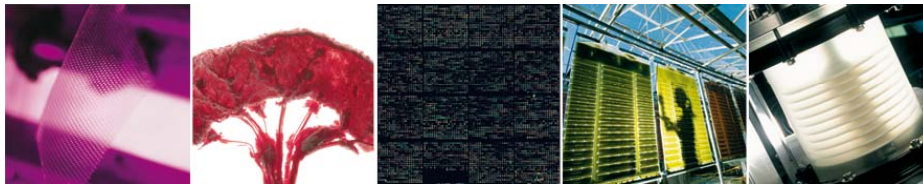


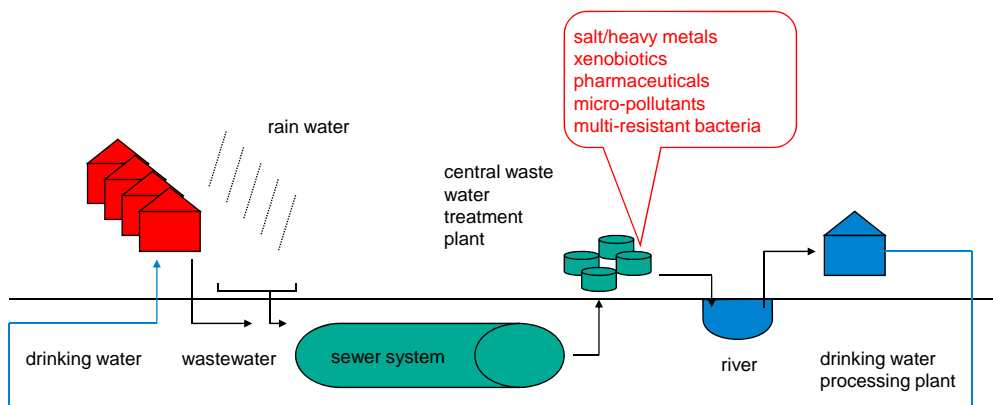
Sustainable Water Infrastructure Systems for South-East Europe

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Bioverfahrenstechnik

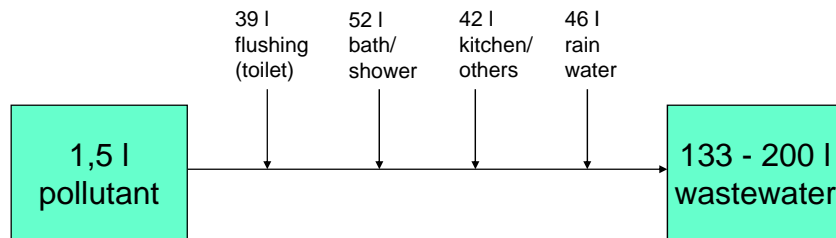
Germany – International Partner for Environmental
Technologies
FONA-Forum, Berlin, 24th September 2008



Conventional Water management System



Water Effluents in Households per Person and Day in Germany

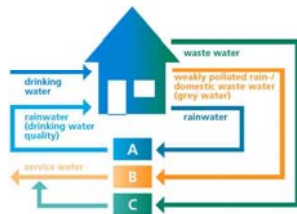


Sewer System in Germany



Length: 400.000 km
 Investment costs: € 150.000 - 250.000 / km
 Duration of investment: 100 years
 Total value: € 80.000 mill.
 High demand of reconstruction (€55 bill. in Germany)!

DEUS 21 Concept: Cost Reduction in Water and Wastewater Management



- A roof-rainwater treatment
- B treatment of rainwater (public areas) and/or weakly polluted waste water (grey water)
- C sustainable waste water treatment

Reduction of investment costs:

- decentralization
- change from gravity sewers to vacuum sewers
- increase the volume-time yields of bioreactors

Reduction of operating costs:

- increase the concentrations of pollutants
 - rain water separation
 - reduction of drinking water consume
 - addition of kitchen wastes

change from aerobic to anaerobic biology



Planned Project



overall objectives:

adaptation of the DEUS 21 concept to the local conditions in South-East Europe

demonstration projects for sustainable, de-centralized water and wastewater infrastructure systems

combined with training and education for engineers, scientists, technical staff, and public authorities

to build capacities for innovative sustainable wastewater management to prevent environmental pollution caused by uncontrolled discharge of untreated wastewater



Specific Objectives



implementation of an **education and training center**

introduction of innovative methods for **de-centralized wastewater treatment**

demonstration of the applicability of a **small scale systems** for municipal wastewater treatment and **waster water reuse**

knowledge and know-how transfer and **capacity building** for design, operation, management, and post-project evaluation

contribution to the achievement of national strategies and goals in **sustainable wastewater management** in South-East Europe



Planned Activities



- **design and construction of demonstration plants** for water management and anaerobic wastewater bio-treatment
- **continuous operation** of the demonstration plants
- **establishment of competence centers**
- **evaluation** of technical, economical, ecological, and social aspects
- **dissemination** activities



Demonstration Centers



- demonstration plants for **innovative** de-centralized wastewater treatment in selected municipalities
- anaerobic wastewater bio-treatment in **modular high performance membrane bio-reactor**
- construction and operation **jointly** by scientists and engineers from **Germany and SOE countries**
- cleaning of the wastewater to that grade, which is necessary for the **specific utilization**; reduction of COD to less than 100 mg/l
- **accompanying experiments** in the laboratories of Fraunhofer IGB and local scientific partners

