

Innovative water infrastructure for Chongming Island

In the frame of ecobuild Shanghai 2006, a major Sino-German cooperation project for the promotion of ecological building, the Hamburg-Public-Sewage-Company (HSE) has developed an innovative circular economy infrastructure concept for new housing areas integrated in the farmland of DongTan, on Shanghai-Chongming-Island.

SIIC-Dongtan-Investment-and-Development, developer of Dongtan, and ecobuild representatives signed an agreement on January 13th for the implementation of HSE's concept within ecobuild. The aim of the Dongtan project is to realise a pilot for the showcase of this innovative technique, which is meant to be applied to urban areas in the future.

Circular economy infrastructure is based on material flow management theory: the conventional waste water disposal system, where all sewage goes into one canalisation, will be replaced a system enabling separation of wastewater. Greywater (used water without toilet water) and blackwater (concentrated toilet water), are collected, treated and recycled separately. This system is coupled with a biomass/biogas system for treatment of blackwater and constructed wetlands for grey water.

This infrastructure offers the following benefits:

1. reduce overall water consumption (after purification, grey water can be reused either within the housing area, or even more efficiently for irrigation in agriculture),
2. balance energy needs (production of renewable energy when supplementary biomass such as energy plants and organic waste are added to the biogas-system),
3. production of additional agricultural fertiliser,
4. much lower environmental impact than conventional systems (emissions of greenhouse gases and eutrophic substances are reduced to a minimum)

This circular economy infrastructure concept is an important contribution to the sustainable development of growing cities, adaptable to different climate zones. HSE's objective is to close the loop of material flow for more resource efficiency.

HSE, part of the Hamburg-Water-Group, the biggest public Water and Wastewater Company in Germany, is closely cooperating with the Tongji-University, College of Environmental Science and Engineering. HSE is in Germany responsible for public water, waste- and storm water infrastructure and service operation in the metropolitan region of Hamburg.