Rijksdienst voor Ondernemend Nederland

Wetskills Water Challenge in Boston.
Boston, Massachusetts: June 12th – June 23rd

IA Boston *Walter de Wit, Julia Knoeff*
IA Washington *Jantienne van der Meij*
CG NY *Carter Craft*

Thirteen young water professionals from the Netherlands and the United States worked from June 12th until June 23th, 2016 in mixed and multidisciplinary teams to develop innovative concepts to case studies specific to Boston. From day one until day ten, workshops and networking opportunities provided an in-depth experience of Boston's water challenges. Former presidential candidate and former governor Michael Dukakis as well as the Netherlands' own ambassador Mr. Henne Schuwer were two of the several high-level expert speakers on international cooperation. In their talks they emphasized the necessity to work together globally on water challenges and highlighted Boston's climate vulnerability. The Wetskills water challenge 2016 in Boston aims to aid the ongoing work that is being done on climate proofing Boston.

What is Wetskills Water Challenge?
Wetskills Water challenge brings together students and young professionals with different professional backgrounds and uses an innovative approach of experimental learning surrounding global water challenges. The challenges that participants work on are real life cases from companies and (governmental) organizations. The overall challenge is to create out-of-the-box, realistic solutions. Boston's 2016 Wetskills challenge is the 20th edition overall and the second edition in the United States. At the end of this challenge, an American-Dutch jury selected the winning team, based on the most out-of-the-box and practical concept.

Why Boston and the Netherlands?
For the past year, The City of Boston and the government of the Kingdom of the Netherlands have been engaged in an exchange, a dialogue focused on the best practices in climate and urban development that the Netherlands has to offer.

The Netherlands has been living with water all its life, producing the most innovative projects globally to fight the challenges the climate has created for the low-lying country. Boston on the other hand has not battled major flooding issues until now. The destructive hurricane Sandy in 2012 highly effected the New York City area. However, it effected Boston much less due to low tide and geography. This woke Boston up: what if a superstorm hits Boston? As sea level rises, areas of Boston will constantly be flooded without means to protect the infrastructure.

A cooperation between the Netherlands and Massachusetts therefore creates a learning environment, raises awareness and motivates creativity surrounding climate change issues.

What are the real-life Boston-related cases the young professionals are working on?
The study cases that the young professionals worked on throughout the program included climate proofing Boston's Seaport district, creating a business case for storm water harvesting, city governance and resilience, and flood safety of the Federal Reserve Bank office. Engineering firm ARCADIS USA, Water Authority Delfland, Deltares USA & the Federal Reserve Bank Boston and KWR Watercycle Research Institute, provided and formulated the cases.

In the interactive workshop 'Boston's urban metabolism' real-life problems are tackled in an innovative manner

Day 1: The BrainHurricane creates a whirlwind of ideas for a climate ready Boston
The program began with a workshop: the BrainHurricane. The aim of the BrainHurricane event was to collect input from experts for the team's case studies.

Former Massachusetts Governor Michael Dukakis opened the event with an inspiring talk about the need to cooperate internationally on water related problems. Then, renowned experts in the industry supported each team with their knowledge and expertise, including Northeastern University's Pf. Joan Fitzgerald. Ms. Karen Frost from the Water Council Milwaukee gave the students a demonstration of online research tool 'Water Portal,' which the students used during the Wetskills USA 2016 to gather information for their cases.

Day 10: The Finale: Who presents the most innovative idea for Boston's better urban metabolism?
Ambassador of the Netherlands Mr. H.J.J. Schuwer opened the final workshop with an enthusing speech illuminating differences between the Netherlands and the US when it comes to water. The full-day workshop 'Boston's urban metabolism' presented a platform where the ideas culminated into a platform of high-level creativity.

First, both Dutch and US experts talked about the current status of water innovation and climate change. Then, the Wetskills young professionals pitched their cases, of which one was named as the 'winner of the Wetskills challenge 2016.' Following the pitches, an interactive workshop worked through water challenges on three scales: at the community scale, in a future neighborhood center in East Boston, at the future of a key District, Boston's Seaport District, and finally at the future of Boston's harbor and greater estuary.

In the end, both the US and Dutch stakeholders left with innovative, creative ideas and a promise to keep this wonderful collaboration going.

"It has been a while since I have been challenged like this in such a short period of time"- US Student

"It is interesting to see the different mind-set between the Netherlands and the US when it comes to water. We were born to fight and live with water" – Dutch young professional

"Amazing to hear from former presidential candidate Michael Dukakis, the ambassador of the Netherlands and many other experts on the urgency of these climate issues"- Dutch Student

The Wetskills Challenge participants with ambassador of the Netherlands Mr. Henne Schuwer

The cases in-depth

Case 1: A Business case for Storm Scale Water Harvesting Measures

Delfland Water Authority

Climate change increases the risk, frequency, and intensity of certain extreme events like intense heat waves, heavy downpours, flooding from intense precipitation and coastal storm surges, and disease incidence related to temperature and precipitation changes. For years, the Delfland Water Authority therefore invested in the water system by widening the watercourses and increasing the capacity of the pumps. However, because public space in our cities becomes increasingly scarce, they believe it is necessary to enter the private domain and increase the water retainability in the cities with small-scale rain water harvesting measures. The Wetskills participants are challenged to develop an innovative way to roll out small scale storm water harvesting measures on private properties on a larger scale with the aim to prevent urban flooding and drought in the face of climate change. The method should be broadly applicable, with the Dutch city of Delft and US city of Boston as focus areas.

Case 2: Climate proofing Boston's Seaport District

Arcadis

Recent studies by the Climate Ready Boston and University of Massachusetts Boston have shown that cities in the Northeast of the US like Boston are likely to see sea levels rise by 2 feet by mid-century up to possible 6 feet by the end of the century. These sea level rise projections are three to four times higher than the global average. In addition to flooding, climate change effects such as increased precipitation and extreme heat will affect the infrastructural, environmental and social systems that citizens rely on every day. This case of Arcadis is focusing on one of the most distressed areas in the downtown city center, the Boston Seaport District. The area has seen a massive redevelopment in the recent past and is now facing the challenge to adapt to climate change, and explore and retrofit flood protection strategies over time. The Wetskills participants are tasked to assess climate implications for the Seaport District and propose innovative strategies to mitigate vulnerabilities and guarantee long term business continuity of this vibrant area.

Case 3: Creating a Blue Boston

KWR Watercycle Research Institute

Cities play a prominent role in our economic development as more than 80% of the Gross World Product comes from cities. However, modern day trends such as rapid urbanization, climate change, inadequate maintenance of water infrastructure and poor solid waste management may lead to flooding, water scarcity, water pollution, adverse health effects, and cause rehabilitation costs that may overwhelm the resilience of cities. City governments therefore need a comprehensive way to see how their city performs in terms of water management, which is why KWR developed the City Blueprint. This is a quick benchmarking method that gives a concise overview of current management practices in the urban water cycle, accounting for themes such as water quality, solid waste, basic water services, wastewater treatment, infrastructure, climate adaptation and governance. KWR challenges the Wetskills participants to create a City Blueprint of Boston and to develop an innovative plan for improving the City Blueprint scores in a cost-effective way.

Case 4: Towards a resilient Boston Federal Reserve Bank
Deltares & Federal Reserve Bank

The Federal Reserve Bank building in Boston, constructed in the early 70s of last century, is located along the waterfront of the Fort Point Channel. At the time the office was built, issues of climate change and sustainable development were still behind the horizon. But sea level rise, increased frequency and volumes of torrential rainfall and more frequent and more intensive heat waves threaten functioning of the building. Moreover, the call to reduce energy consumption for heating and cooling and motorized transport – to achieve CO2-emission reduction - is louder than ever. And so is the call to reduce consumption of natural resources such as water, building and office material. Harvesting water and thermal and electrical energy as well as use of local resources and recirculation of material and energy flows can make the building more self-sufficient and resilient. Central question for the Wetskills participants is how the Federal Reserve Bank can make its building flood proof "under any condition" for the next 100 years.

The participants

Name	***Organization***
Martien Aartsen	Utrecht University
Matthew Boelter	University of Wisconsin – Milwaukee
Augustin Botteron	Tufts University
Lieke Dotinga	Wageningen University
Jelle van der Lugt	Technical University Delft
Anna Rhees	University of Massachusetts
Boudewijn Sterk	Dutch Water Partners Bangladesh
Douwe Terpstra	National Water Traineeship
Nanne Tolsma	Vrije Universiteit Amsterdam
Charlotte Vagevuur	University of Amsterdam
Lieuwe van der Lugt	Hogeschool Utrecht
Joeri van der Stroom	Wageningen University
Mirrijn van Eijk	P2 Project Management

The organizations involved

Organization	***Contact***
Northeastern University (US)	Joan Fitzgerald, Michael Dukakis
Wetskills Water Challenge (NL)	Johan Oost, Erwin Vonk
The Water Council Milwaukee (US)	Karen Frost
Boston Harbor Now (US)	Julie Wormser
City of Boston (US)	Mia Goldwasser
Massachusetts Department of Energy and Environment (US)	Kathleen Baskin

Boston Water and Sewer Commission (US)	Charles Jewell, Kate England
Arcadis (NL)	Hugh Roberts
Water Authority Delfland (NL)	Paul Korf
Deltares & Federal Reserve Bank (US)	Paul Gusmini, Karel Heynert
Waternet (NL)	Paulien Hartog
Wageningen UR (NL)	Eddy Moors
FABRICations (NL)	Eric Frijters
IMG Rebel (NL)	Irene Pohl
UMass Boston (US)	Paul Kirshen
Neighborhood of Affordable Housing (US)	Chris Marchi, Magdalena Ayed