



## SCOREWATER

### SCOREWATER, A WATER-SMART SOCIETY

We all depend on water. In the industrialized world, we take clean water for granted. When water management fails, the consequences to the public and to the economy can be large. SCOREwater will enhance the resilience of cities against climate change and mass urbanization by enabling a water-smart society. This society is playing part in solutions for climate change, addressing several of the Sustainable Development Goals.

### THREE CASES

Besides the Barcelona Case described below, we have the **Amersfoort Case**, which focuses on **improving the detection of flash floods while reducing environmental impacts**. The **Göteborg Case** focuses on **managing water pollution in the industrial sector**.

# can sewer blockages be prevented?



## Barcelona Case · Sewage



The goal within SCOREwater is to innovate in the digitalization of water services, by demonstrating how sensing the sewer system of Barcelona can provide information at a neighborhood scale on health status, dietary habits and waste management at households. This information will be used to: 1) reduce the discharge of antibiotics in the environment, 2) promote healthier dietary habits, and 3) prevent damaging discharges from households of wet wipes, oils and greases to the sewer system, 4) decrease sewer maintenance costs. SCOREwater will be a proof of concept that sewer sociology can be applied to understand the habits of 3 neighborhoods with differing socio-economic status in Barcelona.

**Aim:** The goal within SCOREwater is to innovate in the digitalization of water services, by demonstrating how sensing the sewer system of Barcelona can provide information at a neighbourhood scale on health status, dietary habits and waste management at households. This information will be used to: 1) reduce the discharge of antibiotics in the environment, 2) promote healthier dietary habits, and 3) prevent damaging discharges from households of wet wipes, oils and greases to the sewer system, 4) decrease sewer maintenance costs.

**Approach:** SCOREwater will be a proof of concept that sewer sociology can be applied to understand the habits of 3 neighbourhoods with differing socio-economic status in Barcelona. A sensor network, connected to the SCOREwater platform, will be deployed to monitor water flows (BCASA) and concentrations (s::can and

ICRA). Artificial intelligence based on machine learning will be conducted (EUT) to obtain indicators of wet wipes usage, oils and greases discharge to the sewer network, dietary habits and antibiotics consumption. The mined information will allow the identification of neighbourhoods that need intervention. Then, a series of interventions (surveys (IERMB), education campaigns and social-media) will be executed with the ultimate goal of source controlling bad lifestyle and health habits. A data driven model will also be developed which links citizens' complaints on sewer-related problems with operators maintenance reporting.

**Outcome:** A smart water management system for sewer systems management. A collection of good quality data on lifestyle habits of three communities in Barcelona. Education campaigns to raise public awareness about proper waste disposal at the households to prevent the clogging of sewers, and proper antibiotic consumption.

**Innovation beyond the case:** The case study of Barcelona will generate new products/services: i) a systematic manner for processing water quality and water quantity information to elucidate population habits; ii) extending existing water quality sensors to monitor oils and greases from domestic wastewater; iii) an innovative service to design health and environmental awareness campaigns; iv) a data driven model for sewer maintenance which uses citizen science.

