# Water Reutilisation Station "El Prat de Llobregat"

**Descriptive Summary**

The Prat de Llobregat treatment plant is one of the three metropolitan WWTPs that have water reuse processes since it includes a Water Regeneration Plant. It is one of the most important stations in the world (50 thousand million L/year; peak flow: 3.25 m3/s ). It includes 2 phases: 1st phase with physicochemical treatment plus microfiltration and disinfection, which treats 100% of the water. The resulting water is used for environmental use in the river; Agricultural irrigation; Urban Irrigation; Sewer cleaning; Maintenance of wetlands; Industrial uses. A 2nd phase includes ultrafiltration plus reverse osmosis, and treats 10% of the water. The resulting water of 2nd phase is reused to contribute to the creation of a barrier against saline intrusion.

**Background**

The overexploitation of the aquifer of the Llobregat delta, located in the Metropolitan Area of Barcelona (AMB), has caused a high saline concentration of the aquifer water due to the intrusion of water from the sea. In parallel, Barcelona City and its surroundings have been suffering several long-term droughts, which are expected to increase in the following years, and which can compromise water supply. AMB, and in particular Llobregat delta, has many water uses: from industrial, to mouth water and agriculture.

**Aims and Goals**

To increase the hydrological resources of the region in 50 thousand million litters each year.

To provide optimized-quality water in different steps of the treatment depending on its uses: water provision to the Marine outfall; Llobregat river and wetlands, agricultural and urban irrigation, industry, and Llobregat Delta aquifer.

To stop marine intrusion through the so-called "hydraulic barrier against saline intrusion", a pioneering project in Europe that consists of injecting high-quality regenerated water from the WRP, with additional ultra-filtration and reverse osmosis treatment, to 14 strategically constructed wells to improve the quality of the aquifer's groundwater.

**Actions taken**

Installation of a Wastewater Treatment Plan (WWTP) and Water Regeneration Plant (WRP) that includes different serial treatments that provide water for different purposes:
- Secondary treatment with nitrification and denitrification.
- Tertiary regeneration treatment, which provides treated reusable water that is used for the wetlands and Llobregat river; for agricultural and urban irrigation water; and for industry.
- Ultrafiltration and osmosis, which leads to highly depurated water, going to the Llobregat Delta Aquifer, plus salts plus other impurities, which are discharged to the marine outfall.

Organisation of educational and technical visits.

**Main Achievement to date**

Treatment of fifty million litters wastewater per year through the waste water treatment plan and water regeneration plant.

Reduction of marine intrusion through injection of high-quality regenerated water from the water regeneration plant into Llobregat Delta Aquifer.

**Partners**
Àrea Metropolitana de Barcelona - AMB

**Lessons, replicability and scalability potential**

Water reutilisation can increase hydrological resources for a region and provides multiple benefits such as improving quality of aquifiers groundwater, reduction of marine intrusion, and additional water supply for multiple uses such as wetlands, agriculture, and industry.

**Affiliation**
MedCities

**Keywords**
regenerated water saline intrusion microfiltration ultrafiltration reverse osmosis WWTP Wastewater Water Reuse

**Country**
Spain

**Total funding**
+5M €

**Environmental**
Medium-High

**Social**

Medium

**Technological**
High

**Financial**
Medium

**Institutional**
Medium

**SDGs**


**Website**
https://www.amb.cat/es/web/medi-ambient/aigua/instalacions-i-equipaments/detall...

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**Nexus Dimensions**
Ecosystems
Food
Water

**City**
El Prat de Llobregat

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