OVERVIEW OF POSSIBLE MEASURE TYPES AIMING TO REDUCE NUTRIENT LOADS IN LATVIA AND ESTONIA

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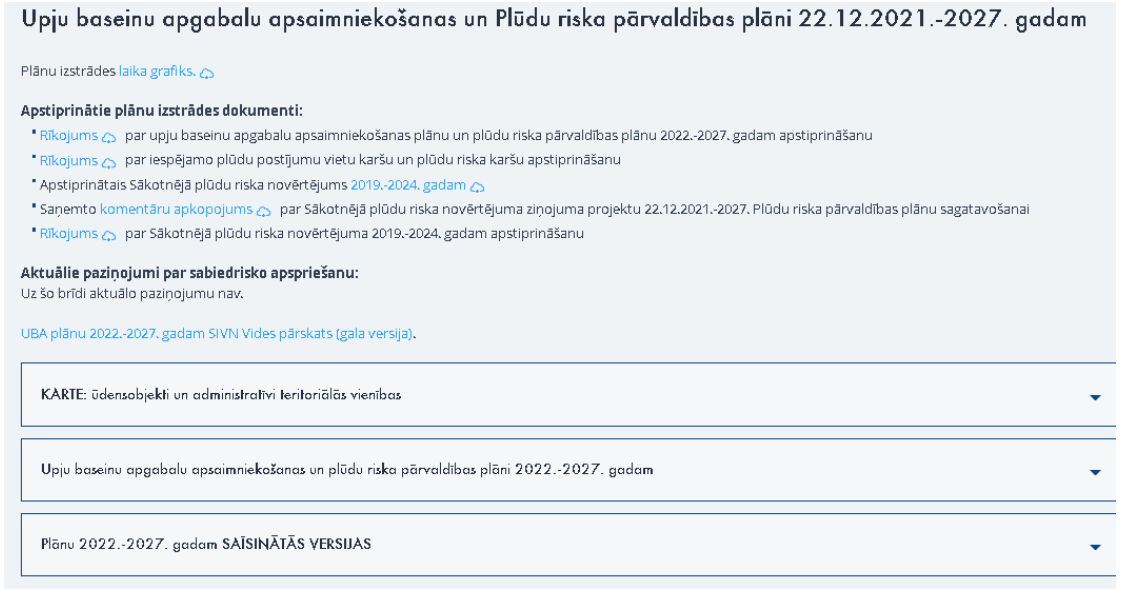
River basin management plans 2022 - 2027

Latvia

- Approved by the order of the Minister of the Environment on 19 April 2022.
- Available on the LEGMC website https://videscentrs.lvgmc.lv/lapas/udens-apsaimniekosana-un-pludu-parvaldiba



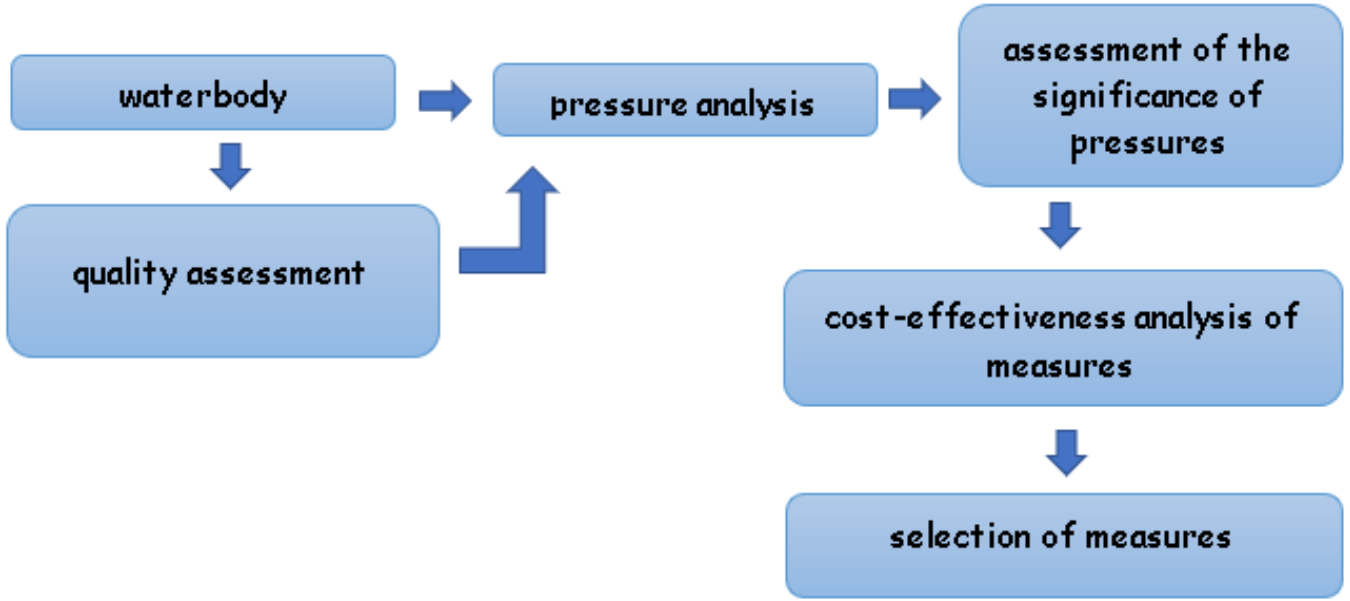
Estonia

Estonian River Basin Management plans for 2022-2027 are still in public consultation phase.

Program of measures

- **basic measures** – implementation is ensured by regulatory requirements for specific sectors and apply for all water bodies;
- **national additional measures** – also apply to all water bodies but not included in the legislation;

- **additional (supplementary) measures** – defined for certain water bodies to improve the quality of the particular water bodies.



Measures aiming to reduce nutrient loads in Latvia

- Fullfilment and control of the requirements incorporated in various national regulations, for example, ensuring the availability of centralized sewerage system services to more than 98% of the population of the agglomeration, observe fertilizer application requirements, e.g. do not apply fertilizers on frozen, wet, snowy soils etc. (basic measures).
- Organization of educational events for farmers, foresters and wastewater managers, informing the public about river basin management plans and their objectives (national additional measures).

additional measures at WB scale

Agriculture

- Establishment of perennial plantations on arable land
- Minimal tillage
- Reduction in the use of nitrogen fertilizers (20% of normal)
- Sedimentation pond (basin)
- Controlled drainage
- Artificial wetland (surface/groundwater)
- Switch to organic farming
- Install a buffer zone along watercourses (drainage ditches) 6 m wide

Forestry

- Forest coastal protection zone (buffer zone) (15 m)
- Maximum flow control dam
- Sedimentation pond (basin)
- Surface filtration area

Point sources (WWTPs)

- Construction of new WWTPs
- Improving the performance of WWTPs

Measures aiming to reduce nutrient loads in Estonia

- The main types of measures contributing to the reduction of nutrients are **construction or upgrades of wastewater treatment plants** and **reduction of nutrient pollution from agriculture**.

In addition:

- water pricing policy measures for the implementation of the recovery of cost of water services from agriculture;
- advisory services for agriculture;
- upgrades or improvements of industrial wastewater treatment plants (including farms);
- measures to **prevent or control the input of pollution from forestry**;
- natural water retention measures.

measures to reduce nutrient pollution from WWTPs

Construction or upgrades of wastewater treatment plants consists of measures related to:

- ensuring the technical functioning of the public water supply and sewerage system (compliance with the conditions of the environmental permit);
- supporting connection to the public water supply and sewerage system;
- identifying the need to build and upgrade wastewater treatment plants;
- construction and reconstruction of public sewerage in areas not connected to public sewerage;

- establishment and enforcement of rules for the use of public water supply and sewerage;
- preparation of assessments of the operation of a wastewater treatment plants;
- training of the wastewater treatment plant operators;
- checking the compliance of operation of wastewater treatment plants and storm water and wastewater discharges with the rules of environmental permits.

measures to reduce nutrient run-off from arable land

Reduction of nutrient pollution from agriculture consists of measures related to reduction of nutrient loads from **agricultural land**:

- environmentally friendly repair works of artificial recipients of land improvement systems on agricultural land;
- ensuring compliance with fertilization restrictions and best agricultural practices for efficient and sustainable use of surface and groundwater;
- implementation of additional agricultural practices for efficient and sustainable use of surface and groundwater:
  - maintenance of winter vegetation;
  - soil sampling;
  - taking into use of a tool to promote sustainable nutrient use (nutrient balance sheet calculation tool);
  - cultivation of catch crops;
  - implementation of precision farming practices;
  - liming of acid soils;
  - transferring of arable land or extending of water protection zone under grassland or preserving of existing grassland in water protection zone;
  - preventing the usage of fertilizers (incl. sewage sludge) in areas in need of protection and in the water protection zone;
  - establishment of eco-areas.

measures to reduce the impact of livestock farming

Reduction of nutrient pollution from agriculture consists of measures related to reduction of nutrient loads from animal farms:

- building of livestock facilities, including leak-tight storage facilities;
- building or upgrading of a leak-proof feeding and watering place for outdoor farm animals;
- construction or modernization of a manure or silo storage facilities;
- preventing the installation of manure storages and stacks or point source load facilities (animal feeding and watering areas) in sensitive areas.

measures to reduce nutrient run-off from forestry land

Measures to prevent or control the input of pollution from forestry consists of measures related to:

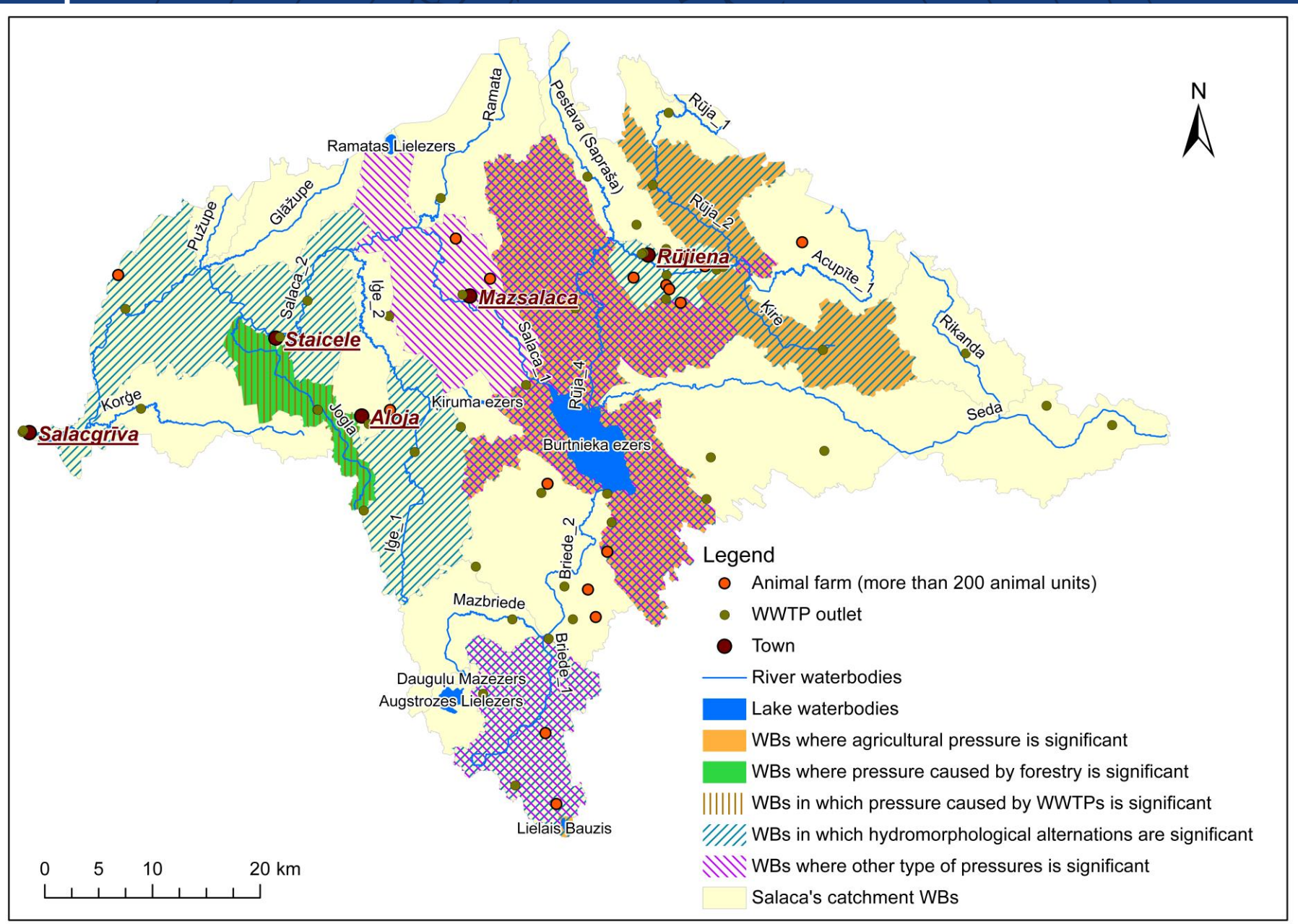
- ensuring compliance with the requirements for felling of tree and shrub fronts in the water protection zone;
- environmentally friendly repair works of artificial recipients on forestry land;
- implementing of artificial recipients measures (sedimentation basins, cleaning sheds) on forestry land;
- ensuring state supervision of the operation and maintenance of land improvement systems;
- educating land improvement system designers to plan environmental measures, consulting, preparation of information materials.

Additional measures in the water bodies of the Salaca catchment area

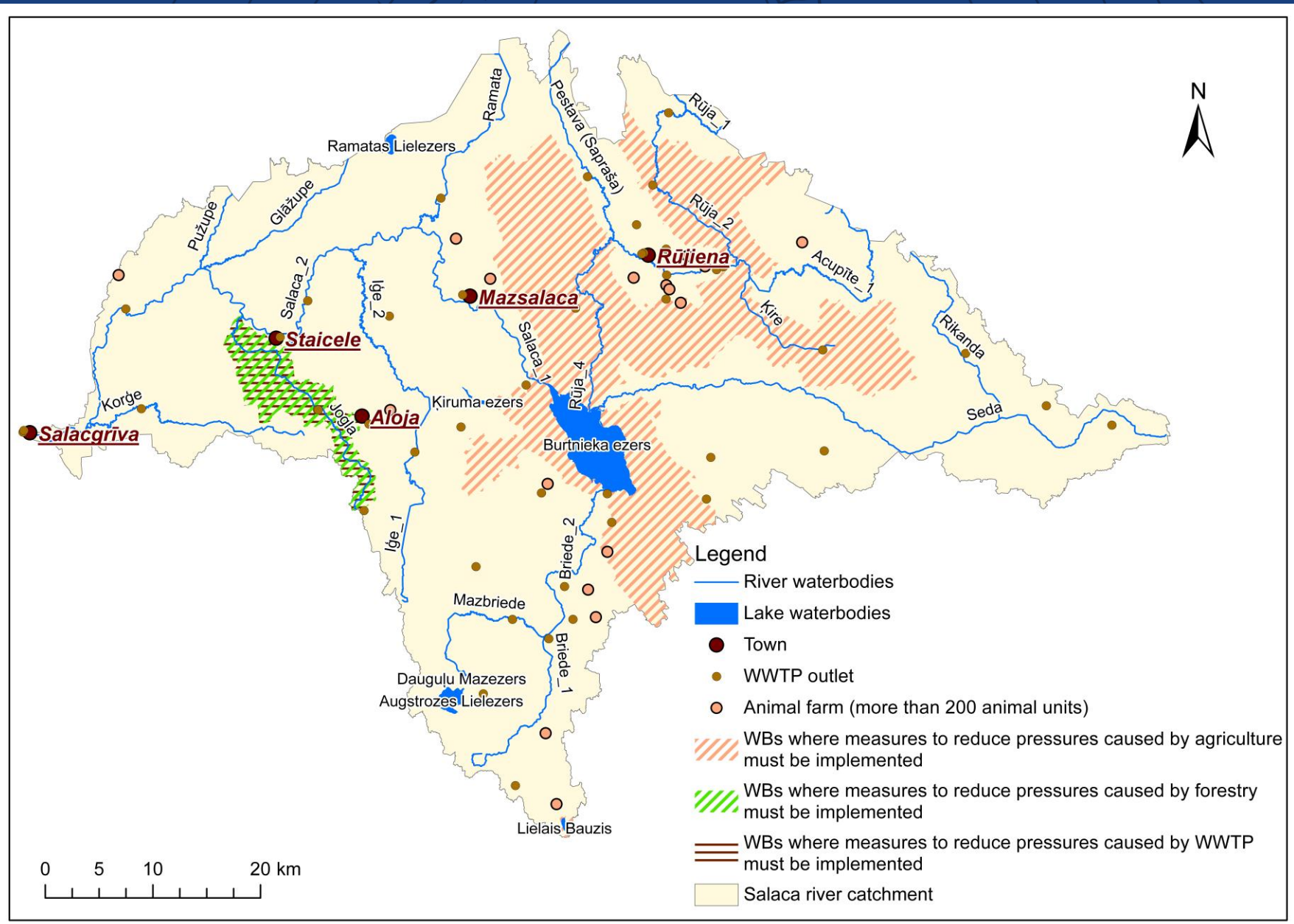
- The Salaca catchment area is a part of the Gauja river basin district.
- The Salaca river catchment consists of 30 WBs. In 17 of these, at least 1 additional measure is applied to prevent or reduce a nutrient load.
- Measures directly aimed at nutrient reduction have been applied in 7 WBs in the Salaca catchment.
- The largest number of measures are set for Lake Burtnieku (E225).

Foto: Salaca, author I. Aršauska

Significant pressures in the Salaca catchment area



WBs where measures to reduce nutrient load has been set



Effect of measures to reduce nutrient run-off from arable land

Measure	Rūja		Rūja		Ķire		Acupīte_2		Burtnieku ezers		Lielais Bauzis	
	G310		G313		G315SP		G320		E225		E228	
	N, kg per year	*P, kg per year*	*N, kg per year*	*P, kg per year*	*N, kg per year*	*P, kg per year*	*N, kg per year*	*P, kg per year*	*N, kg per year*	*P, kg per year*	*N, kg per year*	*P, kg per year*
Establishment of perennial plantations on arable land	730.0	12.6	344.1	6.0	281.8	4.9	30.4	0.5	596.9	10.3		0.1
Minimal tillage	1946.7	33.3	917.7	15.8	751.6	13.0	81.0	1.4	1591.7	27.2		0.3
Reduction in the use of nitrogen fertilizers (20% of normal)	567.8		267.7		219.2		23.6		1910.1			
Sedimentation pond (basin)									612.0			0.5
Controlled drainage									5439.1			
Artificial wetland (surface/groundwater)									6302.5			
Switch to organic farming										41.2		
Install a buffer zone along watercourses (drainage ditches) 6 m wide										138.3		1.2
Total reduction, kg per year	**3244.5**	**45.9**	**1529.5**	**21.8**	**1252.6**	**17.9**	**135.0**	**1.9**	**16452.3**	**217.0**	**0.0**	**2.2**

Measures to reduce nutrient run-off from forestry land

Measure	Jogla	
	G308	
	N, kg per year	*P, kg per year*
Sedimentation pond (basin)		6.0

Measures to reduce nutrient pollution from WWTP

Measure	Jogla	
	G308	
	N, kg per year	*P, kg per year*
Improve the performance of wastewater treatment plants		58.8

LVĢMC 2021. Papildu pasākumu ekonomiskā analīze un noteikšana riska ūdensobjektiem (eng. Economic analysis of additional measures and proposing measures for water bodies at risk) Available https://videscentrs.lvgmc.lv/files/Udens/Noderiga_informacija/Pasakumu_ekonomiska_analize_un_noteiksana_riska_udensobjektiem

Effect of measures

	N, kg per year	P, kg per year
Establishment of perennial plantations on arable land	**1983.3**	**34.4**
Minimal tillage	**5288.7**	**91.1**
Reduction in the use of nitrogen fertilizers (20% of normal)	**2988.4**	**0**
Sedimentation pond (basin)	**612**	**0.5**
Controlled drainage	**5439.1**	**0**
Artificial wetland (surface/groundwater)	**6302.5**	**0**
Switch to organic farming	**0**	**41.2**
Install a buffer zone along watercourses (drainage ditches) 6 m wide	**0**	**139.5**

Summary

- According to the programs of measures of the river basin management plans of both countries, it can be concluded that the main focus in terms of reducing nutrient loads is on agricultural pollution.
- It is expected that the implementation of all the proposed measures will reduce the nitrogen load in the Salaca basin by 22.6 t and the P load by 372 kg.
- It is expected that the 4 water bodies from those where measures to reduce nutrient loads have been set will not achieve good water quality by 2027 (Burtnieku ezers E225, Rūja G310, Rūja_2 G313, Acupīte_2 G320).
- In 2024, information on the implementation of measures will be collected and it is hoped that there will be improvement in the quality of water bodies.

LATVIJAS VIDES, ĢEOLOĢIJAS UN METEOROLOĢIJAS CENTRS

Thank you for your attention!

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