



REPUBLIC OF ESTONIA  
MINISTRY OF THE ENVIRONMENT

# OVERVIEW OF INVESTMENTS ON RIVERS IN ESTONIA

## Let it Flow! International seminar on dam removal

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# LEGAL FRAMEWORK AND EXCAMPLES FROM ESTONIA

## Background – short and dense river system

234 rivers, 10 longer than 100 km

1003 streams

1389 ditches

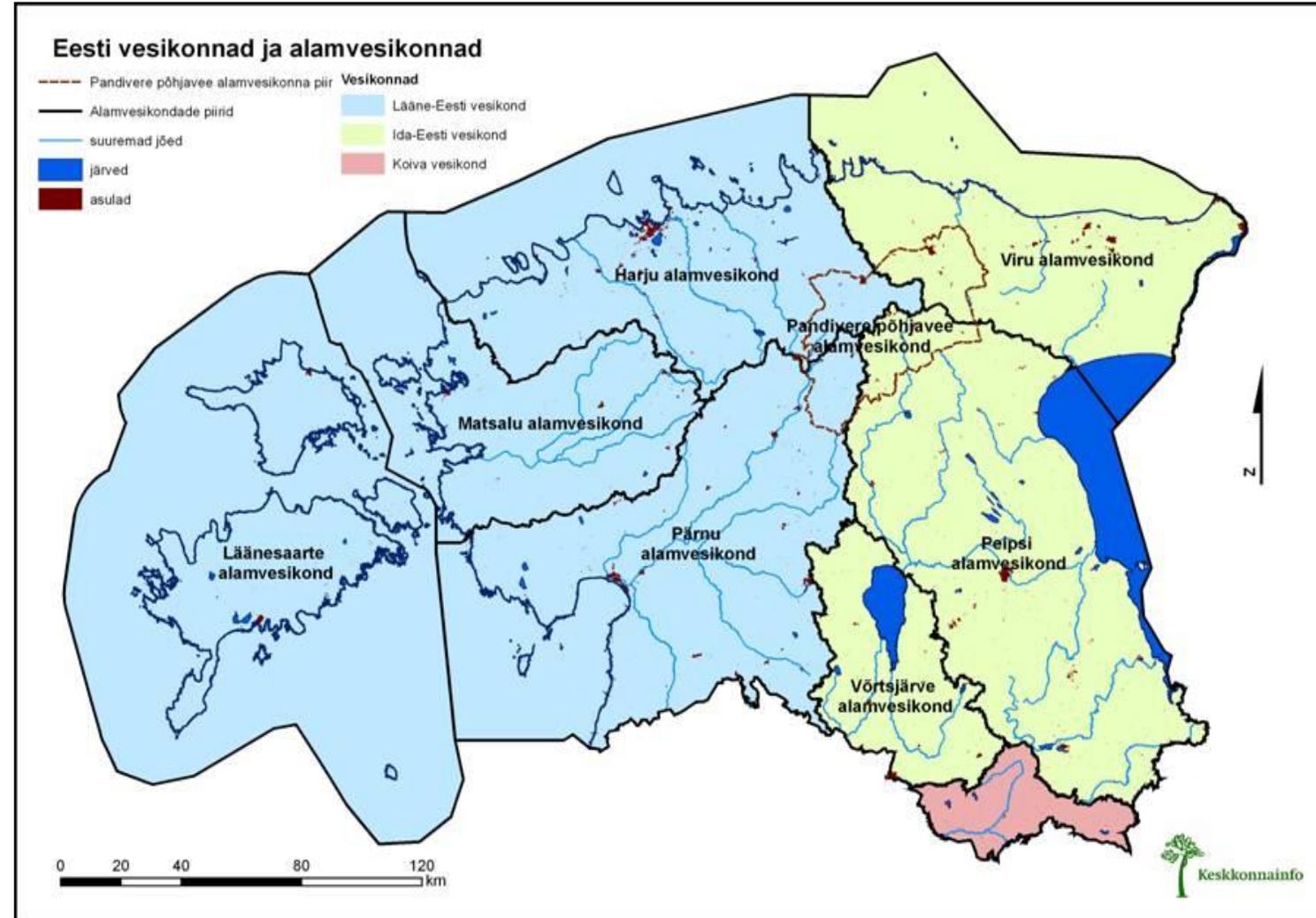
1534 lakes

9836 natural wetlands (22,3%)

500–800 mm/y precipitations

River Basin Management Plans (RBMP) are the main instruments for fulfilling the objectives of EU water policy and Water Framework Directive (WFD).

According the interim evaluation of the RBMP-s we have 272 water bodies that are not in good status and for 140 of them the reason is in the flow barriers and fragmentation.



# LEGAL FRAMEWORK AND EXCAMPLES FROM ESTONIA

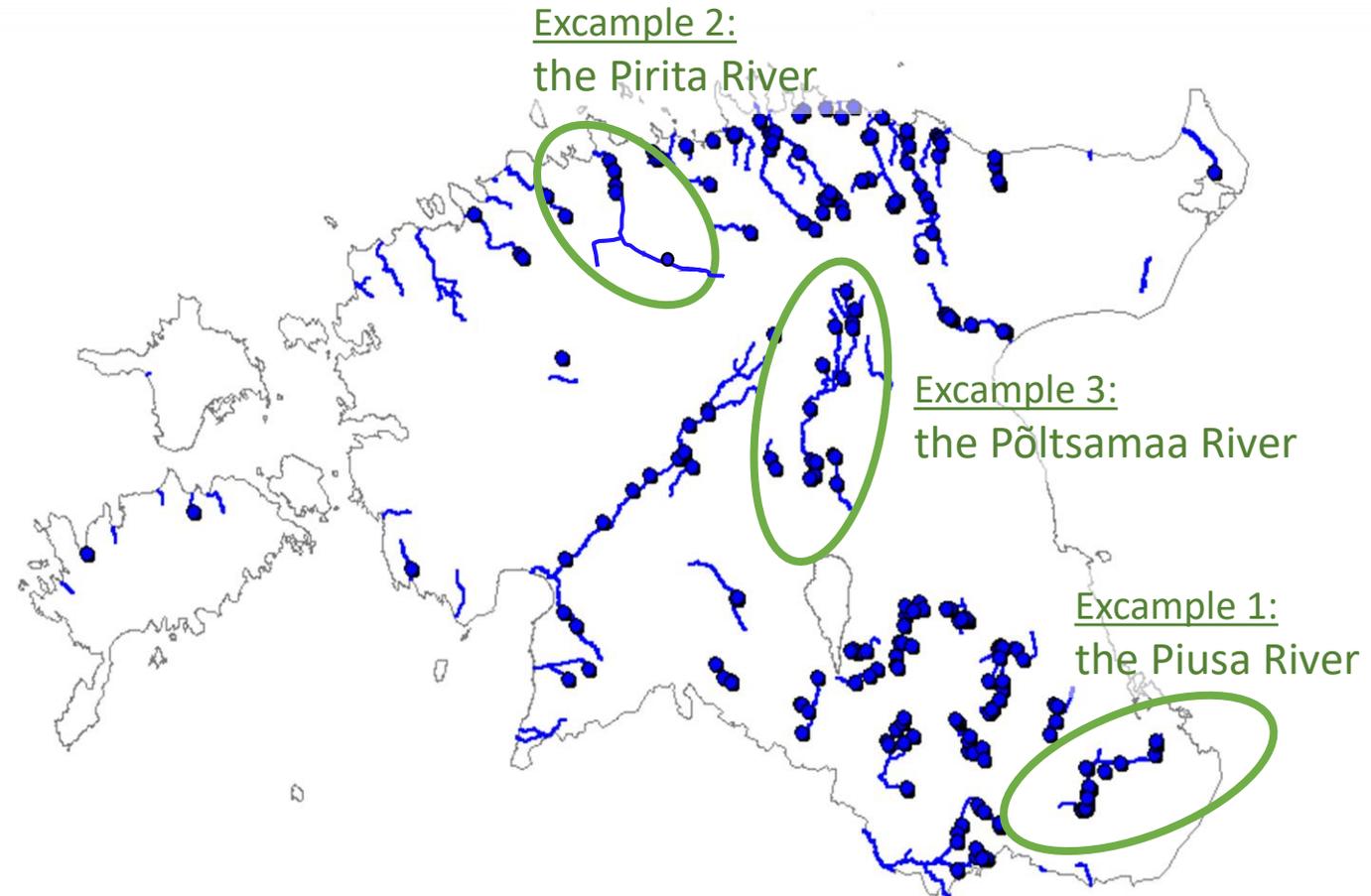
According to the **Water Act** our goal is to ensure free movement for fish in rivers that are important for **migratory fish**.

Water lifting by dams is regulated by permits.

In order to comply the requirements of the Water Act dam owners can apply financial support from the Environmental Investment Centre.

Requirements for the application of financing:

- Preliminary design made by hydrology engineer
- Approved by fish biology expert
- Comparison of alternative solutions
- Approved by Environmental Board



There are more than 120 dams or former dams inventoried on „salmonid rivers“

# Example 1: the Piusa River (107 km incl. tributaries)

Fish migration obstacles solved across the river by investments into 11 objects.

Total investment 1.09 MEUR from the Cohesion Fund

Constructions completed 2015 (10 objects) and 2017 (1 object)

Name of the dam	$\Delta H$ , m	the type of fish pass
Korela	1,7	rapids in the main bed
Tsüdsina	0,8	rapids by-pass
Tillo	0,8	demolition of the dam
Saarõ	0,5	demolition of the dam
Tamme	0,4	demolition of the dam
Keldre	0,4	demolition of the dam
Jõksi	0,5	demolition of the dam
Makõ	0,7	demolition of the dam
Kelbä	0,6	demolition of the dam
Oro	1	demolition of the dam
Suntri	1,75	rapids by-pass



The Tamme dam on the Piusa River was demolished on 2015. The ecosystem has recovered well and the status of the water body will be probably improved for next evaluation. The ruins of the former dam are also accessible to hikers.

## Example 2: the Pirita River (118 km incl. tributaries)

Fish migration obstacles solved across the river by investments into 5 objects.

Total investment 0.52 MEUR from the Cohesion Fund

Constructions completed 2013–2015

Name of the dam	$\Delta H$ , m	the type of fish pass
Vaskjala	1,7	Close to nature fish pass
Nehatu	1,2	Close to nature fish pass
Loo	0,5	Close to nature fish pass
Paritõkke	1	Close to nature fish pass
Kose Veskijärve	2	Close to nature fish pass
Ravila	0,4	Demolition of the dam ruins by time and water flow



The Kose Veskijärve fish pass was constructed on 2014. The close to nature artificial rapids is an effective fish pass and rich habitat for riverine species. The local community has accepted the solution well and it has become popular for recreation.

# Example 3: the Põltsamaa River (184 km incl. tributaries)



Fish migration obstacles solved across the river by investments into 6 objects.

Total investment 2.83 MEUR from the Cohesion Fund

Constructions completed 2013–2015

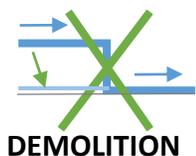
Name of the dam	$\Delta H$ , m	the type of fish pass
Põltsamaa	2,6	Close to nature fish pass
Kamari I	0,6	Close to nature fish pass
Kamari II	3,85	Close to nature fish pass
Rutikvere	1,25	Artificial fish pass
AO II	1,85	Close to nature fish pass
AO I	0,95	Demolition of the dam



The Põltsamaa close to nature fish pass was constructed on 2013. The close to nature artificial rapids is an effective fish pass and rich habitat for riverine species. It also suits well into the dendro park environment of Põltsamaa City.

# SOLUTIONS AND SUMMARY OF THE INVESTMENTS

## PROS AND CONS OF THE SOLUTIONS



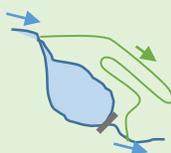
DEMOLITION

- + Eliminates all negative impacts of the dam
- + No need for maintenance in the future
- + Natural look
- Sometimes it is not possible to lower the water level

### CLOSE TO NATURE FISH PASSES



RAPIDS IN THE MAIN BED



RAPIDS IN THE BY-PASS

- + Suitable for lots of fish species
- + Rich habitat itself
- + Natural look
- + Low cost for maintenance in the future
- Higher need for surface of the land

### ARTIFICIAL FISH PASSES



SLIT RAMPS



FISH LIFT

- + Can be built on a small surface of the land
- Does not act as a habitat
- Selective, suitable for few species
- Higher costs for maintenance and operation
- Artificial look

In the period of 2010–2018 in total of 100 investments by public funding have been made in Estonia to solve fish migration issues.

The type of fish pass	Number of dams solved	Investment, €
Close to nature fish passes	69	17 688 883
Demolition of the dam	22	2 514 223
Artificial fish passes	9	2 050 070
<b>TOTAL</b>	<b>100</b>	<b>22 253 176</b>

Further information about environmental investments into fish passes:

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# INVESTING OR SPENDING?

## A dam removal or fish pass as a spot object

- Improvement of the status of water bodies
- Improvement of habitats upstream
- Improvement of habitats downstream
- Improvement of fish stocks in the sea
- New recreation functions

How to compare? Payback time? NPV? IRR?

## LIFE IP CleanEST

Funded by European Commission through LIFE programme and by state budget. 2019–2028, 16,7 M€, 24 beneficiaries, coordinated by MoE

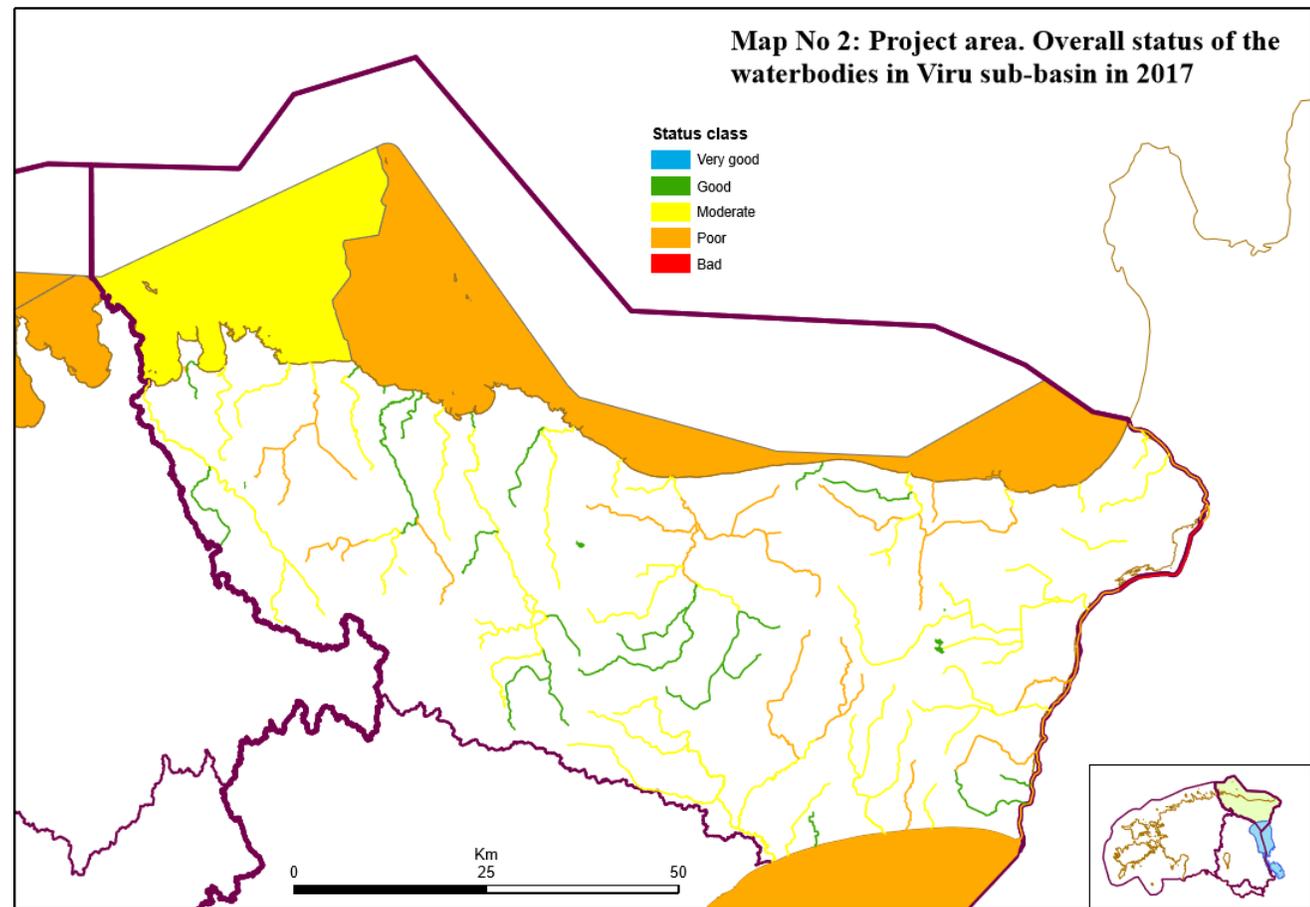
Targeted to the strategic renovation of the RBMP policy

Fulfilment of the measures for Viru sub-basin in the East Estonian RBMP Programme of Measures

Strong focus on the remediation of residual pollution of historically contaminated sites

Solving 6 obstacles of fish migration

Ecosystem services evaluation as a tool for decision making, awareness rising, community engagement



## WFD

### East-Estonian RBMP 2015-2021

PoM

### LIFE IP CleanEST

Viru sub-basin

Actions on waterbodies

Experience, results





**Thank you!**

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