



# Wetskills-Israel 2017

## Overview of Study Cases

### Case 1: Organic Matter in Irrigation Water

Case owner: **NETAFIM**



Drip irrigation is one of the most effective irrigation technologies to reduce the use of water, fertilizer and other materials such as herbicides and pesticides, and NETAFIM is a world leader in developing such irrigation solutions. The most common sources of water for irrigation are surface water (lakes and rivers) and groundwater (aquifers). However, in some areas in the world, treated wastewater is used. One of the main problems of using treated wastewater for irrigation is the high concentration of organic matter, which may cause drippers to clog. It is up to the team to solve is how NETAFIM can deal with drippers clogging by organic matter when treated waste water is used as a source of irrigation, in a simple, cheap, low maintenance and safe manner.

### Case 2: Bio-monitoring solutions to detect pollutants in drinking water systems

Case owner: **Mekorot**



In protecting our drinking water supplies, detection of source water contaminants plays a vital role for Mekorot, Israel's national water company. Accidental chemical spills, extreme weather events, terror threats, and operational faults may all cause the spread of contaminants into the water supply system. We therefore use bio-monitoring systems (that is, a system that can assess the toxicity of water samples by monitoring living organism behavior) to detect contaminants in the water supply system. It is up to the team to think of how Mekorot can create a new, continuous, online bio-monitoring system that will combine the use of aquatic organisms with cutting edge technology, to provide early warning for contaminants entering a drinking water system.

### Case 3: Odor prevention on municipal sewage

Case owner: **Mey-Avivim, Tel-Aviv Water Company**



Sewage Typical Smell (STS) can cause a substantial nuisance to most human noses. When this kind of typical smell appears in the surroundings of a Wastewater Treatment Plant, its origins are known and therefore can be specifically treated. On the other hand, when STS appears in a municipal area, its origins are much harder to detect and locate. In case repeated complaints from the same location are reported, the TAWC will check a number of possible causes, such as clogging, dead animals, or cross-connections between sewage and drainage systems. However, in some cases the STS origins and causes are none of the



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above, and are still left unidentified. It is up to the team to think of a system that can detect and eliminate persistent Sewage Typical Smell in municipal areas.

### Case 4: Reaping the benefits of adding minerals to desalinated water



Case owner: Technion – Civil & Environmental Engineering Faculty

Desalinated seawater (SW) is a rising potable and agricultural water source. Unfortunately, the mineral concentration in desalinated water tends toward zero, which causes consumption of such water as drinking water to result in unwelcome health effects. Similarly, this water is not suitable as irrigation water. Therefore, a post treatment (PT) step is invariably practiced in desalination plants in order to meet quality criteria regulations. Lately, the addition of magnesium ( $Mg^{2+}$ ) has been the subject of several researches, because it may benefit both human health and crop production. To date, however, options for the addition of potassium to desalinated water, have not been studied, therefore, this issue remained unsolved. It is up to the team to find out how we can add 5 – 10 mg/L potassium to desalinated water, in a cost effective way.