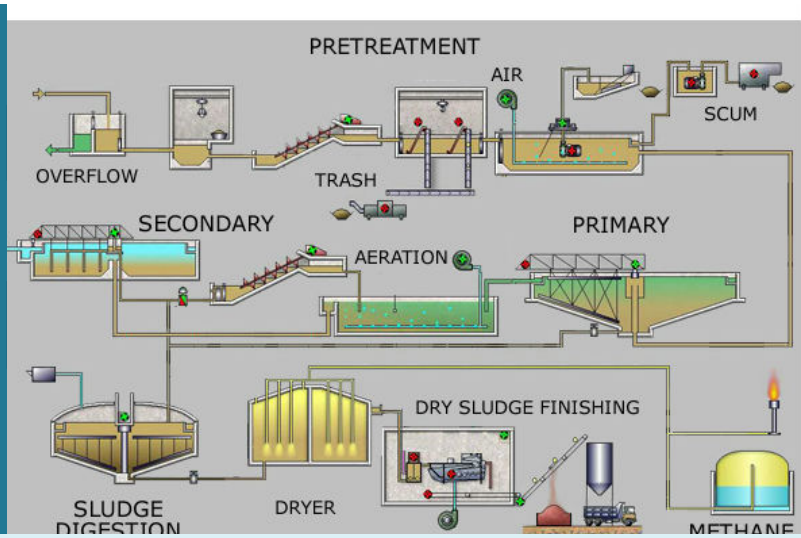
PROJECT FACTSHEET

www.list.lu/en/research/project/edwards-1/?no_cache=1&cHash=67333c73c44bed22fc46860d94e735b7

EdWARDS

Development of a decision support system to guide wastewater treatment plant managers and operators on energy optimisation potential



Inspiration

Wastewater treatment plants (WWTPs) are complex systems and their human personnel (plant managers, control engineers, plant operators, new staff) face this complexity each day. In order to aid them in managing the large amount of information generated by the plants, a group of researchers at the Luxembourg Institute of Science and Technology (LIST – formerly CRP Henri Tudor) developed the Energy Online System (EOS) for data management within the INNERS project to import data coming from WWTPs, process, aggregate and build basic statistics on this data and calculate global key performance indicators (KPIs). The KPIs are available for plant personnel via a web application interface.

Innovation

The EdWARDS project is a follow up of INNERS that aims to provide further support to plant operators and managers using a decision support system (DSS). The project will deal with challenges linked to the complexity, the structure and the tasks of the decision support system and the compatibility with different typologies of WWTPs. Currently, the DSS applied to WWTPs focus on effluent quality and they are generally plant specific. The EdWARDS project will address this by developing a DSS with a focus on energy saving potential, an area still under-prioritized by plant managers and the scientific community, and the ability to work with different WWTPs simultaneously.

Impact

Using the database and knowledge, the developed DSS will provide a real time analysis of the status of the WWTP and each of its individual parts, based on the analysis of KPIs, a comparison with benchmarks, and alert message generation. In addition, the DSS will be able to simulate and predict the behaviour of the WWTP. Using this tool, the end user will be able to test the effects of his/her decisions before applying them to the plant, saving time and avoiding mistakes. One of the possible and desired outputs of this PhD project is the achievement of a patent. In addition, the results of the project will be shared with publications and conferences.

Partners

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