

Policy brief on industrial wastewaters

Better Efficiency for Industrial Sewage Treatment

Baltic Marine Environment
Protection Commission

Policy briefs



The problem

Although municipal wastewater treatment plants (WWTPs) have been modernised in the Baltic Sea Region (BSR), industrial wastewaters prevent effective treatment at many plants and cause increases in the loads of hazardous substances and nutrients.

From the cost-efficiency point of view, it may be justified to co-treat industrial and municipal wastewaters. However, it is important to note that

- Industrial wastewaters may contain hazardous substances, which cannot be removed with a conventional treatment process and may inhibit the functioning of treatment based on microbes. In addition, hazardous substances can prevent further utilisation of sewage sludge.
- If the additional BOD and nutrient load from industry has not been considered, it may exceed the maximum capacity of a treatment plant leading into increased pollution.
- Industrial discharges often require effective pre-treatment. Some substances cannot be treated at municipal treatment plants as they inhibit activated sludge.

Industrial sectors identified to cause disturbances at the municipal treatment plants in the BSR include meat, dairy and beverage production; manufacturing of chemicals, pharmaceuticals, coke and petroleum and fabricated metal products; and waste collection, treatment and disposal activities and materials recovery.

In some cases, also small businesses such as restaurants or car repair shops may cause challenges for municipal wastewater treatment. A further difficulty may be caused by complex ownership structures: a property may have different types of activities and several tenants that produce industrial wastewaters.

The current HELCOM Recommendation 28E/5 doesn't take industrial waste waters at municipal WWTPs into account. According to the 2021 Baltic Sea Action Plan,

the HELCOM Recommendation 28E/5 on municipal wastewater treatment will be strengthened by 2027 (action E23). Also strengthening and updating the HELCOM recommendations for industrial releases of hazardous substances is included in the 2021 BSAP (HL4). The strengthened and updated Recommendations could include also regional requirements in line with this policy brief e.g. on pretreatment, limit values, intervening with non-compliance or common terms of sanctioning.



Key messages



In addition to industrial wastewater contracts, environmental permits with emission limit values and BAT requirements are necessary for large industrial enterprises (i.e. industries discharging considerable loads or causing risks).



Economic and industrial policy should not overrun environmental concerns and liabilities.



Authorities should have sufficient resources and power to intervene with misconducts and non-compliance. Legislation should not prevent sampling of industrial wastewaters without prior notice.



The main purpose of controlling industrial wastewaters should not be to achieve financial benefit but to prevent pollution.



To support the utilisation of the best available knowledge in the regulation of industrial wastewaters, limit values and terms of sanctioning should be harmonised nationwide.

Recommendations for environmental authorities and decisionmakers

1 CHALLENGE

In some BSR countries, permitting follows the “end-of-pipe approach”, regulating only municipal WWTPs, but not industrial operators when their industrial wastewaters are discharged into municipal plants. This leaves the water utility responsible for determining limits for industrial wastewater quality and quantity in industrial wastewater contracts even for very large (IED¹ category) polluters. Without the support of environmental authorities, especially small water utilities can have significant challenges in forcing the operator to follow the polluter pays principle through an industrial wastewater contract.

risks through characteristics of their wastewater. These types of industries should always have a permit with limit values for wastewaters, a plan of water protection measures and a monitoring programme for pollutants agreed and supervised by environmental authorities.

In setting the limits, cooperation is needed between industrial operators, environmental authorities, and water utilities, sewer owners and WWTPs.

- Industrial operators know the content of their wastewater and are responsible for its pre-treatment.
- Environmental authorities give permits to industries whose operations are subject to a permit.
- Water utilities make contracts with industrial operators on wastewaters to be conveyed to a municipal WWTP in accordance with national legislation.

✓ SOLUTIONS

Legislation and permitting practices should be reviewed for the industries discharging wastewaters to municipal WWTPs if they produce considerable wastewater loads or cause

¹ refers to Industrial Emissions Directive (2010/75/EU)

For detailed information, see chapters 2.3 and 2.4 of the [guidelines document](#).

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CHALLENGE

Economic and industrial policy may become contradictory when limiting wastewater loads from industry, as industries bring tax revenues and employment to municipalities, regions, and countries. In some cases, industrial operators have been given lower water and wastewater fees and permission to convey wastewaters to the sewer without pre-treatment or with insufficient pre-treatment. In the EU, this may be considered unlawful state aid.


SOLUTIONS

Economic and industrial policies should not be made at the cost of water utilities, WWTPs and the environment. To guarantee that environmental concerns and liabilities are considered, the following principles should be followed:

- Environmental permitting should be free from economic and political interests. The permits should be granted on a sufficiently high, preferably national or regional level to guarantee sufficient permitting competence as well as independence from local interests and politics.
- For those industrial operators that convey wastewater to public sewers and WWTPs, water utilities should be involved in the permitting process. Their expertise and views on permit conditions should be considered by requesting their comments during the permitting process.
- Legislation should enforce the polluter pays principle and require that industrial operators are aware of environmental impacts and risks of their operations.
- In environmental permits and industrial wastewater contracts, equal limit values and restrictions on the quality and amount of wastewater should be given to operators within the same industry sector. Sometimes stricter limits than BAT are justified to protect sensitive waterbodies or prevent pollution of sludge. Limit values (or even prohibition to discharge) are needed for substances causing harm or disturbances in the sewer, WWTP or environment, and for substances for which the treatment capacity of the municipal WWTP is limited. On the contrary, provided that there is enough capacity at the WWTP, the need of setting overarching limit concentrations for organic matter and nutrients can be considered, because these substances can be treated at WWTPs, and

increased expenses can be covered by collecting increased wastewater fees according to the quality of industrial wastewater.

- Monitoring should be planned case-specifically according to the amount and quality of wastewater, considering especially hazardous substances. Industrial operators are responsible for monitoring the quality of industrial wastewaters, but authorities and water utilities should define the conditions for monitoring programmes that include e.g. frequency of sampling and parameters to be analysed.

Transition into larger, more independent regional water utilities or centralised wastewater treatment is one solution for preventing local economic and industrial policy interests from affecting the management of industrial wastewaters.

For detailed information, see chapters 2.3-2.6 of the [guidelines document](#).

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CHALLENGE

A major problem in many BSR countries is that enforcing the compliance with environmental permit or industrial wastewater contract is hindered by a lack of resources or knowledge or even due to legislative obstacles. This means that industrial wastewaters are not monitored extensively enough to identify violations of quality requirements.


SOLUTIONS

Authorities should have sufficient resources and power to intervene in cases where an industrial operator neglects its permit conditions or exceeds limit values set in industrial wastewater contracts and declarations of wastewater composition. If misconduct is repeated and the operator does not comply with set requirements after a given time, authorities should impose administrative fines or apply a mechanism of increased payment for excess wastewater discharge, initiate a crime investigation, or even order the closure of the facility. In several countries, these procedures are relatively slow and infrequently used.

Legislation should allow authorities and water utilities to carry out inspections and sample industrial wastewaters at relevant locations without prior notice. This is, however, forbidden by law in some BSR countries.

For detailed information, see chapters 2.5.1 and 4.4.2 of the [guidelines document](#).

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CHALLENGE

The purpose of setting increased wastewater fees, penalty clauses and other fees is to ensure the effective operation of sewers and WWTPs and to reduce pollution load. Unfortunately, in some BSR countries, the current principles of setting limit values and monitoring programmes aim at collecting maximal fees, whereby more efficient on-site pre-treatment might even be considered a negative trend.



SOLUTIONS

The main purpose of controlling industrial waste waters must not be in achieving financial benefit for the water utility, environmental authorities, or municipalities, but in preventing pollution. Increased industrial wastewater and penalty fees should aim at reducing pollution and reflect increased treatment costs for water utilities caused by industrial wastewaters.

For detailed information, see chapter 4.4.4 of the [guidelines document](#).

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CHALLENGE

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SOLUTIONS

Water utilities and authorities should get more support particularly from national legislation and the national water utility associations, and limit values and terms of sanctioning should be harmonised nationwide. This could be achieved in different ways:

- One option is to establish limit values in national legislation. This ensures the limit values are followed throughout the country.
- Another option is to publish national guidelines containing recommendations for limit values, monitoring programmes, industrial wastewater fees, and the contents of industrial wastewater permits and contracts.

For detailed information, see chapter 2.5.3 of the [guidelines document](#).

Further information

The guidelines developed by the project BEST - Better Efficiency for Industrial Sewage Treatment - give comprehensive advice for legislative and institutional development, co-treatment and pre-treatment as well as industrial wastewater contracts and cooperation and communication. The guidelines have been published [here](#) and a policy summary can be viewed via [this link](#).