



Case area of the Leningrad region, Russia

Institute of Agricultural Economics and
Rural Development of SPC RAS

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Case area leader meeting 10. & 11. December 2020

Case area:

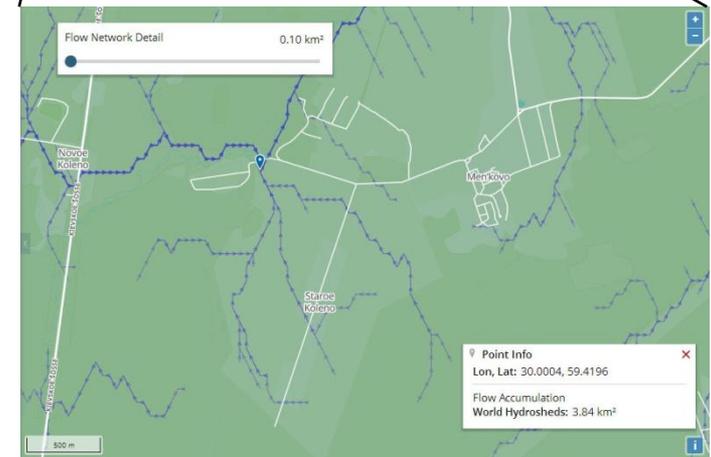
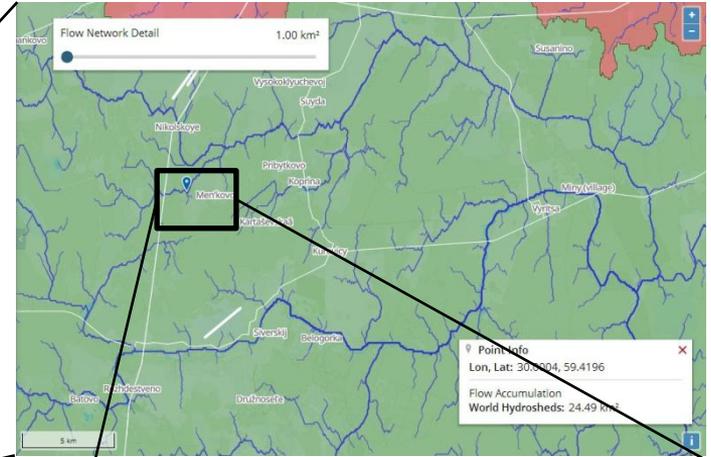
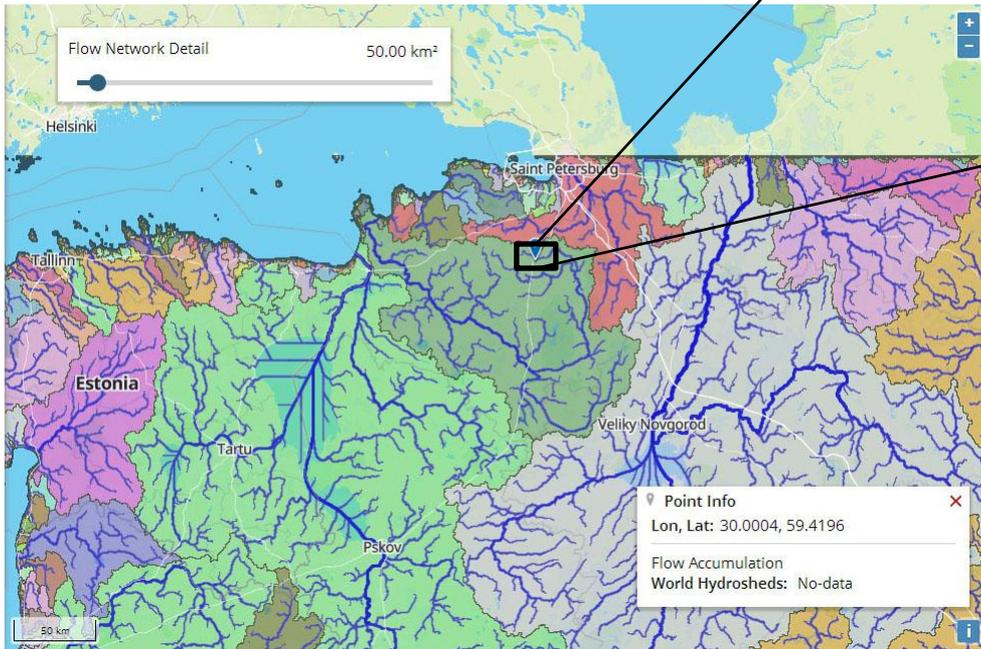
Suida river and
experimental
fields of
Men'kovo
research station
of the Agro-
physical
Institute

Leningrad
region, Russia



Case area location:

Nearby village Men'kovo (Lon, Lat: 30.0005, 59.4196), Gatchnia municipal district (Leningrad region). The river Suida is a tributary of the river Oredez, which is tributary of the river Luga



Suida river flows through the territory of the Men'kovo Experimental Station, owned by API, and receives catchment from nearby fields.

The case area is located on the agricultural fields of the experimental station.

The reclaimed area is **173.8** hectares.



Case area tasks:

- Find 1-2 suitable environmental measures
- Study the effectiveness of the selected environmental measures
- Check the possibility to include the measures in the existing drainage system
- Develop of the technical documentation for construction / implementation of measures or reconstruction of the existing drainage system with the inclusion of the measures



Agricultural
experimental
field nearby
Men'kovo

(summer)



Agricultural
experimental
field nearby
Men'kovo

(autumn)



The technical project for major repairs of the drainage of the Men'kovo experimental station. 2009



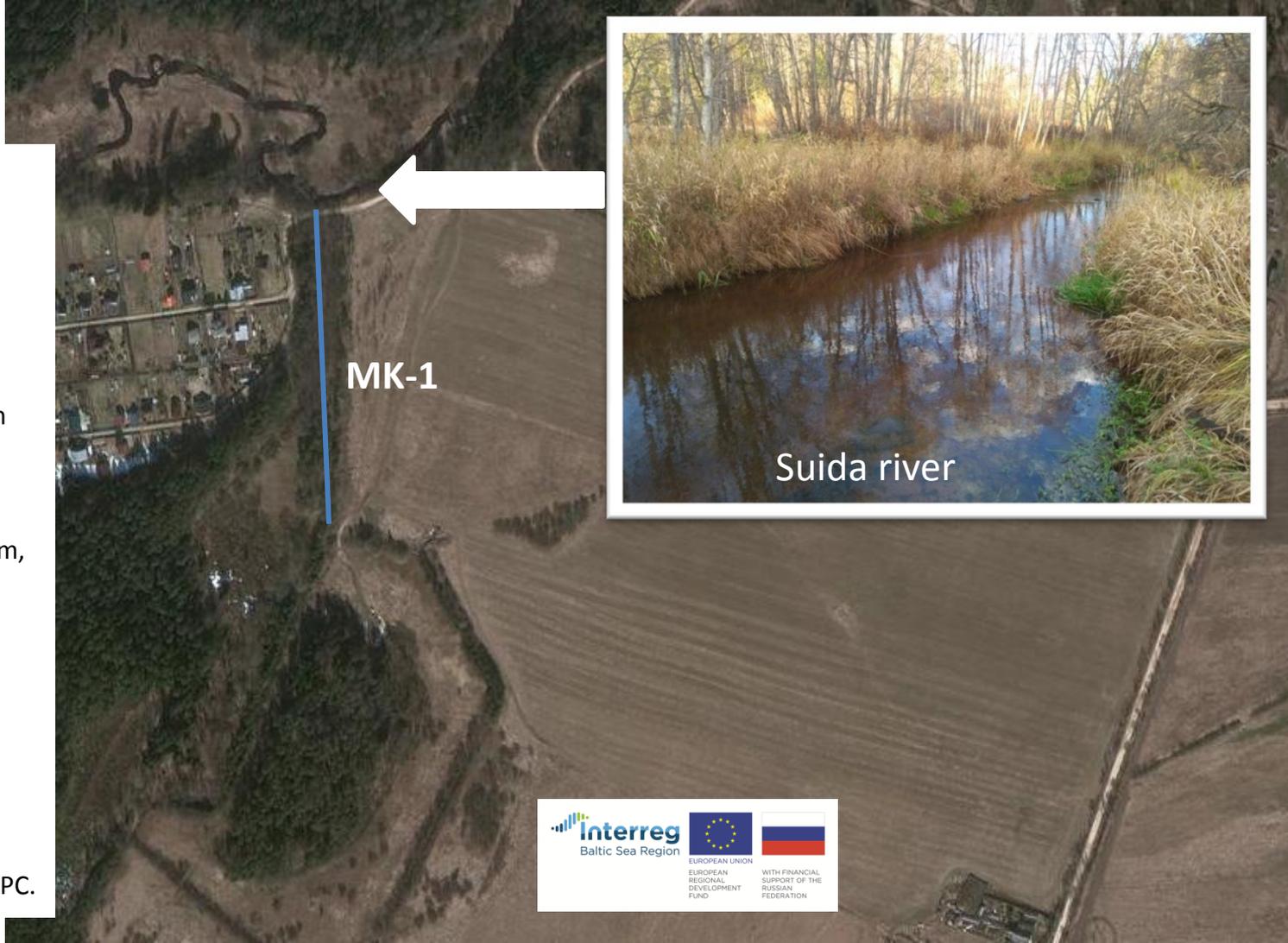
Suida river:

Water is characterized as "polluted" (class 3, category "a"), 2018.

Observations of the water quality are carried out 22 km above the mouth once a quarter.

Concentrations of ammonium, nitrite, and nitrate nitrogen, phosphorus, phosphates, petroleum products, and phenol did not exceed the MPC.

Total iron (1.9 – 21 MPC), copper (2.0 – 9.0 MPC) and manganese (1.3 – 29 MPC) were found to exceed the MPC.



Main drainage channel MK-1

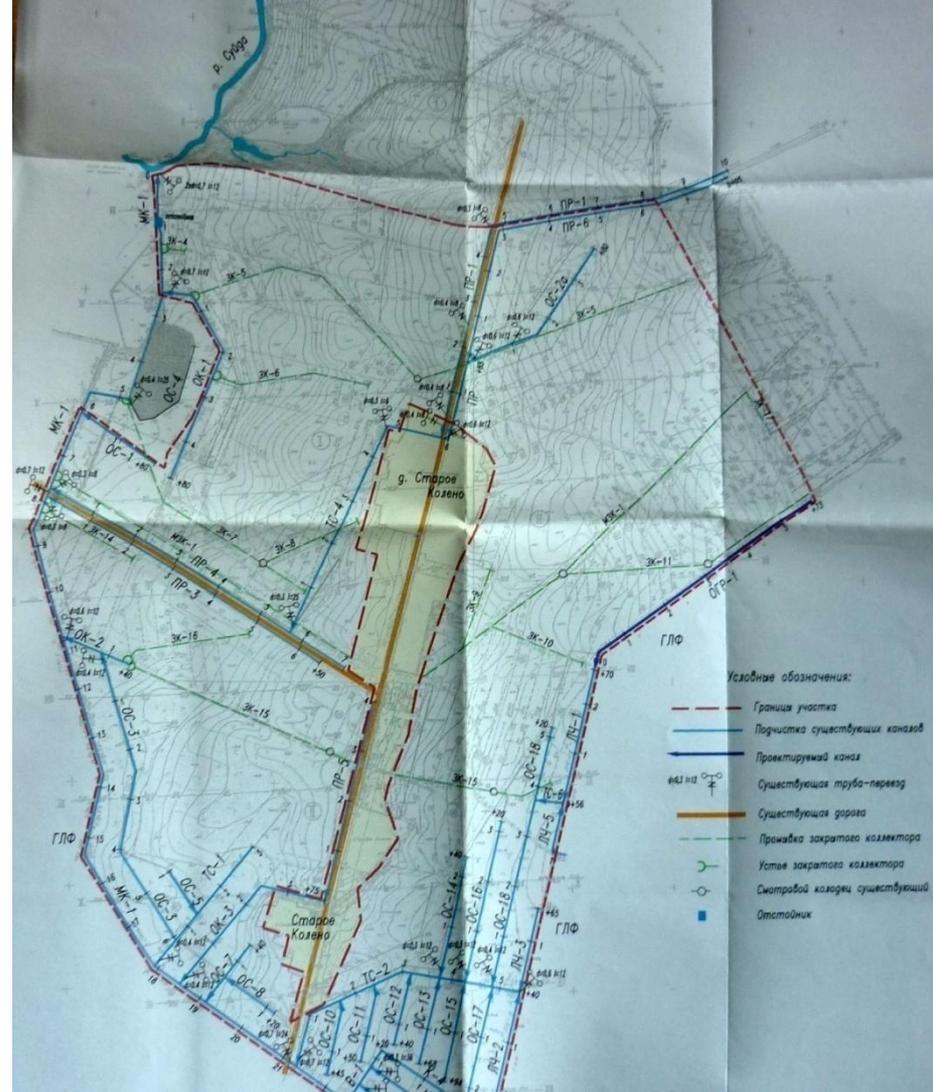
Catchment area
= 1,96 km²

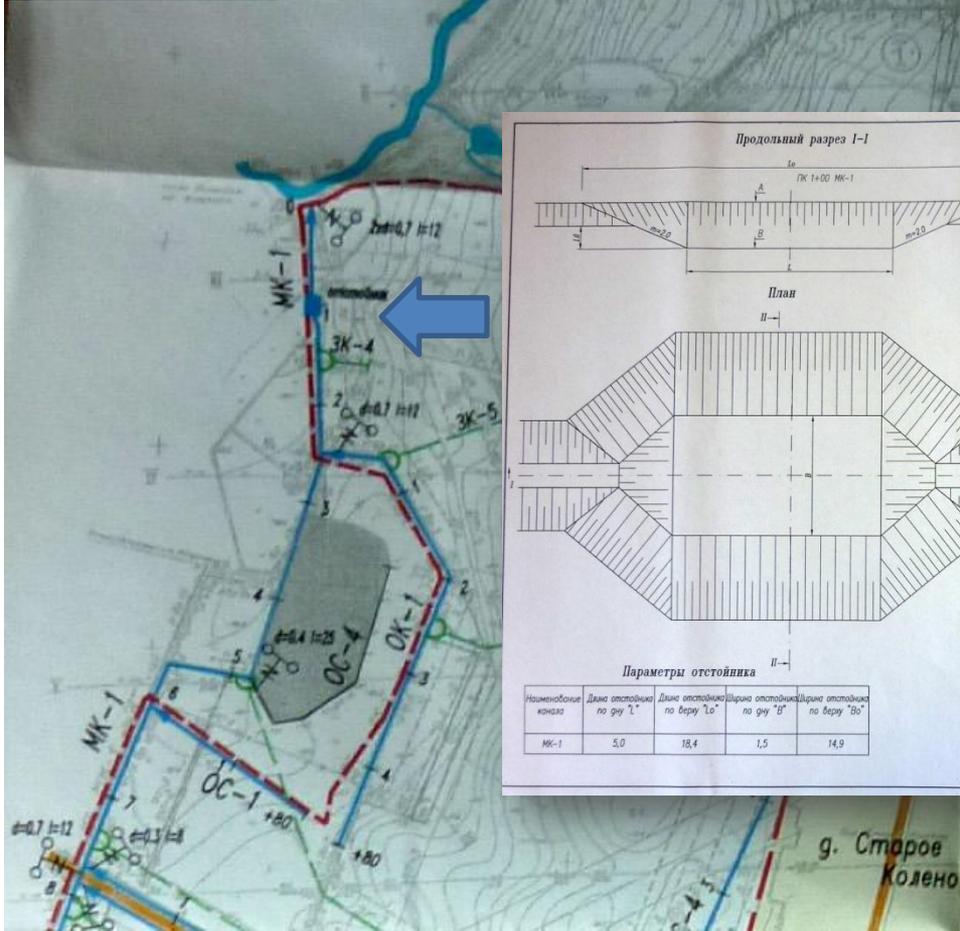
Water discharge
= 0,11-0,17 m³/s



Complex of works on major repairs of the drainage network of the land reclamation area:

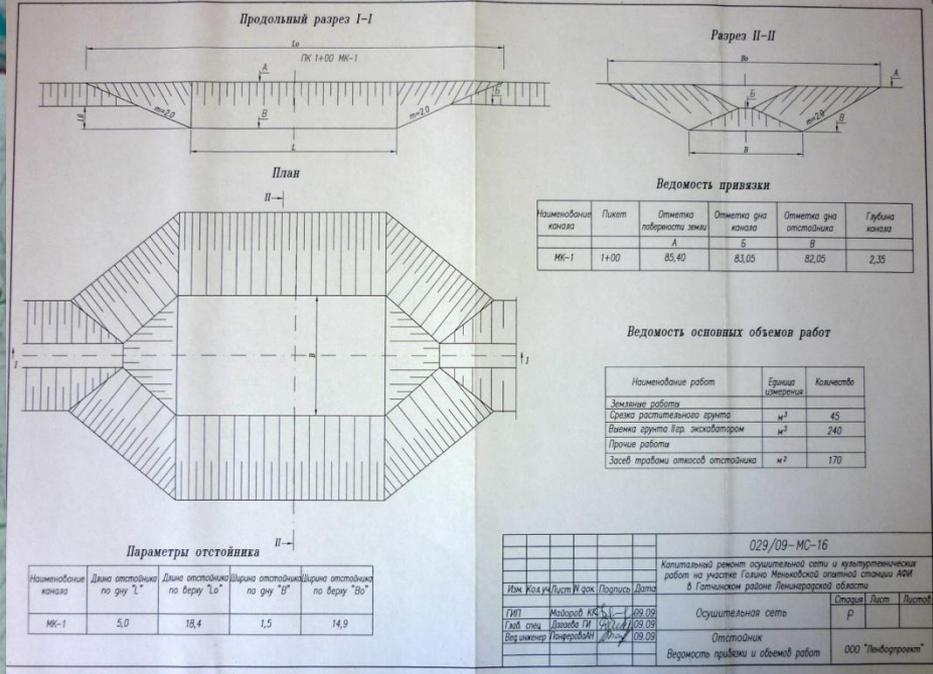
1. Elimination of trees and bushes vegetation on channel slopes;
2. Cleaning of channels from silt deposits;
3. Construction of a new open channel ORG-1 with a length of 573 m;
4. Cleaning of existing culverts;
5. Flushing of existing collectors;
6. Restoration of drainage mouths of collectors;
7. Clearing areas of bushes and small forests (20 ha);
8. Cleaning of stones in the arable layer and from existing piles;
9. Restoration of fertility (163 ha);
10. Grassing (45,3 ha).





Sedimentation pond

To protect the Suida river from contamination by suspended substances formed during major repairs of the drainage network, a sedimentation pond was planned to be installed in the mouth of the MK-1 channel.



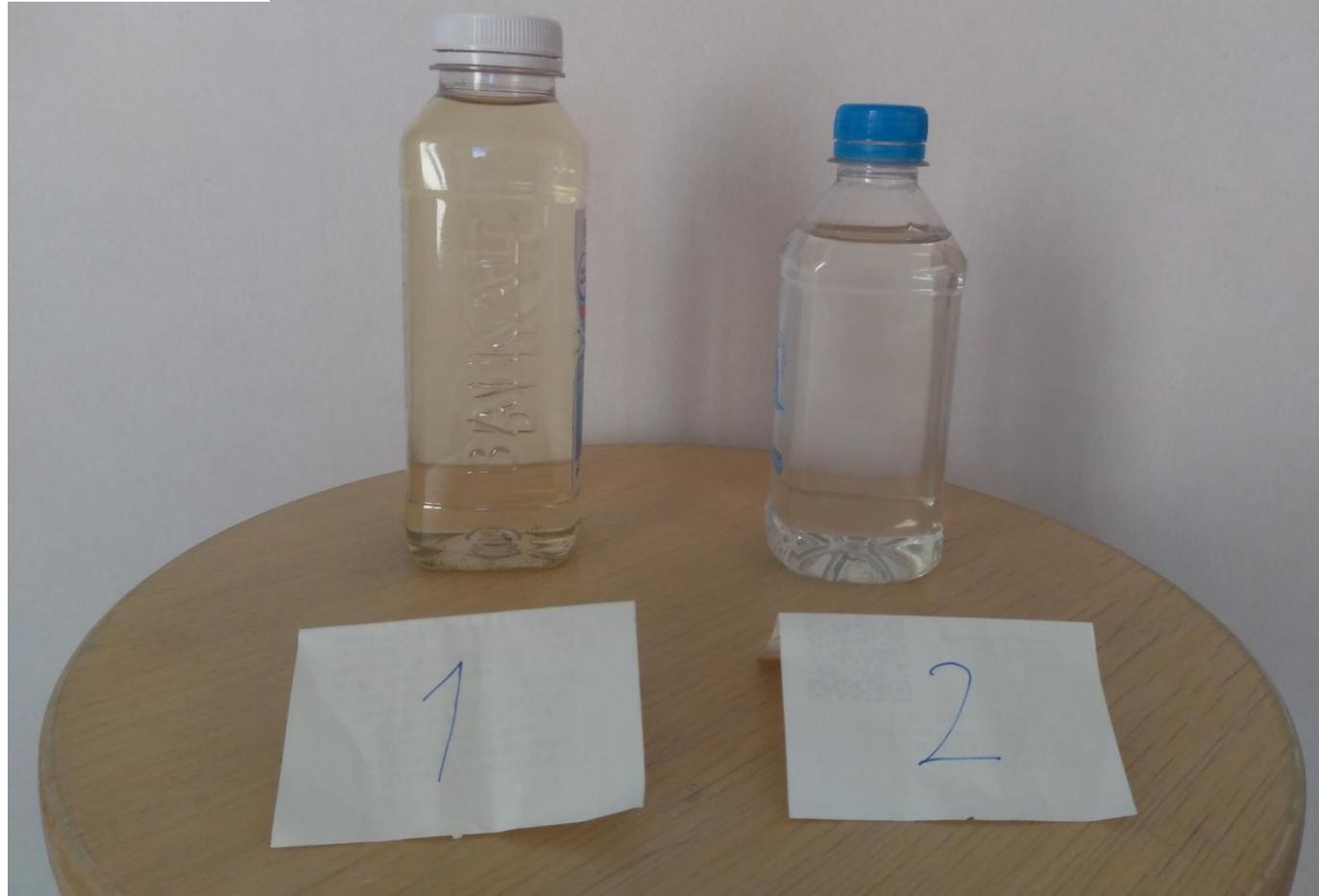
Waterdrive



Water samples:

1. Suida river
2. Main drainage channel MK-1

(October 2020)



Considered environmental measures:

- 1 - Constructed wetland
- 2 - Nutrient (phosphor) sedimentation pond
- 3 - Buffer zones (intelligent buffer zone, saturated buffer zone)



Considered environmental measures:

- 4 - Controlled drainage
- 5 - Two stage ditch, bevelling ditch
- 6 - Filter ditch (lime filtration drainage)
- 7 - Structure liming



Description of the measures in the Case area report:

1. Specification of the **type** of an environmental measure. Why is this type of measure suitable for the conditions of the case area?
2. Description of the **technology**: 1 page of text (what is the essence and use), with diagrams and 2-3 photos or images.
3. Technological **parameters** (including, for example, the required % of agricultural land for an environmental measure, application rates for liming, bush planting density for buffer zones, etc.).
 4. Environmental effect of the technology (reduction of N and P input to water bodies, as a percentage or kg/ha). Other positive impacts on the environment and biodiversity.
 5. Economic assessment of a measure (approximate cost, total project costs, cost per 1 ha, operating costs if any).
 6. Dissemination of an environmental measure (isolated cases/ mass use) in the Russian Federation and EU, examples.
 7. Advantages and limitations of an environmental measure (with an emphasis on Russian conditions): economic, environmental, technological, organization, legislation, social and other.



Next steps:

- Select 1-2 suitable and effective measures
- Consultation with drainage experts on the measures
- Presentation and approval of plans with the management of the APhI
- Draft proposal for technical project of the construction (implementation) of the measure in the fields of the case area



Waterdrive

Interreg
Baltic Sea Region



Thank you!

