



Citizens as water sensors: WeSenseIt

By Leonardo Alfonso, Uta Wehn de Montalvo, Juan Carlos Chacón, Maurizio Mazzoleni
Photography by © L. Alfonso

Participants record water quality samples with smartphones in Butare, Rwanda (October 2012)

As of October 2012, the WeSenseIt project is developing citizen-based observatories of water, which will allow citizens and communities to become active participants in information capturing, evaluation and water governance.

UNESCO-IHE and 13 partners from six European countries are exploring new ways to capture information about the water cycle by actively involving citizens. This 'citizen observatory of water' is being initiated and tested in three European catchments, namely Bacchiglione (Italy), Doncaster (United Kingdom) and Delfland (the Netherlands). The project is currently running and lasts for a total of 48 months, with a budget of 6.9 MEuro - of which 5.4MEuro is funded by the 7th Framework Programme of the European Commission. It will allow citizens to capture hydrological data using mobile apps and physical sensors that can connect to portable devices like smartphones and tablets. Relevant information is also extracted from the interaction of citizens via digital social media sites such as Twitter and Facebook. The project concept is based on the initial findings of the PhD thesis of Leonardo Alfonso, carried out at UNESCO-IHE and finalized in 2010.

Why should citizens be involved?

Current technological advances have allowed citizens to carry powerful mobile devices that have location capabilities and the potential to connect to sensors. Given the large diffusion of these devices, citizens can complement the insufficient density and resolution of data collected by traditional monitoring networks. This is particularly helpful during critical events such as floods or droughts. But the involvement of citizens can also promote an active role for local communities to understand and take better care of the environment. Citizens who participate in information capturing and evaluation can also provide feedback. This allows for an exchange of environmental knowledge between citizens and authorities, which improves decision-making and planning.

UNESCO-IHE staff involved in the project team include Leonardo Alfonso, Lecturer in Hydroinformatics, Uta Wehn de Montalvo, Senior Lecturer/ Researcher in Capacity Development and Dimitri Solomatine, Professor in Hydroinformatics and Arnold Lobrecht, former Associate Professor in Hydroinformatics. Together with three PhD fellows attached to the Project they form an interdisciplinary team. PhD fellow Juan Carlos Chacón is working on methods to optimally design new generations of monitoring networks that include sets of dynamic sensors capturing data with diverse spatial and temporal characteristics, while PhD fellow Maurizio Mazzoleni is investigating methods to incorporate the heterogeneous data collected via the citizen observatories into hydrological and hydraulic models. Jaap

Evers, Lecturer in River Basin Governance and Maria Rusca, Senior Lecturer in Management and Organization of Sanitation, are carrying out baseline studies of citizen participation in water governance for the Dutch and Italian cases. During the first year of the WeSenseIt project, the Institute has advanced in these topics, coordinated the Dutch case study, and installed several sensors, including two sensors placed in the UNESCO-IHE garden.

Impact and development potential

It is expected that the citizen observatories of water can extend the knowledge base of interactions between the natural environment and human activities. They can support emergency services and policy makers to manage environmental risks such as floods and droughts. In addition, by enabling citizens to feed their own observations, experience and expertise into decision making processes, citizen observatories have the potential to improve water governance in terms of transparency and accountability. For these reasons, the WeSenseIt project is also of interest to low-income countries where the lack of data availability is a common problem (weak monitoring network infrastructures) and where environmental threats such as climate change are likely to have a stronger effect.

More information:

www.wesenseit.com

CONTACT

Leonardo Alfonso
E-mail l.alfonso@unesco-ihe.org