Activities of the PILLS project

Different activities are implemented by the partners. Besides the characterisation of different hospital waste water, all partners identify key pharmaceuticals which are to be focused on. In this context some partners focus on isolated streams resulting from a specific department and others assess the total flow of a hospital. Furthermore the partners focus on the reduction of antibiotic resistant bacteria in wastewater.

Advanced wastewater treatment at local sources

Four partners of the project from the Netherlands, Germany, Luxembourg and Swit-zerland are each building a pilot plant in cooperation with a local hospital. While the Waterschap Groot Salland in the Netherlands and the Emschergenossenschaft in Germany are building full-scale wastewa-ter treatment plants, which treat virtually the entire hospital wastewater, the part-ners from Switzerland and Luxembourg are installing smaller pilot-scale wastewa-ter treatment plants treating partial flows of the hospital wastewater to support the design and operation of full-scale plants.

The pilot plants are characterised by a combination of technologies, which has the objective of eliminating the largely per-sistent residues of medicinal products in addition to the biodegradable substances and nutrients. For this reason conventional wastewater treatment processes are ap-plied in the PILLS plants which are com-plemented by advanced techniques.
For further details, please do also have a look into the PILLS brochure: PILLS-Brochure

Eawag , the Swiss Federal Institute of Aquatic Science and Technology, acts as a project partner in the PILLS project. In a Swiss project entitled `Input and Elimination of Pharmaceuticals from Hospital Wastewater´ (more info) the significance of hospitals as point sources for pharmaceuticals and possible technologies to treat hospital wastewater are evaluated to reduce the input of pharmaceuticals into ambient water. Therefore, a pilot plant is installed in a Swiss hospital and is studied in terms of feasibility, efficiency, technical and economical factors.
The cost for the installation and investigation of the Swiss pilot plant and the analysis of pharmaceuticals and antibiotic resistant bacteria will be covered by funds independent of PILLS (funding from the State Secretariat for Education and Research SER/COST within the COST Action 636, the Swiss Federal Office for the Environment FOEN, the Cantons Bern, Basel District, Geneva, St. Gallen, Schaffhausen, Solothurn, Schwyz, Thurgau, Vaud and Zurich, and Eawag). However, Eawag will share their knowledge on hospital wastewater treatment with the partners of PILLS, assessing their treatment technologies and compare them to the technologies investigated within the consortium. Building on this knowledge, a decision basis will be developed to formulate a strategy concerning the emission of pharmaceuticals from hospitals and to optimize the setup for full-scale treatment of hospital wastewater.

The CRP Henri Tudor with its Resource Centre for Environmental Technologies (CRTE) acts as project partner in the PILLS project. In collaboration with the regional hospital Centre Hospitalier Emile Mayrisch the elimination efficiency of pharmaceutical residues by a membrane and/or ultrafiltration respectively an ozonation treatment from a representative wastewater stream will be investigated. With this objective a pilot plant will be designed, built and operated in cooperation with the Institut für Siedlungswasserwirtschaft (ISA) of the RWTH Aachen. Due to the CRTE´s experience in life cycle assessment, the department is also strongly involved in the workpackage `Assessment´. In its role as workpackage leader, the CRTE will coordinate the collection of data necessary for an objective and successful evaluation of the different pilot plants operated at the individual partner locations.

The Project Pills is embedded in project SLIK by the waterboard Groot Salland. SLIK stands for `Sanitaire Lozingen Isalaklinieken´ meaning sanitary discharge of the Isala hospital.
The goal of project SLIK is to build and operate the first full-scale wastewater treatment plant for the treatment of sewage from the Isala hospital in Zwolle, containing rests of medicines and hormones to gain more insight in the treatment steps, operational aspects and costs to be able to improve to water quality in and near Zwolle.

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In April 2011 the German PILLS pilot plant starts with its test mode. After the pilot plant was finished, all involved partners are now curious about the cleaning capacity of the advanced treatment techniques that are realised in Gelsenkirchen.

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