

Better Efficiency for Industrial Sewage Treatment ...*at municipal treatment plants*



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City of Helsinki

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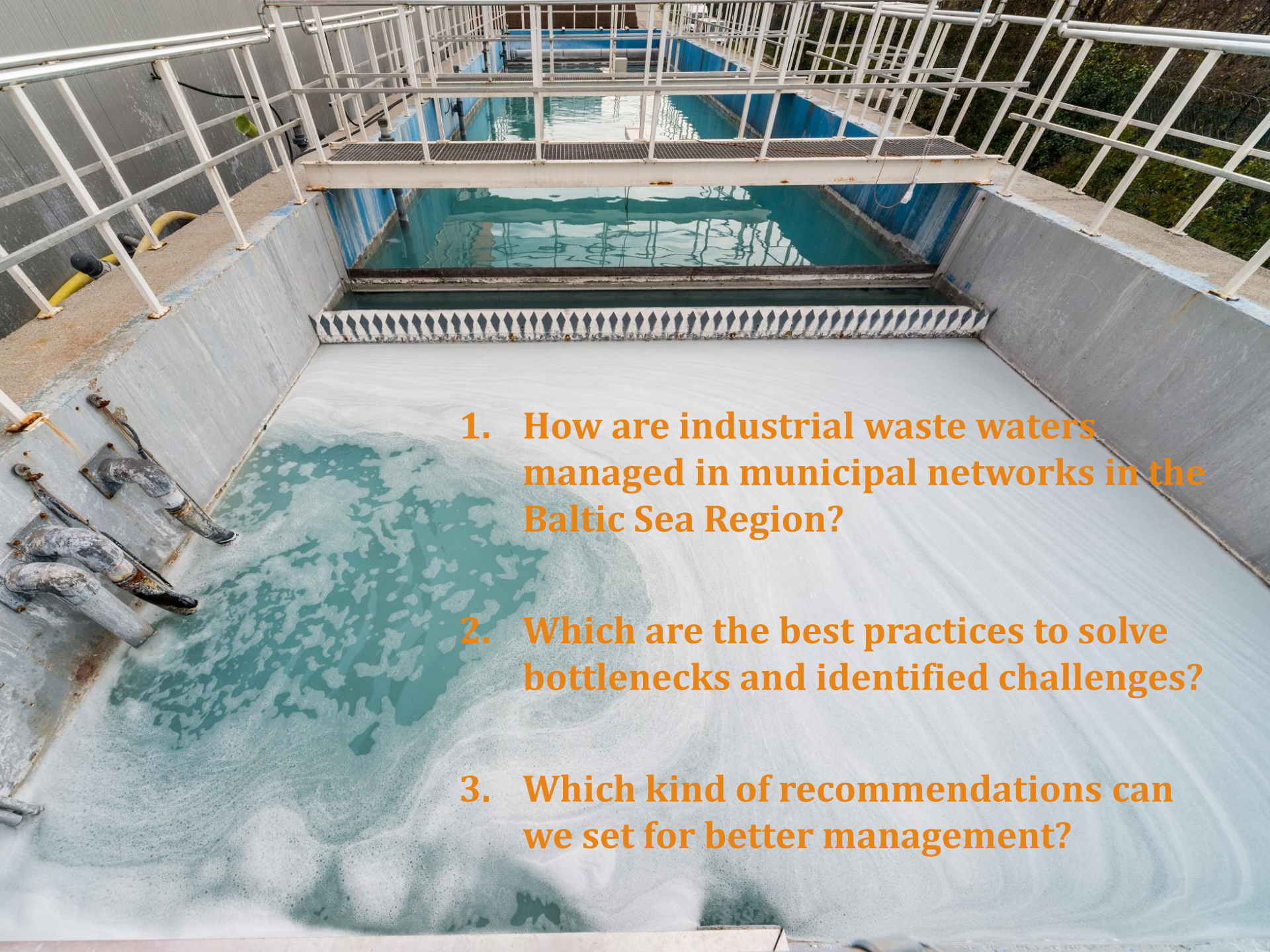
Municipal waste water treatment plants are often primarily designed to treat waste water of domestic origin.

Waste water with abnormal content, such as industrial waste water, can seriously harm the waste water treatment process and the water environment.

BEST aim:

To ensure **efficient treatment of industrial waste waters** by promoting **cooperation and best practices** between **industries, municipal waste water treatment plants and environmental authorities** in the Baltic Sea Region.





- 1. How are industrial waste waters managed in municipal networks in the Baltic Sea Region?**
- 2. Which are the best practices to solve bottlenecks and identified challenges?**
- 3. Which kind of recommendations can we set for better management?**

1) How are wastewaters managed in the Baltic Sea Region?

Work leader Riga Technical University



EU legal framework

Industry

Directive on industrial emissions 2010/75/EU

Aims at reducing harmful industrial pollution:

Introduces **environmental permits** using **BAT** (Best Available Techniques) conclusions as a reference for setting permit conditions

Requires that Member States set up a system of **environmental inspections** (site visits at least every 1 to 3 years)

Ensures that the public has a right to **participate** (access to permit applications, permits and monitoring results)



Municipal wastewater treatment

Urban wastewater directive 91/271/EEC and 98/15/EC

Requires Member States to establish a system of prior regulation for discharges of industrial wastewater into collecting systems:

Industrial waste water shall be subject to **pre-treatment**

to **protect the health of staff** working in collecting systems and treatment plants

ensure that collecting systems and waste water treatment plants and their **operation are not damaged**

ensure that discharges from the treatment plants do not **negatively affect the environment**

ensure that **sludge can be disposed safely**



Aquatic environment

Water framework directive 2000/60/EC

Directives on environmental quality standards 2008/105/EC and priority substances 2013/39/EC



What do the directives say in practice?



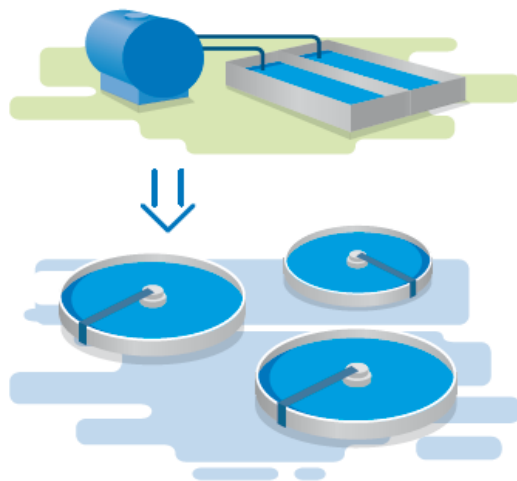
PERMITTING ENVIRONMENTAL AUTHORITY

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

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



LOCAL MUNICIPAL WASTE WATER TREATMENT PLANT

Industries requiring permits (IED):

- Energy industries
- Production and processing of metals
- Mineral industry
- Chemical industry
- Waste management
- Other (e.g. pulp, paper, textile, leather, food, feed, intensive animal farming, surface treatment, wood preservation)

2) Bottlenecks and best practices

Work leaders

*Gdansk Water Foundation, Estonian Waterworks Association,
John Nurminen Foundation and City of Helsinki*

Bottlenecks

Lack of monitoring of hazardous substances

Deficiencies in permit requirements

Accidental leaks, load peaks

Insufficient pre-treatment

Discrepancies between permits and contracts

Gaps in knowledge and resources (hazardous substances, pretreatment)

Outdated permits and contracts

Political pressure

Best practices: Local management and cooperation models

- In BEST industries and WWTPs are testing new tools or practices to increase and enhance cooperation
- Examples of practices for testing
 - Regular meetings between WWTP and environmental authority
 - Regular meetings between WWTP and industry
 - Excel tool for emergency situations (by Valio dairy company)
 - Adequate monitoring equipment of influent at WWTP
 - Model contracts and steps of negotiation process
 - Etc.
- Practices will be described and collected in a learning package and training concept

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Best practices: Investments and pilots

- **WWTP-industry cooperation development**
Waste water pre-treatment at cheese factory (*E-Piim Tootmine*) and improved monitoring of influent water at WWTP (*Põltsamaa Varahalduse, Estonia*)
- **Pre-treatment at cheese factory** (*Latvijas Piens, Latvia*): flotation unit investment
- **Filtration of phosphorous and heavy metals at WWTPs** (*Doruchow Commune, Poland and Tallinn Technical University, Estonia*): Piloting and testing differing innovative filter materials enabling P recovery.
- **Piloting use of industrial waste and sewage for co-fermentation** at WWTP (*Leszno, Poland*)



Best practices: Capacity development

- **EVENTS**

- International project events

- **Cooperation practices between industry, municipality and water utilities**
Helsinki, Finland, 6-8 February 2018 (project Kick off)
 - **Phosphorous recovery and utilization of sludge**
Gdansk, Poland: 11-13 June 2018
 - **Management of hazardous substances in industrial sewage**
Toila, Estonia: 20-22 November 2018
 - **Management of effluents from the food and dairy sector**
Riga, Latvia: 2-4.4.2019
 - **Pre-treatment possibilities for different industrial effluents**
Kaliningrad, Russia: 26-28 November 2019
 - **Working methods for further capacity building and cooperation**
Warsaw, Poland: 26-28 May 2020 (project Final seminar)

- National events during the project in

Poland, Lithuania, Estonia, Latvia, Kaliningrad, Finland

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3) Recommendations for better management of industrial wastewaters

Work leader John Nurminen Foundation

New guidelines Baltic Sea Region wide and nationally

Target stakeholders of guidelines

- 1) Permitting and supervising authorities (national, regional, local)
- 2) WWTPs handling industrial waste waters
- 3) Industries in municipal networks

Description of legislation related, institutional and technical develop needs to improve management of industrial waste waters.

The image shows a screenshot of a website, likely the DWA (Deutscher Wasserversorger- und Abwasser-Ingenieurverband) website. The top banner features the DWA logo and the text 'DWA-Sho'. Below the banner, there is a search bar and a navigation menu with options like 'Neuer Kunde', 'Neuerscheinungen', 'Gesamtübersicht', 'Abonnements', 'In Bearbeitung', 'Hilfe', and 'Home (Shop)'. The main content area displays a list of articles under the heading 'Industrieabwasser und anlagenbezogener Gewässerschutz Arbeitsblätter'. A specific article is highlighted: 'Råd vid mottagande av avloppsvatten från industri och annan verksamhet'. Below this, there is a section for 'FINNISH INDUSTRIAL WASTEWATER GUIDE' with the subtitle 'Conveying non-domestic wastewater to sewers'. The guide is identified as 'Publication series no. 69 of the Finnish Water Utilities Association' and was published in 'Helsinki 2018'. A small photograph of an industrial facility is visible in the background of the article preview.

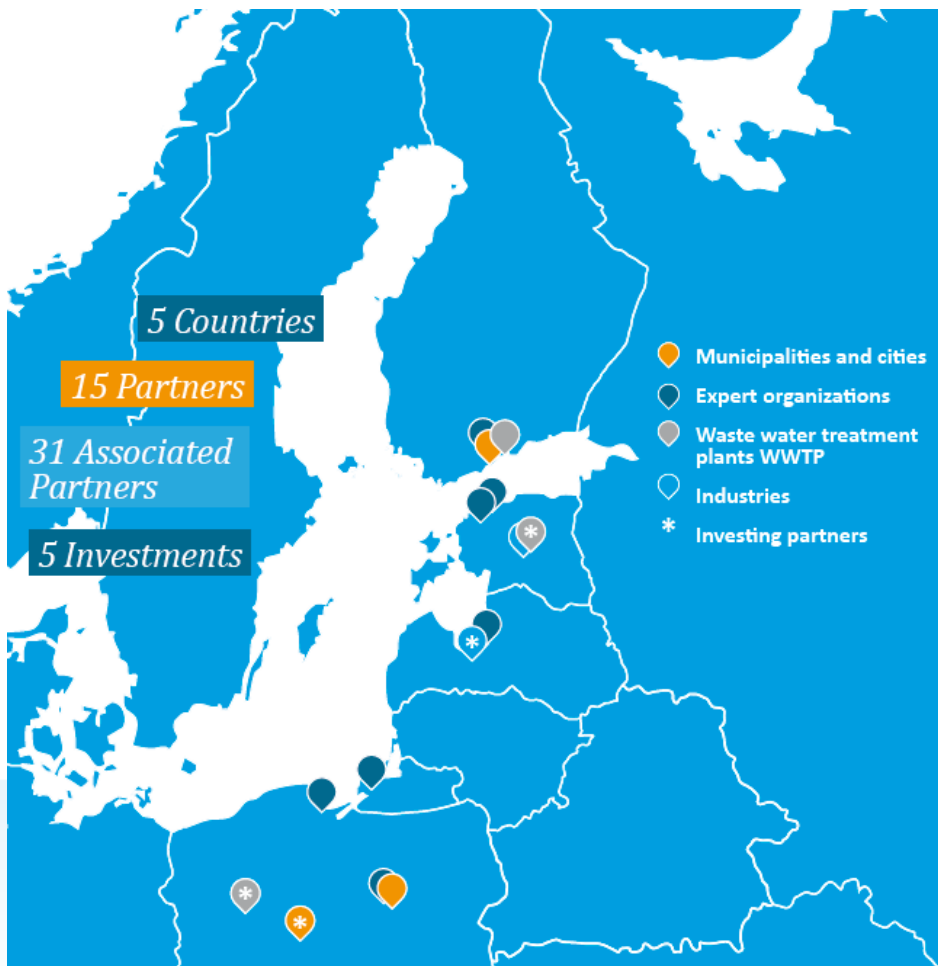
So, who is then (the) BEST?




















Partners

Municipalities, universities, expert and waterwork organisations, industrial companies, WWTPs



EUROPEAN UNION

City of Helsinki, Leading partner	 Finland
John Nurminen Foundation	 Finland
Helsinki Region Environmental Services Authority HSY	 Finland
E-Piim Company	 Estonia
Tallinn University of Technology	 Estonia
Pölsamaa Varahalduse limited company WWTP	 Estonia
Estonian Waterworks Association EVEL	 Estonia
Riga Technical University	 Latvia
Latvijas Piens LTD	 Latvia
REC Poland	 Poland
Gdansk Water Foundation	 Poland
City of Warsaw	 Poland
Leszno Water Utility WWTP	 Poland
Doruchow commune	 Poland
ECAT-Kaliningrad	 Russia

Baltic Sea Region



Duration and funding

Duration: 1.10.2017 – 30.9.2020

Budget: 3,4 million €

Co-funding:

European Union Interreg Baltic Sea Region (75/85 %),

Russian Federation financial support

Own funding by partners

The project has been granted an EU Strategy for the Baltic Sea Region
Flagship status (Policy Area Nutri)

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Paldies!

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