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Due to the likely toughening of environmental legislation in near future, many of the currently operating wastewater treatments are no longer acceptable and need to significantly increase their efficiency. Stricter regulations are found for especially sensitive areas, drinking water abstraction areas and bathing waters.

The problem of meeting existing and forecasted more stringent new regulations affects especially small communities, hotels campsites in relative remote areas without access to sophisticated wastewater treatment plants.

The IWAPIL project offers an innovative membrane bioreactor (MBR) intended for use in remote communities, mountain hotels, campsites. This decentralised system with the size of a standard container is based in a newly developed membrane, membrane module and highly automated control which ensures *low-maintenance costs* and a *extremely high quality effluent* which can be even reused for irrigation or toilet flushing purposes, as it is totally *germ free*.

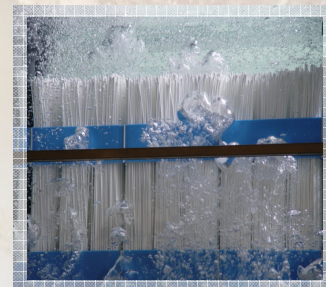
INNOVATIVE DESIGN

- Capillary membrane system with a **nominal pore size of app. 0,05 µm**, allowing high sludge concentration rates and bacteria removal.
- Longer term membrane cleaning due to **air injection nozzle in the centre** of each circular bundle, where the highest risk of clogging occurs.
- **Automated control** system. System designed to work automatically with non-required skilled operators.
- Decentralised applications due to its low footprint, with the size of a standard container.
- Significant reduction on fouling rates and **50% energy savings**.



RESULTS

- Wastewater discharge from campsites contains high content of pollutants: 1.227 mg/L COD, 72,83 mg/L NH₄⁺, 21,88 mg/L nitrates, 47,75 mg/L phosphorous and 148,99 mg/L TSS.
- The prototype will be tested in two isolated campsites **Camping Las Lomas S.A** (in Sierra Nevada, Spain) and **camping Fornella** (in Lago di Garda, Italy).
- During the testing period wastewater **purification rates** have been shown to be **higher than 98,8%**, in terms of COD, BOD₅, ammonia and solids removal, leading to an effluent quality higher than the legal parameters fixed by the EU.
- **Savings of important amounts of water** through wastewater reuse as well as a reduction on sludge generation is expected.



CONSORTIUM



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