

# Low energy, use-orientated greywater reuse -- EARNINGS --

Within the framework of the measure "KMU-innovativ: Ressourceneffizienz und Klimaschutz", the BMBF is supporting a transdisciplinary project for sustainable water management with the EARNINGS project. When developing an innovative process combination of soil filter, membrane and bio-optical sensor, a minimum use of energy is in the foreground, which is why the development project simultaneously contributes to resource and energy efficiency.

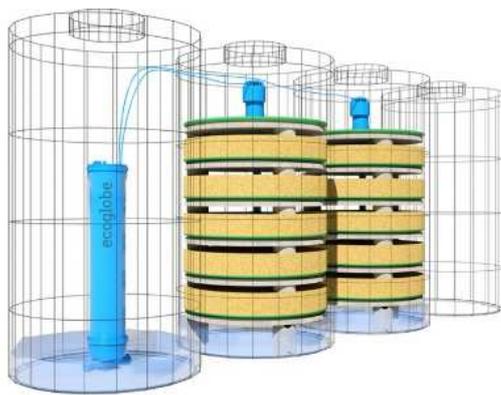


figure 1: Waterbase-plant with with mutually arranged biological filter levels [http://www.waterbase.de/]

Sustainable water management is becoming increasingly important. The research project aims to develop a decentralized low-energy process for the targeted greywater treatment. The combination of a newly developed stackable floor filter from Ecoglobe GmbH, a robust ultra-low-pressure membrane filtration from MARTIN Membrane Systems AG and a load-dependent UV disinfection system can specifically generate different quality characteristics from process water to bathing water quality. A new innovative bio-optical sensor from OUT e.V. measures the contamination level of the water in real time. A common system control allows the control of the purification levels depending on the hygienic load and the selected reuse of the purified gray water. The overall system to be developed thus closes the gap between near-natural cleaning processes with low energy but high space requirements and the technical compact systems with increased energy and maintenance requirements.

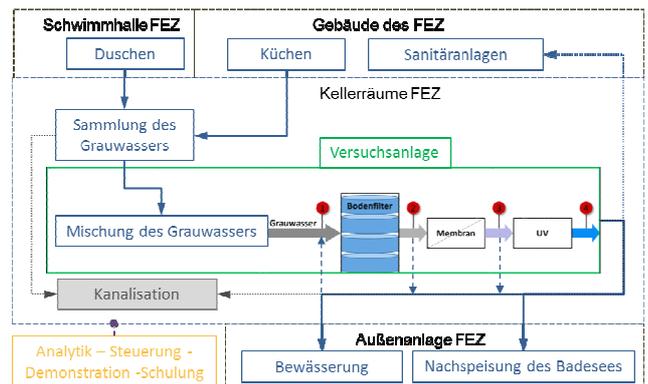


figure 2: Process scheme of the pilot plant embedded in the FEZ Berlin

The FEZ-Berlin, Europe's largest non-profit leisure center, will be the location of the pilot plant. The scientific support is provided by the Department of Urban Water Management of the TU Berlin. The process combination to be developed can be used in individual houses, sports facilities, hotels and building complexes, preferably in (semi-) arid areas for different applications such as irrigation, toilet flushing, pool water, car washes or for the replenishment of bathing water. Therefore, the project will directly contribute to the promotion and securing of the pioneering role of German companies in the water industry and lead through the international orientation to increase exportability.

**Duration:**  
01.02.2018 till 31.01.2020

**Funding:**  
800.000 €

**Partner:**  
 [www.ecoglobe.de](http://www.ecoglobe.de)

 [www.martin-membrane.de](http://www.martin-membrane.de)

 [www.out-ev.de](http://www.out-ev.de)

 [www.siwawi.tu-berlin.de](http://www.siwawi.tu-berlin.de)

**Ansprechpartner:**  
Tom Guggenberger M.Sc.,  
E-mail: [guggenberger@tu-berlin.de](mailto:guggenberger@tu-berlin.de)  
Tel. +49 30 314 72305  
TU Berlin, Fakultät Planen-Bauen-Umwelt, Institut für Bauingenieurwesen,  
Fachgebiet Siedlungswasserwirtschaft, Gustav-Meyer-Allee 25, 13355 Berlin