

Project name SCST Sanitation Concepts for Separate Treatment of Urine, Faeces and Greywater, Stahnsdorf, Germany



Keywords wastewater source separation, biogas production, fertilizer production, greywater reuse, water saving, energy production

Start of project 2003

End of project 2006 (2010)

Contact person or organisation Berliner Wasserbetriebe

Short project description / project function The aim of the project was to test whether this kind of a new sanitation concept has significant advantages in comparison to conventional sanitation systems. The new sanitation concept in the office building was installed in 2002 / 2003, when the building was being renovated. In spring 2005, the new concept was extended to the residential building.

Water The SCST-project demonstrated the possibilities to reuse nutrients from wastewater for the production of energy and show how to save water by recycling of greywater with different treatment technologies.

Energy In a biogas plant brown water from toilets was digested in order to generate biogas for the production of energy. Therefore vacuum-no-mix-toilets were installed to reduce the amount of flush water. This purpose ensures a better performance of the biogas plant. In addition the lower consumption of freshwater for flushing reduces the energy for the freshwater supply. The increase the specific biogas production the bio waste from kitchens was tested as co-substrate in the digestion process. The result has been nearly the double amount of biogas by the digestion of the inhabitant specific use of the bio waste.

Biomass As a co-substrate in the process of digestion of brown water organic waste from kitchens was transformed to biogas. Due to the fact that the nutrients will not be degraded in the anaerobic digestion process the sludge can be used as the basic for the production of a fertilizer to use in agriculture. Urine from the no-mix-toilets was even tested as fertilizer in

	greenhouse tests. Greywater is treated by a constructed wetland and generates reed which can be used as building material and co-substrate in digestion.
Project benefits	By the separated treatment of yellow-, brown- and greywater from households a water and nutrient saving is possible. The project demonstrated different technologies in this context and shows how to install these components to generate best benefit. In a life cycle assessment the biological impact of such a system was shown and summarized a better result than conventional sewer and treatment systems.
Project level	Demonstration project
Financial scale	2,22 Mio €
Environmental conditions	Climate zone: temperate, cool cloudy wet winters and summers Geographic Coordinates: 52° 24' N / 13° 13'
Altitude	43 meters above sea level
Description of special local conditions	Stahnsdorf is located in the south-west of Berlin. West of Teltow, South of Kleinmachnow and East of Potsdam. Stahnsdorf is located on the Teltow, which comes into existence 20.000 years ago as a glacial plain plateau
Context Zero Emission Buildings	The novel sanitary system in Stahnsdorf was started as a research project. Some of the project results are useful for further Zero emission buildings. It is one of the small numbers of projects in Germany which analysed all the different wastewater streams: yellow water, brownwater and Greywater. Both main topics of alternative sanitation: recycling of freshwater and recycling of nutrients were investigated.
Sources	Peter-Fröhlich, A.; Bonhomme, A.; Oldenburg, M. (2003): Sanitation Concepts for Separate Treatment of Urine, Faeces and Greywater (SCST). Results. Hg. v. Kompetenzzentrum Wasser Berlin (KWB). Online verfügbar unter http://www.kompetenzwasser.de/fileadmin/user_upload/pdf/forschung/scst/SCST_FinalReport_5_01.pdf . Wriege-Bechtold, A.; Barjenbruch, M.; Peter-Fröhlich, A.; Heinzmann, B. (2010): Treatment of brownwater - results of mesophilic tests in Stahnsdorf/Germany. In: Xiaodi Hao und Vladimir Novotny (Hg.): Water infrastructure for sustainable communities. China and the world; [2009 International Conference on Sustainable Water Infrastructure for Cities and Villages of the Future, held in Beijing (November 6th - 9th 2009) ; SWIF 2009]. IWA Publ. (Cities of the future series), pp. 391–398, London, 2010, ISBN: 9781843393283