



## PRESS RELEASE

*A team of students from Canadian, American and Dutch universities came-up with an innovative approach on decentralized water treatment*

### **Water Hollistics wins the Wetskills-Canada 2014**

**Ryerson University, Toronto, Canada – Water Hollistics is the next winner of the Wetskills Water Challenge. The edition in Toronto was held for the first time in North America, from 5th to 19th of June. The teams of students from various Dutch, American and Canadian universities presented their innovative concepts during the Ryerson Urban Water Day (17th of June), which took place at the Ryerson University in Toronto. The awarding ceremony took place at the Canadian Water Summit a day later.): ‘Wetskills showed again the added value.’ Stated Johan Oost (programme manager of Wetskills), ‘The concepts are innovative, the providers of the cases are satisfied and we are already thinking about follow-up.’**

#### **Decentralized Water Treatment**

The award ceremony led by Dr. Imogen Coe (Dean, Faculty of Science Ryerson University) and Mr. Anne van Leeuwen (Consul General of the Kingdom of the Netherlands in Toronto). The ceremony took place during the Canadian Water Summit. The team existing of Brian Hanna (Ryerson University), Kim Dieleman (Wageningen University), Leonie de Mulder (Rotterdam University of Applied Sciences) and Chesten Kesselhon (University of Wisconsin-Whitewater) highly impressed the jury, existing of five professionals from the Canadian and Dutch water sector. The jury highlighted the hollistic and innovative approach of the team and good answering of the varous questions of the jury and public. Mr. Anne van Leeuwen: *“Wetskills was a truly inspiring combination of fun, hard-working and good science”*.

#### **Wetskills-Canada 2014**

The thirteenth Wetskills Water Challenge is driven by twenty students (from The Kingdom of the Netherlands, US, and Canada with Bachelor, Master and PhDs in engineering, science, environment, and business studies) with a passion for water. There are five teams and each team addresses one specific water challenge. The cases are formulated by Canadian and Dutch organizations and governments in the water sector. The participants work on their solutions in collaboration within their team during an extensive two-week program in Toronto from 5 to 19 June 2014.

#### **Five water cases**

All the participants are divided into five teams and are challenged to come up with out-of-the-box solutions. Their young minds are tapped into to come up with innovative ideas concerning:

- Team 1: Green infrastructure to mitigate storm water effects
- Team 2: Reduction of phosphorus levels in urban runoff
- Team 3: Wastewater Treatment Solution for a Growing Village
- Team 4: Monitoring of pollutions by the mining industry



- Team 5: Emerging Contaminants in New Sanitation

### **About Wetskills**

Wetskills Water Challenges are an innovative approach of networking and knowledge exchange for students and young professionals in the water sector. It is a two-week event for students and young professionals with a passion for water from all over the world. The challenges are organized during formal water sector related events in cooperation with the Dutch water sector. In trans-disciplinary and international teams, the participants develop their own innovative and out-of-the-box solutions for water challenges in a changing world. Since 2010, Wetskills has attracted more than 250 participants from more than 50 international universities and organisations. Thirteen Wetskills events have taken place so far in China, Indonesia, Oman, Israel, Egypt, Morocco, South Africa (2x), Mozambique, Romania, The Netherlands (2x) and now Canada.

Wetskills Water Challenge is a program, is organised under the umbrella of Human Capital Water & Delta Program, organised by Netherlands Water Partnership (NWP), in cooperation with the Royal Netherlands Water Network, H2Oost and other partners within the water sector. The Wetskills Water Challenge in Canada (2014) is supported and organised by The Royal Dutch Consulate in Toronto, Ryerson University (Urban Water Centre and H2Oost. The cases are provided by Toronto Water, Environment Canada, Golder, Delcan and Municipality the Nation, Incas3 & CanNorth and DeSaH & Wageningen University.

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***For more detailed information on the five case studies:***

**Team 1: Green infrastructure to mitigate storm water effects**

Last year Toronto was heavily struck by a stormwater event. The existing urban infrastructure was not able to handle the massive rainfall. Large parts of the city were flooded and the damage was huge. 'Green Infrastructure' could be one of the answers for this problem. Green Infrastructure are designed areas of urban greenery which are able to retain stormwater. This should reduce the costs, improve the aesthetical value and leads to the efficient use of land. Toronto Water ask the team to design an area with the Green Infrastructure philosophy, to retain excess storm water. Focus lays on costs,.

**Team 2: Reduction of phosphorus levels in urban runoff**

An excess of Phosphorus results in huge algae blooms and these blooms are harmful to the environment. The main sources of Phosphorus are agriculture run-off (manure and fertilizer for crops) and from industrial and domestic (detergents) waste streams. Another source of Phosphorus is the spillage of wastewater during heavy rainfall in urban areas. Environment Canada challenges the team to develop a concept of to reduce or even remove the phosphorus levels during heavy rainfall in urban area.

**Team 3: Wastewater Treatment Solution for a Growing Village**

The Village of Limoges in Nation Municipality, just east of Ottawa, is undergoing rapid growth. Not only will its seasonal-release sewage lagoons soon be overloaded but the fact that continuous discharge to the Castor River is not permitted means that a new form of treatment capable of achieving a much higher effluent quality will be necessary if the Village is to grow. The proposal is to use mechanical treatment in the form of a sequencing batch reactor followed by filtration and UV disinfection. However, even tertiary treatment is in sufficient to permit continuous discharge during periods of low river flow and the Ministry of the Environment has limited its approval to a Stage 1 plant rated at 3,500 m<sup>3</sup>/d. The challenge is provide the Municipality with a solution beyond Stage 1 when projected flows are expected to reach 6,900 m<sup>3</sup>/d..

**Team 4: monitoring of pollutions by the mining industry**

Canada has numerous of resources under the ground which can be utilized by the mining industry. The mining industry has been developed all over Canada's surface. Due to the mining industry harmful compounds, like heavy metals, come to the surface. These could leech into the environment. Authorities face difficulties on monitoring the levels of these harmful compounds and what levels harm the environment. Incas3 and Can North challenge the team to come up with a device which is able to measure the harmful compounds and alarm the authorities when levels exceed certain harmful levels within an hour.

**Team 5: Emerging Contaminants in New Sanitation**

Traditional wastewater treatment requires energy inputs to remove carbon, nitrogen, and phosphorous without either recovering any of these resources or in many cases removing emerging contaminants. New, decentralized sanitation systems collect and then treat grey and black water separately to produce biogas, recover nutrients, deliver clean biosolids, and produce clean water. A major challenge to recovery and reuse of these resources is the presence of emerging contaminants in the outgoing products. Even trace concentrations of pharmaceuticals, hormones, and personal care products can diminish the quality and thus applicability of the fertilizers, biosolids, and effluent water. Wageningen University and DeSaR together challenge the team to design a system that recovers resources while removing emerging contaminants, and then consider the policy and business aspects related to implementation of such a system in Canada.