

Water driven rural development in the Baltic Sea Region” Nr. R094 WATERDRIVE

Strengthening local water management in agricultural landscapes of the Baltic Sea Region 2021-2030

National Pathways of Estonia

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Contents

Background: the need for strengthening water management in agricultural landscapes	4
Selection and description of pathways	5
Successes in the water management in the last 20 (30) years in Estonia	6
Multilevel cooperation	6
Financing (subsidies and payments)	7
Supporting databases and information	8
Advisory system for farmers	9
Selected pathways	10
A short description of selected pathways:	10
Objectives of the pathways.....	11
The implementation process	11
Stakeholder roles and responsibilities	11
The impact by 2030.....	11
References.....	12

Background: the need for strengthening water management in agricultural landscapes

Agriculture is the major user of water in most countries. It also faces the enormous challenge of producing almost 50% more food by 2030 and doubling production by 2050. This will likely need to be achieved with less water, mainly because of growing pressures from urbanisation, industrialisation and climate change. In this context, it will be important in future for farmers to receive the right signals to increase the efficiency of water use and improve agricultural water management, while preserving aquatic ecosystems (OECD, 2010)

Water use in agriculture accounts for a small proportion of the total water use of Estonia (Veekasutuse koondülevaated). Deterioration of water quality and aquatic ecosystems is the main concern where the farmers have an important role to play.

Over the last thirty years, Estonia has significantly reduced pollution to waterbodies from point sources as by 2016 ca 83% of the total population of Estonia was covered with a public sewerage system. However, the diffuse pollution still remains a significant challenge (Veemajanduskavad).

In order to reduce diffuse pollution and therefore have a chance to achieve good status of surface and ground waterbodies (targets of WFD and Nitrate Directive, respectively) there is a need for better inclusion of agricultural producers into planning and management of water. Engagement of land managers is crucial. Communication and sharing of knowledge is crucial. It will be achieved via building trust between the parties. Especially younger generation of farmers should be the main target group of such activities because they are active users of internet, but also have better education on environmental topics including water management and pollution. Since the majority of food producers are large (in terms of land area and production output) in Estonia, it is important from the impact perspective to engage them into smart water management.

In 2019 and 2020, 22 - 23% of the farmland was under organic farming in Estonia, respectively (Maheklubi, 2020; Maablogi, 2021). Estonia is the second largest organic farming country in the EU after Austria (25%) (Eurostat, 2021). This enables to limit the use of pesticides and mineral fertilisers and thus safeguard the health of soil and water almost on fifth of the farmland. The objective of the EU Farm to Fork strategy (EC, 2020) to increase the total farmland under organic farming to 25% by 2030, seems rather feasible for Estonia. Whereas, the ambition of the Strategy to reduce the use of pesticides 50% by 2030 still remains a challenge, since the sales of pesticides, as well as the application of N and P fertilisers per hectare has been steadily increasing since 2010 (Statistikaamet, 2021a and b).

While the intensity of agricultural production is increasing, better data on the effectiveness of inputs (fertilisers, water, plant protection chemicals, etc) is much needed. Three water monitoring programmes are in operation: state monitoring system of water quality of water bodies, special monitoring programme of NVZ surface and ground water, and farmers who apply for agri-environmental payments under Rural Development Plan are also required to execute certain soil sampling and water quality checks. There are over 200 different water-soil-related registers and data archives kept by public authorities and could be made usable for land managers. This in turn requires a good agricultural advisory system.

A state-level agricultural water protection working group was established in 2015, coordinated by the Ministry of Environment. This working group consists of representatives of broad groups of agriculture-related public authorities (Ministry of Environment, Ministry of Rural Affairs, Environmental Board, and subordinate agencies), local governments, NGOs and business associations. The working group is mandated to coordinate water-related activities in agriculture across the country.

Selection and description of pathways

Waterdrive partner in Estonia Stockholm Environment Institute Tallinn Centre (SEI Tallinn) organised two roundtables of stakeholders in February 2021 to identify the successes and remaining challenges of water management in agricultural landscapes.

As part of the implementation of WP4.3. and input to WP5.1. of Waterdrive project, national scenarios of water management in agriculture were discussed with stakeholders. Two roundtables two hours each were organised by SEI Tallinn team of experts on MS Teams platform. The first roundtable was held on 10th February 2021 and the second one on 19th February 2021. The first roundtable assembled 14 representatives of two ministries (Ministry of The Environment and Ministry of Rural Affairs) and their line agencies, representatives of union of municipalities, chamber of agriculture and commerce and farmers' union and a consultancy that developed the new action plan for the Nitrate Vulnerable Zone for 2021 - 2024. Agriculture and biodiversity experts of Estonian Fund for Nature and Tartu University contributed to the second roundtable. This is the summary of both of those discussions developed by Kaja Peterson and Tiia Pedusaar, SEI Tallinn.

Firstly, SEI Tallinn provided background info about the main results of policy analysis carried out in Waterdrive project. The partners of the Waterdrive project have identified six policy recommendations and three main bottlenecks in agriculture and water protection management have been identified: multilevel cooperation, financing (subsidies and payments) and advisory system.

The objective of the discussions was to build a better understanding of where we are in the development of water protection in agriculture and exchange views on current cooperation, financing and advisory system. It also provided an opportunity to discuss about the possible role of catchment officer position as a possible bridge builder between farmers and authorities in Estonia.

Discussions were focused on the following topics:

- Successes of the last 20(30) years in Estonia as perceived by the participants
- Multilevel cooperation – bottlenecks and challenges
- Financing (subsidies) of activities to overcome market barriers and promote environmental objectives
- Supporting data for farmers
- Advisory system for farmers

Successes in the water management in the last 20 (30) years in Estonia

What has gone well in Estonia compared to the situation 20 (30) years ago?

It was an open question to all participants.

Participants of the first roundtable concluded the following:

- Baseline environmental and agricultural data has advanced and become digitally available
- Better environmental awareness and compliance with the law by farmers
- A leap in technologies of agricultural machinery
- Better environmental compliance of livestock buildings and manure storages
- Water monitoring scheme has expanded
- Better cooperation between the two ministries, a joint water management working group including representatives of farmers and municipalities was established in 2019
- Better soil data
- Advisory system has improved
- Remote sensing (land use, floods, maritime surveillance, etc.) has improved
- Water management planning (river basin management plans, flood management plans, land drainage plans) has become country-wide
- Accession to the EU has led to access to financial support and longer-term (7-years) planning
- Farmers have become more frequently involved in RDI projects

While the participants of the first roundtable emphasized the importance of improvement of data and information on water as a success story, the participants of the second roundtable pointed to the significant role of organic farming in the improvement of water management in farmland. The substantial increase of farmland under organic farming (that has in ten years more than doubled, reaching 22% of farmland in 2019, which is 2nd place in EU after Austria) was regarded as the primary driver of improving water quality in Estonian water bodies. This trend needs to be maintained and strengthened to achieve the EU Green Deal and Farm to Fork strategy by 2030.

Multilevel cooperation

The partners of the Waterdrive project have highlighted the cooperation between different stakeholders as a key issue in improving of the water management. The survey among Waterdrive project partners, pilot area farmers and local governments has demonstrated a need for better cooperation between them. How to involve local governments and farmers into information exchange and decision making on water issues?

As part of the Waterdrive project, SEI Tallinn interviewed representatives of the municipalities of Nitrate Vulnerable Zone. It turned out that they would like to become more involved in the planning of water management. The interviewees stressed the need for establishing a concrete communication channel with

governmental agencies (Environmental Board and Agriculture and Food Board, in particular) on one hand, and with farmers on the other hand.

The participants of the first roundtable reminded that some years ago, there were river sub-basin coordinators at work in Estonia. In connection with the establishment of three river basins, positions of sub-basin coordinators were abolished. The division of work at the Environmental Board is currently based on issues not on territorial approach. The participants of the first roundtable favoured the idea of strengthening the knowledge and skills of current agricultural advisors on environmental issues rather than establishing additional state-funded positions such as catchment officers or expect Environmental Board to support each municipality on daily basis. Rather, it is realistic to strengthen the advisory system (consultants) on environmental issues, including water protection. The Environment Board and the Ministry of the Environment have carried out many water-related trainings and info days to local governments and will continue to do so in the new budgetary period.

Local governments are represented in a working group on water protection managed jointly by two ministries (Ministry of Rural Affairs and Ministry of Environment) since 2019. The Chamber of Agriculture and Commerce found that cooperation with the two ministries is working, they do not feel excluded. Also, the participants of the second roundtable agreed that the basic cooperation between experts and ministries exists. Regarding the water and biodiversity protection, for example, environmental NGOs are represented in RDP monitoring commission, the working groups established under the CAP Strategic Plan 2021-2027 and in the Council of Agriculture and Rural Development (chaired by the Minister of Rural Affairs).

Regarding the creation of the position of the catchment officer(s), it is limited by human and financial resources, concluded the participants of the first roundtable.

Financing (subsidies and payments)

Agricultural water protection measures are financed from many different sources/programmes. Each programme and action plan has its own objectives, measures and a budget forecast. Who has an overview of all sources of funding for water protection measures, their status of implementation and effectiveness (impact), as well as about the costs incurred?

It was concluded by the participants of the first roundtable that such information is stored and analyzed in different ministries and in different information systems. The Ministry of the Environment is working on the creation of a single digital information system on water. At the moment the accounts are kept manually at the Environmental Board in a large excel table. Due to the common framework of RDP reporting by member states, the Ministry of Rural Affairs has quite a good overview of implemented measures and payments. The effectiveness of agri-environmental measures is monitored and studied by the Agricultural Research Centre (PMK).

The process of reorganizing sectoral development plans at the country level is currently taking place. The Government Office that oversees such plans aims to reduce the number of sectoral plans and to integrate them better with the development of the national budget. Development plans are often at odds with each other. Also the implementation of these plans is not legally binding, but rather of an indicative nature.

How to link the state budget and development plans?

At present, it is not clear how, for example, to link the water management plans (e.g. RBMPs, surface and ground water action plans and NVZ plan) with the new Environmental Development Plan 'KEVAD' (Spring) currently under development. All the plans have different time spans, e.g. 6 years for RBMPs, 4 years for NVZ plan that are difficult to synchronize.

There is a large room for improvement in the agricultural ICT sector. There are more than hundred sources of agriculture and water related data, collected and stored by different public authorities in different digital systems. Also the data collected by one authority or register does not always meet the needs of other authorities. For example, the payment office of RDP measures (Agricultural Registers and Information Board, PRIA) has good information on the farmland that receives the agri-environmental payments, but the data cannot be linked with a specific waterbody which environmental status is monitored by the Ministry for Environment. Keeping track of the implementation of water related plans (measures) require a great deal of time of public officials, since it is still mostly done manually in a large excel table. The Ministry of Environment is working on the ICT solutions, but acknowledging the slow speed of the process.

The participants of the second roundtable emphasized the key importance of measures and payments of RDP and will-be CAP Strategic Plan on the environmental status of water bodies.

Supporting databases and information

There is a lot of background and basic data available collected in the course of state monitoring scheme or different projects that relate to water protection and that farmers could use. Participants mentioned more than 15 databases, over 40 registers and tens of digital applications, all in all more than 100 sources which are publicly available.

Still, a large part of the available data/map layers and applications are too general or of low resolution, which make them not directly usable by the farmer on his/her land/field. Also the water related data, e.g. monitoring data, remains rather as general background not specific information for the farmer, since the network of monitoring/sampling points is sparse.

Universities, the private sector and public authorities are developing digital applications to help farmers. For example, the Landscape Biodiversity Working Group of the Tartu University has created a digital application on landscape features and biodiversity in each field of the country and assigned a status class to them (www.heapold.ee). At the moment, it is not yet publicly available, but once in operation it can become a practical tool for farmers and advisors to work out solutions for maintaining or improving of the status of these features.

Giving the fact that a lot of water related information is collected and stored, it is important that the information is also used. It cannot be expected that farmers visit all the data sources and develop a plan of action independently. Firstly, the need for information should arise from everyday management of the farm, such as development of the manure (dispersal) plan or fertilizing plan, or the plant nutrition balance sheet. Secondly, the farmers need professional advice for developing such plans.

Advisory system for farmers

In the Waterdrive project, partners have recognized that well working advisory system for farmers is one of the key factors in achieving good water status. At the same time, the advisory system varies greatly between partner countries. Advisors are mostly private entrepreneurs/companies who react on needs and orders by farmers. In order to achieve the water policy objectives, including at the level of a water body, it is necessary to involve many farmers and develop solutions at larger scale than a single field.

The participants of the two roundtables acknowledge that the government has a key role to play in the strengthening of agricultural advisory system since most of the financial support for advisory system has been provided via RDP technical support and will continue to be provided via CAP strategic plan.

What are the trends in advisory system for farmers in Estonia?

The participants of the two roundtables acknowledged that governmental support is necessary, it cannot rely solely on market-based demand. The participants of the first roundtable recommended to train the consultants of plant growing and animal husbandry on environmental issues, including water protection, rather than educating advisors solely on environmental issues. There should be practical need for advice by farmers and thus the advisors need to adapt to the needs. The government can provide the legal framework of the need (political objectives complemented with financial (motivation) instruments). Only a market-based approach to advise does not work, as the farmer himself does not feel the need to seek advice from the consultant for his own money in order to solve water protection problems. Farmers turn to a consultant if they encounter practical needs during their work, e.g. when drawing up a manure storage plan or a fertilization plan. The adviser should also be able to identify environmental risks when guiding the farmers activities. The participants of the second roundtable also emphasized the need for involving biodiversity experts into the agricultural advisory system, since maintaining or improving of the landscape and biodiversity features requires a specific expertise.

Ministry of Rural Affairs informed that there will be no changes in the agricultural advisory system envisaged in CAP Strategic Plan. The mandatory training courses for farmers who apply for agri-environmental payments will be continued. Also information days on water regulations and best practices organised by the Environmental Board each year can also be regarded as water-related advise.

The position of a catchment officer as a bridge builder between farmers, local governments and state authorities at regional level, has not yet found a political support in Estonia. Participants of the first roundtable indicated the lack of finances and human resources as the main limiting factor, and suggested to strengthen the current agricultural advisory system with environmental (water-related) knowledge rather than establishing a new position.

Water protection measures and recommendations for their applications have largely been developed via different projects. Currently, there is a [LIFE CleanEst project](#) underway. Pilot areas in Ida-Viru County (NE Estonia) have been selected in the project for more detailed study and recommendations on integrated water management. The participants of the second roundtable regarded the project-based approach only

a part of solutions. The farmers need advice specific to their needs and the general recommendations developed via different projects may not apply to specific conditions and even contradict to each other. Guidance by the public authorities is much needed here.

Selected pathways

In summary, based on **on the following inputs:**

- Pilot area (NVZ) survey with local governments
- Roundtable discussion with public authorities and farmers’ associations
- Roundtable discussion with agri-environmental experts of environmental NGOs
- Development of proposal to Ministry of Rural Affairs on the improvement of CAP strategic plan 2021-2027 by the council of Environmental NGOs

four pathways were identified:

1. Effective cooperation between the national, regional and local authorities with farmers
2. More effective financing mechanisms
3. Effective advisory system
4. Effective digital decision support for farmers

A short description of selected pathways:

1. Effective cooperation between the national, regional and local authorities with farmers
There is a clear need to improve **cooperation** between stakeholders, especially between farmers and regulatory authorities not only inspection and fees.
2. More effective financing mechanisms
There is a clear need to improve **agri-environmental payment system which would motivate farmers** to implement water protection measures.
3. Effective advisory system
There is a clear need to improve advisory system which would include **environmental topics (incl. water protection)**. Also encourage farmers to use digital databasis and platforms to ease their everyday job
4. Effective digital decision support for farmers
There is a clear need to continue with **technological improvements** in agricultural practices like precision farming, remote sensing, digital farm registers etc.

Objectives of the pathways

In the 21st century, one has come to the conclusion that environmental protection, including the protection of the living environment, is inevitable, while man needs his daily food. Agriculture and environmental protection are interdependent, and so the interests are actually overlapping. One sector cannot dominate the other because it will suffer sooner or later.

The water means life. A wise water management in agricultural sector impacts the food production but more often our living environment and our waterbodies.

Objectives of the selected pathways are:

Improved cooperation of different stakeholders

Improved financing mechanism

Effective advisory system

Effective digital decision support for farmers

The implementation process

The national pathway will be made public i.e. the task force of NVZ (established during the Waterdrive project) as well as the agri-environmental working group of the Council of Environmental NGOs in Estonia have an access to the report through the project webpage. Besides there is a chance to discuss about possibility to identify additional issues that may affect the implementation of the pathways.

Stakeholder roles and responsibilities

Possible roles and responsibilities in the implementation of the pathways will be considered in the future with the NVZ task force and the representatives of agri-environmental working group of the Council of environmental NGOs. Future discussions should focus on possible barriers and facilitating factors of implementation of the pathways.

The impact by 2030

The results of implementation of pathways aim at the improvement of water quality in farmland. The assumptions are related to the improved governance of water bodies in farmland, specifically bringing the different levels of administrations (national, regional and local level) together and ensure the effective management of the network of stakeholders. Concrete measures appropriate to concrete locational conditions are crucial. This means an effective and tool-gearred network of agricultural advisors in place.

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