public engagement with science that can lead towards the support of evidence-based decision-making.

The Association of Science-Technology Centers (ASTC) was honoured to become the outreach partner of the Planet Under Pressure conference. Never before had a scientific conference seen a coordinated effort among 250 science centres in the world whose aim was to gain public understanding and support. Various direct links between activities worldwide and scientists took place at the conference, involving science centres in Canada, Colombia, India, Israel, and the United States. For example, Janos Bogardi, former Executive Officer of the Global Water System Project (GWSP) and Professor at the United Nations University, dialogued with youth via Skype comparing water issues related to sea level rise in Florida and melting glaciers in Colombia. Both groups were part of a large ASTC initiative called Science Centers Engagement and the Rio Summit (SCEnaRioS). The programme allowed youth to explore local evidence and the impacts of global change and to exchange their ideas with groups in other parts of the world. They discussed how similar issues could have different solutions depending upon local conditions. Most of the groups, such as the partnership between Singapore, Guangdong and Canberra, chose water as their topic for discussion.¹

Many science centres have exhibits and programmes that show the unique physical and chemical characteristics of water and have created playgrounds that use water as the main attraction. An increasing number of science centres address the place of water in society and what should be done to preserve it. Some current examples include:

- The Fairmount Water Works

Interpretive Center (FWWIC)² on the Schuylkill River in Philadelphia, Pennsylvania, is housed in the oldest municipal pumping station in the United States. The museum is designed to allow it to flood during spring rains and the hurricane season. Since its opening in 2003, it has flooded 13 times. Flooding occurs more frequently now than ever because there are many more impervious surfaces in and around Philadelphia, producing faster runoff into the river and a greater chance that the river will breach its banks. The museum has been designed so that it can withstand flooding by having exhibits that can be easily and quickly removed, winched up towards the ceiling, or allowed to be immersed in water with no damage. The goals of FWWIC are to educate the public on the natural design of watersheds and how we affect them, natural habitats and fish identification, water quality and sewage treatment, and individual stewardship of the watershed.

- The Observatory Science Centre³ in Herstmonceux, England, has an outdoor exhibit that lets visitors explore how the power of water can be used in so many ways. Erosion is explored as water moves from a stream to a river and then to the ocean, and there is a water play tank where visitors can build dams and learn through play.
- Questacon, the National Science and Technology Centre⁴ in Canberra, Australia, has an exhibit called H₂O. With 16 interactive exhibits, it demonstrates the properties of water, how we use it and how it affects the world we live in. It is an excellent learning resource for schoolchildren and a guide is available for

teachers to link the hands-on learning to the Australian National Science Curriculum. Students are encouraged to answer questions such as: How much water do you use every day? Is it easy to extract freshwater from saltwater? Does it take much energy to boil a cup of water? If we run out of water in our dams, how can we obtain an alternative supply? Questacon also offers a touring exhibition called Our Water. This hands-on exhibit focuses on the use and perseveration of water and has toured cities in Australia.

- A touring exhibition, Water Works, is presented by Science North⁵ in Sudbury, Ontario, Canada. The exhibit has three main goals: to help visitors learn about the physical properties of water, to increase knowledge about personal water use and to increase awareness about water sustainability. The Water for Life section allows visitors to explore a household water cycle and compute their own water footprint. In harnessing water power, participants play water pinball, use a hydraulic lift and pilot a submarine.

There are many museums that feature the history of water-human interaction. Liberty Science Center⁶ in Jersey City, New Jersey, explores the complex relationship between industrial use and the ecosystem in the Hudson River. Waterworks Museum⁷ in Boston, Massachusetts, interprets one of the country's first metropolitan water systems through exhibitions on engineering, architecture, social history and public health. The Nieuw Land Museum⁸ in the Netherlands describes the rich history of Flevoland and the Zuiderzee Project where land was reclaimed from the sea.

There are several water museums in development. The Asia Pacific Water Museum to be built in Pathumthani,

Thailand, is a collaborative project organized by the National Science Museum, the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Japan Water Forum. The museum will take an interdisciplinary approach into looking at the history and culture of water in the region, the human-water interrelationship and current scientific developments. Another museum in development is on Reunion in the Indian Ocean. Reunion is an International Union for Conservation of Nature biodiversity hotspot and 40 per cent of the island is on the UNESCO World Heritage List. One of the biggest challenges faced by Reunion is a rapidly expanding population. The new science and nature centre will allow visitors to follow the water cycle on the island and address its relationship to Reunion's natural environment, agriculture and sustainable development.

Science centres are much more than places where children have fun and learn about science. These centres are increasingly addressing societal issues and challenges for the planet and its future. Since science, education and communication are the core of science centres, they are sensitive to new ways of thinking within the scientific community and its role in society. Margit Fisher, the First Lady of Austria, spoke at the closing event of the Planet Under Pressure conference on behalf of the science centre field worldwide: "We all hope for a powerful plan of action, but even the most ambitious programme will need to be complemented by effective public engagement. In order to achieve this, we propose that science centres and museums be created, developed and supported worldwide as vital resources—particularly in areas where they are currently missing, such as in much of Africa. We call for a strategic plan that channels the energy of science centres and museums to advance a UN outreach strategy. Let me conclude by saying that our vision is to move towards a sustainable world. This will only be achieved with the support of an informed public. This is what science centres bring to the table."⁹

Notes

1 See www.astc.org/about/scenarios.htm and <http://www.astc.org/about/pdf/scenariosrelease.pdf>.

2 Fairmount Water Works Interpretive Center (see www.fairmountwaterworks.org).

3 Observatory Science Centre (www.the-observatory.org).

4 Questacon-The National Science and Technology Centre (www.questacon.edu.au)

5 Science North (<http://sciencenorth.ca/exhibitsales/services-traveling.aspx>).

6 Liberty Science Center (<http://lsc.org/see-whats-happening/current-exhibitions-and-experiences/our-hudson-home/>).

7 Waterworks Museum (<http://www.waterworksmuseum.org/>).

8 Nieuw Land Museum (<http://www.nieuwlanderfgoed.nl/>).

9 Full speech at <http://www.astc.org/about/pdf/MFicher-pupspeech.pdf>.

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ABOUT THE AUTHOR

WALTER STAVELOZ is Director of International Relations, Association of Science-Technology Centers, Washington, D.C.

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