BEST – Better Efficiency for Industrial Sewage Treatment

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EUROPEAN UNION



WITH FINANCIAL SUPPORT OF THE RUSSIAN FEDERATION





The aim of the BEST project

The aim of the project is to promote cooperation and best practices among **industries**, waste water treatment **plants and local environmental authorities** to ensure efficient treatment of industrial waste waters in the Baltic Sea Region.

Partners:

City of Helsinki (Lead partner) Riga Technical University Tallinn University of Technology Estonian Waterworks Association Municipal water supply and sewage company with limited liability (Leszno) Doruchow Commune John Nurminen Foundation State Autonomous Institution of Kaliningrad region "Environmental Center ECAT-Kaliningrad" Helsinki Region Environmental Services Authority HSY Põltsamaa Varahalduse limited company Limited company E-Piim Tootmine City of Warsaw Regional Environmental Centre for Central and Eastern Europe Country Office Poland Latvijas Piens LTD Gdansk Water Foundation

Duration: October 2017–September 2020

Budget: EUR 3.4 million (75–85% ERDF, ENI, Russian Federation funding)







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WHY the BEST project?

Current EU legislation gives industries two options for handling their waste water

- 1) To build their own waste water treatment plant (WWTP) which fulfils the requirements of using the Best Available Techniques (Industrial Emissions Directive (IED), direct discharge)
- 2) To pre-treat the waste water and then direct it to a municipal waste water treatment plant (IED and Urban Waste Water Treatment Directive, indirect discharge)

Industrial waste water at municipal waste water treatment plants

Industrial waste water differs from domestic waste water due to factors such as its high solid contents, hazardous substances, and higher and fluctuating volumes. Because municipal WWTPs were originally designed to treat domestic sewage, water with abnormal contents, such as industrial waste water, could seriously harm the treatment process and its efficiency if it is not handled correctly.

Such a discharge could cause capacity and safety problems at WWTPs, inhibition of the biological treatment process step, and the pollution of waste water sludge, which prevents recycling and further use. Even modern and efficiently functioning domestic waste water management at municipal WWTPs may be endangered by uncontrollable industrial waste water discharges. Ultimately, such problems can lead to higher discharges of nutrients and harmful substances into the natural environment.

WHAT does the BEST project involve?

1) Assessment of the current state of industrial waste water management in the Baltic Sea Region

The BEST project involves producing a coherent description of the current situation in terms of the treatment of industrial effluents entering municipal WWTPs in the Baltic Sea Region. The description takes account of country-specific features, success stories, bottlenecks, the main pollutants preventing the utilization of sludge, technical solutions and management models for improving the situation.

> Led by Riga Technical University



Pre-treatment of industrial waste water before feeding it into a waste water treatment plant



WWTP



LOCAL MUNICIPAL WASTE WATER TREATMENT PLANT

An industrial waste water contract between municipal WWTP and industry with regard to abnormal waste water: Pre-treatment requirements based on quality, quantity and risks to work safety, the treatment process, as well as sludge utilization at a municipal



PERMITTING ENVIRONMENTAL AUTHORITHY

Environmental permit for waste water from industry: restrictions on waste water emissions discharged into a municipal waste water treatment plant

2) Cooperation and capacity

The BEST project involves providing tools, practices and methods for increasing cooperation and capacity among industries, WWTPs and environmental authorities, e.g.

- Models for industrial waste water contracts, regular joint supervision, monitoring, meetings and emergency situations, as well as pre-treatment solutions for industrial waste water
- Materials are collected into a learning package and training concept for WWTPs, industries and environmental authorities

Led by the Gdansk Water Foundation 3) Investments and new technical solutions

Pre-treatment solutions in industrial companies and monitoring equipment at a municipal WWTP

Latvijas Piens LTD, a cheese factory in Latvia, is investing in a flocculation process and the *Limited company E-Piim Tootmine*, a cheese factory in Estonia, in a regulation tank in order to clean their waste water. The collected suspended or floc material can be used for biogas production.

Pôltsamaa Varahalduse limited company, a municipal WWTP handling waste water from industry (e.g. E-Piim Tootmine), is investing in mobile sampling equipment in order to improve monitoring of incoming water. Increased knowledge of influent characteristics enables the optimization of the treatment process and enhances opportunities for cooperation with industries.

Industrial sewage fermentation at municipal WWTP

The Municipal water supply and sewage company with limited liability in Leszno is

demonstrating how industrial sewage can be used in a sludge fermentation process to produce biogas.

Testing new phosphorous filtering technologies at municipal WWTPs

Doruchow Commune, in municipal WWTP premises, is constructing a new industrial waste water treatment plant based on activated sludge technology with a secondary filtration system using highly porous calcium silicate material to remove phosphorous directly from waste water.

Tallinn University of Technology is

testing a range of filter materials for collecting heavy metals and nutrients from waste water at different WWTPs. This work aims to improve waste water quality and enable the recovery and recycling of phosphorous.

Led by the City of Helsinki

Picture: Latvijas Piens LTD 4) New guidelines for the treatment of industrial waste water in the Baltic Sea Region **The BEST project** compiles comprehensive guidelines for legislative, technical and institutional developments. Such guidelines are needed for the improved management of industrial effluents in municipal WWTPs nationally and in the Baltic Sea Region. The guidelines are targeted at permitting and supervising municipal, regional and national level authorities and WWTPs affected by industrial effluents.

Led by the John Nurminen Foundation















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