Cooperative project: Export-orientated research and development on water supply and sewage disposal, Part II: Wastewater treatment and the water reuse

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To obtain a complete list of the topics of the individual subprojects and the persons to contact, please get in touch with the project coordinator.

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The idea

The aim of a joint project promoted by the Federal Ministry of Education and Research (BMBF) is to adapt the wastewater purification technologies that have proved their worth in Germany to other climatic zones and boundary conditions.

The objective is to modify the systems and design parameters established in Germany for the various wastewater treatment processes in such a fashion as to make them totally applicable to other conditions too, e.g. ones involving a different composition of the raw wastewater, and to optimize them for different climatic conditions.

A further aim is to have the research work contribute towards improving the prospects of German companies on the international market for wastewater treatment and water reuse.

The project

January 2005 saw the start of the 2nd part – “Wastewater treatment and water reuse” – of the joint project entitled “Export-orientated research and development on water supply and sewage disposal” with some initial subprojects. The joint project is to comprise a total of 24 subprojects, these being split up into three core areas. Collaborative partners from science and industry will tackle problems relating to wastewater treatment, examine methods of disinfection and water reutilisation, and will adapt wastewater treatment plant simulation models to the modified design parameters. All the subprojects will focus, in particular, on the requirements of developing countries and countries in the course of transition.

Three focal points

- **Wastewater treatment**
  This focal area of operations includes research activities on aeration systems, rotating biological contractors, submerged fixed-bed plants, activated-sluage processes, trickling filters, sewage ponds, and lean-tech processes. The design parameters for these plants are being adapted to changed boundary conditions.

- **Disinfection and water reuse**
  The topics being investigated include the service conditions and process chains required for wastewater disinfection and water reutilization and the peculiarities of plants producing water for irrigation during both summer and winter operation. The aspects of sewage sludge treatment and utilization are being examined, and research work is going into the question of the extent to which anaerobic wastewater treatment processes can be adapted to conditions in the target countries.

- **Simulation and wastewater treatment concepts**
  Research is going into concepts for the stepwise extension of wastewater purification plants and simulation models aimed at optimizing plant operation are being made to match the changed boundary conditions as regards design. Further aspects in this area of investigation are project assessment and plant visualization.

Related topics

As early as 2001, the BMBF sponsored a similar project relating to drinking water treatment technology, which has now been concluded. Both the joint project regarding drinking water supply and the present one concerned with wastewater treatment were preceded by country-related studies in which the boundary conditions in some of the principal target countries were investigated.

The reports entitled “Praxiserfahrungen bei der Trinkwassergewinnung in anderen Ländern” (Practical experience of drinking water supply in other countries) and “Anforderungen an die Abwassertechnik in anderen Ländern” (Requirements on wastewater engineering in other countries) can be obtained from the organization executing the project and the project coordinator respectively.