

# PROPOSALS 2015

## Fields of Research Proposals - with Relevance to Mekorot

### Water Quality, Water Treatment, Water Security and Environmental Protection

- Innovative technologies for the removal of contaminants with a focus on: trihalomethanes, organic micropollutants, heavy metals, sulfides, residual explosives, residual fuels, perchlorate, radioactive elements (mainly radium), arsenic and fluoride.
- Event Detection Systems (EDS) for the early warning and continuous real-time detection of changes in water quality, and acute contamination by chemical and/or biological toxins.

### Decision Support Tools and Models for Handling Water Events

- Integrated hydraulic water quality model for monitoring and tracking the water quality and for providing warnings of trends and changes.

### Wastewater Treatment and Effluent Reclamation

- Technological solutions for reducing the dissolving manganese phenomenon found in the aquifer (groundwater reservoir) in the vicinity of the recharging fields, which causes clogging of irrigation systems of farmers.
- Innovative technologies (including advanced oxidation processes) for removing dissolved organic matter from effluents and for removing refractory micro-pollutants.

### Desalination and Membrane Systems

- Development of an alternative to the SDI (Silt Density Index) that can provide an effective reading of potential fouling levels. The alternative method must accurately indicate/predict the extent of fouling at the entrance to the membrane system by particles/micro-organisms.
- Innovative technologies for stabilizing desalinated water while reducing costs.

### Engineering Services

- Predictive maintenance as part of the asset management, such as: forecasting technologies of malfunctions in electro-mechanical equipment, and monitoring systems of underground pipelines.