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# Wastewater treatment and management - current requirements and possible developments

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# Main problems related to Latvian waters

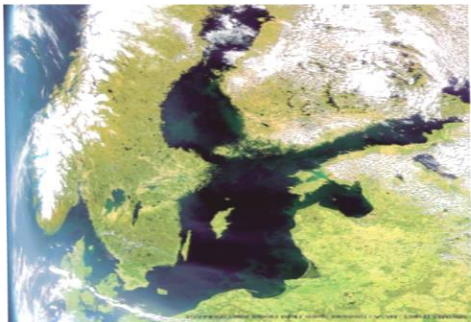
**From «Environmental Policy Strategy 2014-2020»**, adopted by the Government on 26 March 2014.

**Policy objective:** to ensure good status of all waters and sustainable use of water resources.

**Top problem 1**, related to protection and management of inland and marine waters: **Inflow of nutrients** as a result of economic activity, land use and natural processes **that leads to eutrophication** of both inland and marine waters.

**Top problem 2**, related to groundwater: **point-source pollution**.

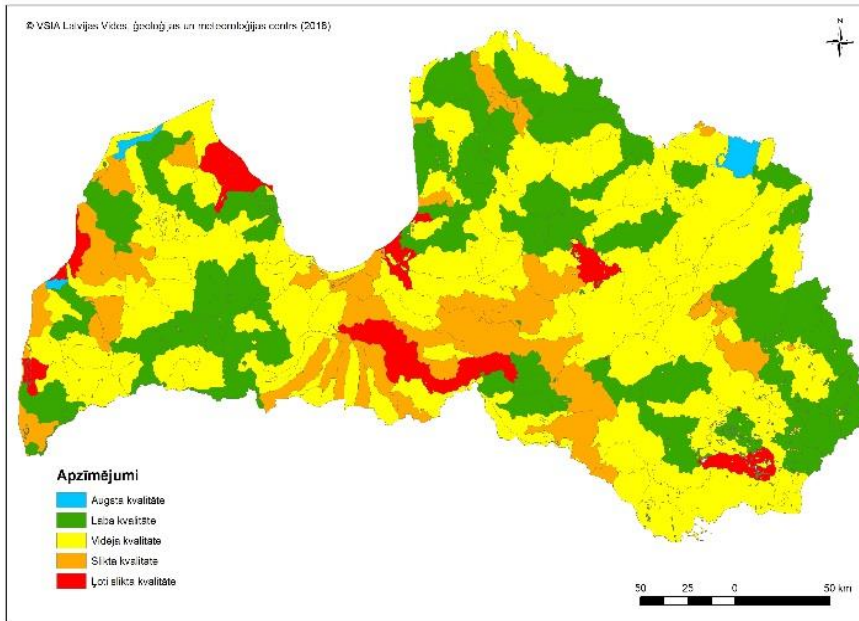
**Top problem 3**, related to water supply and wastewater treatment & collection services: A **risk of non-compliance** with the requirements on the drinking water quality and wastewater collection and treatment.



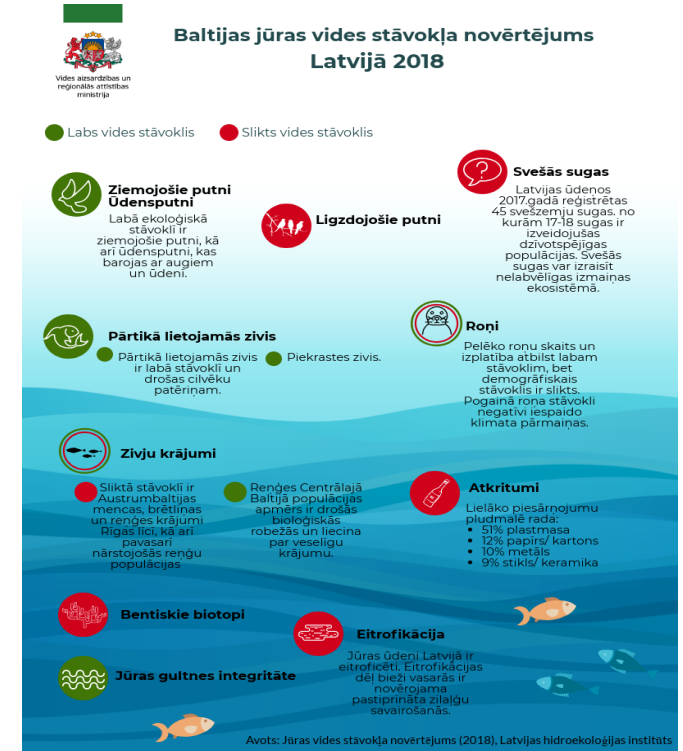


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# Status of surface water and marine waters



Ecological quality of surface waters (2018, LEMGC)



Assessment of status of marine waters (2018, LIAE)

In 2015, only 21% of **surface water** bodies were assessed as having a **good** status; **groundwater** status was **good**. Status of **marine waters** is **good** according to some indicators and **not good** according to others. **The aim** is to ensure that all waters are in a good status (to color all the map green).



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# Types of legislation that lay down requirements on wastewater

**Laws** (Law on Pollution, Law on water Management services)

**Cabinet of Ministers Regulations** (on emission of pollutants, on provision of water supply and wastewater collection & treatment services).

**Binding regulations of municipalities** (on provision of public water services)



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# Principal requirements on wastewater management (I)

- Polluting activities are classified in categories A, B, and C in accordance with the risk of pollution to human health and the environment. Operators shall obtain permits to carry out Category A or B polluting activity. Permits include various requirements, incl. for wastewater discharge and monitoring. All wastewater **discharges** above 20 m<sup>3</sup> /day **shall obtain** either category A or B **permit**, discharges of 5 – 20 m<sup>3</sup> /day shall obtain a category C **certification**.
- All **permit holders shall pay natural resources tax** for discharges of pollutants into waters. The tax rates on discharges into water depends on hazardousness of the emitted substances.
- Holders of a Category A permit shall apply best available techniques. There is a Reference Document on Best Available Techniques in the Food, Drink and Milk Industries (published in 2006).

Classification of polluting substances	Rate (euro/ton)
Non-hazardous substances	5.50
Suspended substances (non-hazardous)	14.23
Moderately-hazardous substances, except total phosphorus (P <sub>tot</sub> )	42.69
Total phosphorus (P <sub>tot</sub> )	270
Hazardous substances	11 382.97
Especially hazardous substances	71 143.59



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# Principal requirements on wastewater management (II)

- If **industrial wastewater from certain food production** industries, which contains biologically degradable substances and does not contain priority substances or dangerous substances, **is discharged directly** into the surface waters, the following conditions shall be observed:
  - if the pollution caused is  $<4000$  population equivalents (p.e.), **appropriate treatment** shall be performed, ensuring that the receiving water body is able to reach its environmental objectives;
  - if the pollution caused is  $\geq 4000$ , an operator shall apply the **treatment standards laid down for urban wastewater or use the best available techniques**, choosing the most stringent requirements.
- This applies to **the following industries**: milk, fish and meat processing; production of fruit and vegetable products; production and bottling of non-alcoholic beverages, production of beer, alcohol and alcoholic beverages; production of malt.



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# Principal requirements on wastewater management (III)

- If industrial waste water is discharged into a centralized collecting system or municipal wastewater treatment plant, **the discharger shall (is obliged to):**
  - **To pre-treat** it;
  - **To conclude an agreement** with the owner or possessor of the centralized collecting system or wastewater treatment plant. A contract shall specify, *inter alia*, the substances, which are intended to be discharged, and their amounts;
  - To perform a **pre-treatment** of industrial wastewater **ensuring** that **no harm occurs** to the treatment plant personnel, a collecting system, treatment plant and technological equipment, that the operation of treatment plants is not disturbed and that the discharge from treatment plants would not have an adverse effect on the environment.
- Discharge of polluting substances into groundwater is **prohibited**.
- Discharge of non-treated industrial waste water and sewage sludge into surface waters or the environment is **prohibited**.
- **Treatment standards** for urban wastewater discharged into the environment are laid down by legislation for the following parameters  $BOD_5$ , COD,  $P_{tot}$ ,  $N_{tot}$ , suspended solids. The **permits may include emission standards also for the other substances**, depending on the production processes.





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# Principal requirements on wastewater management (IV)

To ensure protection of public wastewater collection & treatment systems, new legislation in 2017 gave several mandates to water services providers (water companies).

- If industrial waste water is discharged into a centralized collecting system it shall comply with the **binding regulations of the respective municipality** laid down to ensure protection of centralized sewers. In most cases municipal binding regulations allow acceptance of waste waters if their characteristics correspond to those of typical domestic wastewater and they do not contain dangerous substances.

Substance	Concentration (mg/l)
<b>Biological oxygen demand (BOD<sub>5</sub>)</b>	150-350
<b>Chemical oxygen demand (COD)</b>	210-740
<b>Total suspended solids</b>	120-450
<b>Total phosphorus</b>	6-23
<b>Total nitrogen</b>	20-80





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# Principal requirements on wastewater management (V)

- A water company (services provider) **may accept** industrial wastewater that contains **higher concentrations of polluting** substances, **if**:
  - They do not impair the treatment capacity of the UWWTP;
  - All costs related to treatment of such industrial wastewater are covered by the discharger.
- In such cases **the contract** on the provision of water services **shall determine**:
  - **Maximum allowable concentrations** (MAC). Water company may ask the discharger to ensure that an independent expert assesses the potential impact of industrial wastewater on centralized collection system;
  - **Additional charge** for treatment of such more polluted wastewater.
- Water company has rights to carry out **control** of discharged wastewater at any time of the day. Wastewater samples shall be analyzed in an accredited laboratory. Frequency of such monitoring is determined by the water company.
- If discharged wastewater impairs operation of UWWTP and causes damage to the environment, **the discharger shall cover all additional costs** related to elimination of pollution of centralized collection/treatment system and the environment, including nature resources tax payments.



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# Principal requirements for water protection (VI)

- **Water company** (services provider) **has rights to impose compensation** if sampling of industrial wastewater reveals that concentrations of polluting substances are higher than in the contract with the discharger or does not match those in the binding regulations of the respective municipality.
- **The following formula is used** to calculate the amount of compensation:

$$V = T \times K \times (R - 1), \text{ where}$$

V – compensation;

T – wastewater tariff or price for wastewater collection and treatment;

K – amount of discharged wastewater (m<sup>3</sup>);

R = concentration of pollutant in sewage (mg/l) found in laboratory analysis / MAC from the contract or municipal binding regulations (mg/l).

- The compensation is **applied until the next sampling**. If the discharger has prevented exceedance of the MACs, it may ask the water company to carry out extra sampling to end the application of the compensation.
- Water company and the discharger **may conclude an agreement** on the amount of compensation and its payment procedure, if the discharger implements a project for construction/reconstruction of industrial wastewater pre-treatment facility. Max time: 2 years. The compensation shall cover actual costs of collection and treatment.



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# Developments in the EU related to water & wastewater

- A new draft **regulation on the wastewater re-use** (for irrigation of agricultural land), 2018/0169 (COD), has been submitted to the Council and the European Parliament. It requires that a permit be issued for that use, wastewater must be further treated to ensure compliance with certain microbiological parameters, the risk assessment for the use of such waters must be carried out, the public should be informed. Further information: <http://ec.europa.eu/environment/water/reuse.htm>
- A draft **amendments to the Drinking Water Directive 98/83/EC** has been submitted to the Council and the European Parliament (COM / 2017/0753 final - 2017/0332 (COD)). It imposes significant additional obligations on water suppliers, incl. an obligation to carry out a risk assessment covering both the water intake and the water supply to the point where the water is supplied to the consumer. There are also changes in the list of quality indicators and monitoring requirements, additional requirements for the provision of information to consumers. Further information: [http://ec.europa.eu/environment/water/water-drink/review\\_en.html](http://ec.europa.eu/environment/water/water-drink/review_en.html)
- A **Fitness Check of Urban Wastewater Treatment Directive 1991/271/EEC** is ongoing. More information: [http://ec.europa.eu/environment/water/water-urbanwaste/legislation/index\\_en.htm](http://ec.europa.eu/environment/water/water-urbanwaste/legislation/index_en.htm)

**Thank you for your attention!**

