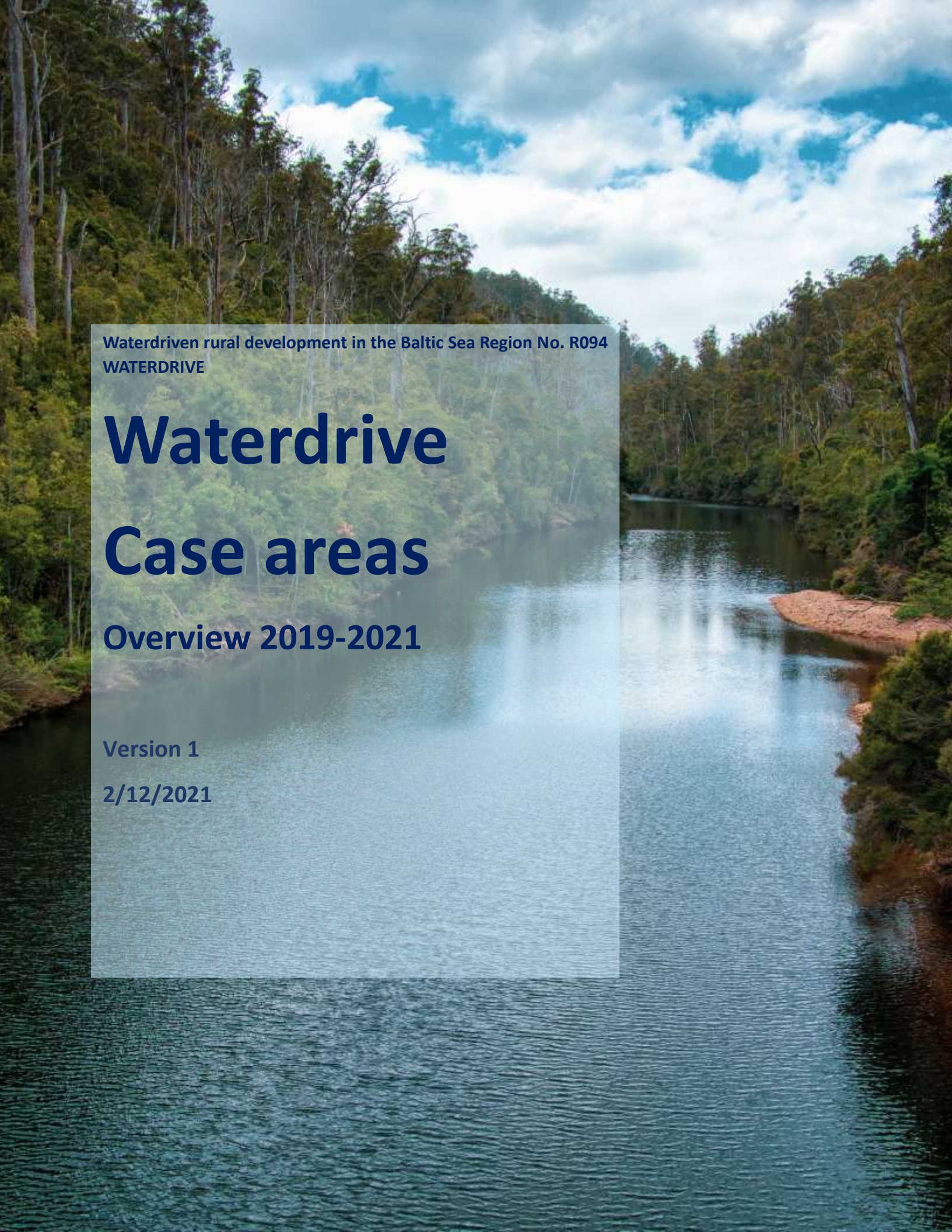

Waterdriven rural development in the Baltic Sea Region No. R094
WATERDRIVE

Waterdrive

Case areas

Overview 2019-2021

Version 1

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	Baltic Environmental Forum Lithuania
	Jelgava Local Municipality
	Northwest Research Institute of Agricultural Economics and Organisation (NWRIAEO)
	Institute for Engineering and Environmental Problems in Agricultural Production (IEEP)
	Finnish Field Drainage Association
	KVVY, Water Protection Association of the River Kokemäenjoki
	Västervik Municipality
	L&F SEGES
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Front cover photo	Flemming Gertz Rambøll Freepik.com

Project Partners

Sweden	Swedish University of Agricultural Sciences
Sweden	South Baltic Water District Authority/Kalmar County Administrative Board
Sweden	Swedish Board of Agriculture
Sweden	Västervik Municipality
Lithuania	Baltic Environmental Forum Lithuania
Finland	Natural Resources Institute Finland
Finland	Finnish Environment Institute
Finland	ProAgria Southern Finland
Finland	Finnish Field Drainage Association
Estonia	Stockholm Environment Institute Tallinn Centre
Latvia	Jelgava Local Municipality
Latvia	Latvia University of Life Sciences and Technologies
Latvia	Union Farmers' Parliament
Poland	Agricultural Advisory Service in Brwinow
Poland	European Regional Centre for Ecohydrology
Poland	PhenoHorizon OLP SP. zO.O.
Germany	Agency for Agriculture, Environment and Rural Affairs of the German Federal State Schleswig Holstein
Denmark	L&F SEGES
Russia	Northwest Research Institute of Agricultural Economics and Organisation (NWRIAEO)

Russia	Institute for Engineering and Environmental Problems in Agricultural Production – branch of Federal State Budgetary Scientific Institution "Federal Scientific Agroengineering Center VIM (IEEP)	
Russia	Administration of Guryevsk city district	

Contents

Waterdrive case areas 2019-2021

Between 2019 and 2021, eight Waterdrive case areas was involved in multi-actor water management engagement based on focus group meeting between landowners, the local municipalities, stakeholders, government agencies, the advisory service, catchment officers and private companies.

The stakeholders provided input to how the various environmental challenges as leaching of nutrients, loss of biodiversity, climate change, drought and flooding should be handled in the future in a more consistent way.

The work with focus grous in the waterdrive case areas has been a real challenge in relation to the whole covid 19 situation from March 2020. Regardless the situation, the Waterdrive was carried out by highly experienced environmental consultants, catchment officers and wateradvisors in the Baltic Sea Region.

The report Waterdrive case areas. Overview 2019-2021 has joined together the decription of each case area, the local conclusions, implementation- and investmentplans. All the work undertaken in the case areas is are available on websites www.water-drive.eu and www.waterdrive.dk as success stories, case areas, focus group meetings and measures.

Västervik case area in Sweden by Gun Lindberg & Anders Fröberg. Västervik Municipality

Wetland meeting with the entrepreneur. Photo Anders Fröberg

Västervik Municipality is located in southern Sweden, in the north of Kalmar County with the Tjust archipelago and the Baltic Sea in the east. Västervik covers one of the largest municipality areas in southern Sweden. The land area covers 1 875 km² and there is almost as much water area as land area.

Agriculture and forestry are important sectors in Västervik. The tourism industry is also important for Västervik, as the municipality receives about 1.5 million visitors annually.

Västervik Municipality has a long coast and an extensive archipelago. It provides many opportunities for development, but also includes responsibility for the Baltic environment. Västervik archipelago, covered by about 5000 islands, offers a variety of outdoor activities and a rich fish selection. Most of the bays are deep with a shallow mouth. The exchange of water between the inner deeper part and the open sea is low. This makes benthic ecosystems particularly vulnerable. The poor water circulation leads to nutrient-rich water and bad oxygen conditions at the bottom. As Västervik is characterized by its proximity to the Baltic Sea, the eutrophication problem is palpable. Coastal Water sensitivity to eutrophication is higher in

the inner archipelago. The symptoms of eutrophication have been obvious; including increased distribution of algae's, decreased water transparency and reduced opportunities for recreation.

Västervik has been working for many years in a holistic way to reduce the nutrient load. Sustainable work (year after year) with advising, local projects and high requirements in wastewater treatment and agriculture has been the method. Always in collaboration with stakeholders, farmers and owners of property/houses. Västervik has invested in improved sewage treatment plants. Recently the renovation of the Gamleby municipal wastewater treatment plant was completed. The plant has a modern technology with remote monitored processes and high nitrogen reduction. Västervik has set high requirements for small private wastewater treatment systems. An adviser has during several years been working with areas with summerhouses. Information and discussions about problems and solutions for sustainable wastewater has been in focus.

Since the anthropogenic nutrient load to the coastal waters is dominated by agriculture the municipality is focusing on reducing emissions from agriculture. Many different measures have been successfully developed and implemented by local farmers. Some examples are; construction of wetlands, liming to improve soil structure, and two-stage ditches, mussel farming, etc. A prerequisite for success is that measures can be done with economically sustainable methods.

Theme Water is an intersectoral body for water issues in Västervik that ties together various municipal "roles" of authority, development, wastewater treatment, etc. TW was formed in 2011 and includes the politicians in the presidiums of the Municipal Government, the Department of Environment and Planning and Västervik Energy & Environment AB together with the department managers and project leaders for municipal water projects.

Wetland with aldertrees. Västervik in autumn 2021

Conclusions, implementation & investment plans in the case area

The catchment officer in Västervik takes part in the national project LEVA (Local engagement for water). In the project, local catchments officers are financed in 20 pilot areas in Sweden to support local actions and measurements against eutrophication. Catchment officers is a way to improve and speed up the implementation and amount of voluntary measures being made in the agricultural landscape.

The project is led by the Swedish Authority for Water and Marine Management together with the Swedish Board of Agriculture, The County administrative boards, the Water district authorities, and the Federation of Swedish farmers as active partners. The method and work with advising services in Västervik are a model for the pilots. Succes factors "the Västervik method":

- Act locally to create commitments between stakeholders in the area
- Increased knowledge provides greater understanding of the measures
- Make SWOT analysis on field/watercourses level with landowners
- Develop a Local Action Plan for the watercourse in dialogue with stakeholders

• Simplify as much as possible with clear objectives

• Set common objectives that generate "win-win" concept both reduced eutrophication and increased harvest

• Holistic work close to farmers/landowners and stakeholders

The result of this strategy from 2018-2024 is implementation and investment in a lot of different environmental measures to prevent

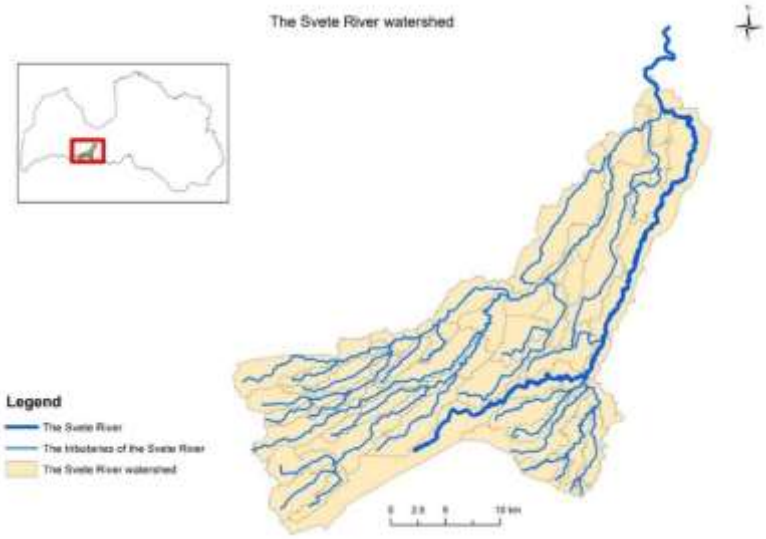
2018-2021 1,420 P-decreas kg/year	2021 925 P-decreas kg/year	Planned in 2021-2024 1,626 P-decreas kg/year
500 ha structure liming 12 ha wetlands (small) 1 ha phosphorus ponds 2 km two stage ditches 30 ha filter ditches (lime) 500 ha soil mapping 10 ha adapted groundwater surface 1 km protection zone 300 ha Irrigation (restoring euthrophied bay) 1,5 km beveling ditches	300 ha structure liming 3 ha wetlands (small) 0,5 ha phosphorus ponds 1 km two stage ditches 10 filter ditches (lime, woodships, biochar) 300 ha soil mapping 2 km ecological functional zones 6 ha adapted groundwater surface 1 km protection zone	700 hectare structure liming 10 ha wetlands (small) 4 phosphorus ponds (20) 4,5 km two stage ditches 50 filter ditches (lime, woodships, biochar) 600 ha soil mapping 3,5 km ecological functional zones 16 ha adapted groundwater surface 3 km protection zone 300 ha Irrigation (restoring euthrophied bay) 1 km beveling ditches
Total 1,622,500 Euro		Total 2,282,000 Euro

Two stage ditches in Västervik in autumn 2021.

Implementation- & investmentplans

See more on www.waterdrive.dk under case areas

Svete River - Jelgava municipality case area in Latvia by Ingars Rozitis



Svete River in Latvia. Photo Ingars Rozitis

Water driven rural development in the Baltic Sea Region" Nr. R094 WATERDRIVE specific objective is clear waters. To increase efficiency of water management for reduced nutrient inflows and decreased discharges of hazarious substances to the Baltic Sea and the regional waters based on enhanced capacity of public and private actors dealing with water quality issues. Rivers in Jelgava Local Municipality are under stress, affected by high nutrient loadings and eutrophication which leads to rivers' overgrowth. Within the WA-TERDRIVE project Jelgava Local Municipality as local authority wanted to rise avareness on condition of the rivers and the need of river cleaning. Svete river is a Public river. It is a tributary of the left bank of the Lielupe river – the biggest river in Jelgava Local Municipality. The total length of Svete river is 123 km, of which 75 km are in the territory of Latvia and 65,4 km in Jelgava Local Municipality. It flows mostly through agricultural lands of Zemgale region plain. Leaching of nutrients from agricultural lands contributes to the growth of aquatic plants, the management on floodplain meadows is insufficient, biomass accumulation in the river bed results in disturbed natural river flow. Also the natural processes of rivers are additionally influ-enced by relatively warm winters due to climate change, which do not form a thick layer of ice that is able to naturally clean the river bed and shoreline during spring floods.

Conclusions, implementation & investment plans in the case area

In the Svete River catchment the local "test catchment officers" has focus on teroretical implementation of wetlands restauration, two stage ditches, phosphorus dams, constructed wetlands and intelligent buffer-zones. Estimation of costs is a real challenge without scientific tests sites with all these new measures and no agricultural schemes to support implementation of new agri-environmental measures.

Implementationplan in Svete River

See more on www.waterdrive.dk under case areas

Odense Fjord case area in Denmark by Anne Sloth, Flemming Gertz and Frank Bondgaard

Wetland project restoration of Odense å.Photo Rambøll

In the Waterdrive project the catchment area of Odense Fjord has been selected as a case area. The catchment area of Odense Fjord is a part of the main water catchment area of Odense Fjord and constitutes an area of 105.600 ha, of which the agricultural area constitutes approximately 63.960 ha.

"According to the River Basin Management Plan, nitrogen emissions to Odense Fjord must be reduced by a total of 549,3 tonnes N. Of this, a reduction of 345,8 tonnes N has to be reached by 2021. The remaining reduction requirement has been postponed to the third Water Plan period. The reduction requirements cor-respond a reduction of agricultural nitrogen emission by 38 % before 2021 and by a full 64 % in total. It is a very extensive reduction requirement with major consequences for agricultural production, if most of the effort is to take place on cultivated land. For this reason, it is relevant to examine the options of either completely or partially replacing restrictions on cultivated land with nitrogen measures on the edge of or outside of cultivated land."

The Waterdrive project collaborates with landowners in two selected sub-catchments to Odense Fjord, as it is impossible to work with all landowners in this very large catchment area. Instead we have decided to

focus on a smaller area, which according to the program SCALGO should be potentially well suited for the establishment of drainage measures and wetlands. In Denmark, we have approximately 3000 subcatchments called ID 15 each of them with an individual number. The areas are called ID 15 because they each represent approximately 1500 hectares and the main purpose is to use the retention in the specific area in the action plan.

Conclusions, implementation & investment plans in the case area

Theoretically it is possible in the catchment 42.320.119 to establish approximately 6 hectares of constructed wetlands with an effect of 2.478 kg N/year and 20,4 – 23,3 kg P/year at a cost of approx. 591.000 €. Realistically, it is unlikey that this amount of hectares will be realised. The reasons for this may vary between places and landowners.

Theoretically there are many possibilities of placing the measures, and the farmers are generally positive towards making the measures, but in reality we meet many challenges. Based on this project and my job as a catchment officer my experience is that some of the reasons are:

a. The demands to the catchment area of having 80% area with crops in rotation
b. Deep drains - are pumps the solution to this?
c. § 3 protected nature where we are not allowed to place constructed wetlands
d. Possible costs to pumps for 10 years – are "pump-unions" the answer to this?
e. Open drain ditches protected by § 3 in Nature Conservation Act, so we are not allowed to lead the water trough a constructed wetland
f. Obtaining permits from the municipalities sometimes takes a very long time

I think it would promote solutions, if first of all rules were less strict, if we had more possibilities and if we (advisors and representatives from the municipality and sthe state) generally learned to cooperate more closely in order to see all possibilities and choose the best. We ought to have the same goals.

Implementation & investmentplans

Video: coming soon

See more on www.waterdrive.dk under case areas

Status and progress with agri-inviromental measures in Denmark in 2021

SEGES has in cooperation with the 25 catchment officers employess in the agricultural advisory service estabiliched 150 constructed wetlands. The Danish Nature Agency has send a status with multifunctional projects on 2.000 hectare, rewetting 3.000 hectare of organic soils in EU finansed climateprojects and 1.700 hectare in national projects. There are 8 wetlands projects on 400 hectare. There is a very good progress in Denmark.

The Partnership in Odense Fjord

Waterdrive has worked for a concept for a local-based water management plan in Odense Fjord catchment from 2020-2021.

Companies, institutions and organizations together in a unique collaboration to improve the environmental conditions in Odense Fjord. The parties have assumed a responsibility to take care of the environment around the fjord. Odense Fjord has a beautiful and varied environment, which contains important habitats for both animals and plants. The central parties have joined forces to bring Odense Fjord in good ecological conditions there are sustainable for both the environment and business. The cooperation is based on the latest available knowledge about the condition of the fjord and its pressure factors from the surrondings.

Several of the parties has already worked in various ways on initiatives to improve the state of Odense Fjord, therefore they bring experience and new knowledge into the joint cooperation. Through knowledge sharing, supply of resources and forces in center, the parties will work towards a common goal of a robust and clean fjord. This report describes the collaboration with proposals for how it is implemented, who the actors are and how the organization as well as the framework and principles for partnership can unfold.

The partnership:

Odense Municipality, Kerteminde Municipality, Nordfyn Municipality, Faaborg Midtfyn Municipality, District heating Fyn, Odense Renovation, Water Center South, Port of Odense, Danish Society for Nature Conservation, Funen, Agriculture and food, Centrovice, Southern Danish University, Syddansk Universitet, SEGES, H.J. Hansen, Marius Pedersen, Emmelev A/S

The partnership for improving the aquatic environment in Odense Fjord (In Danish)

Waterdrive meeting in the partnership 1. October 2021. Photo Flemming Gertz, SEGES.

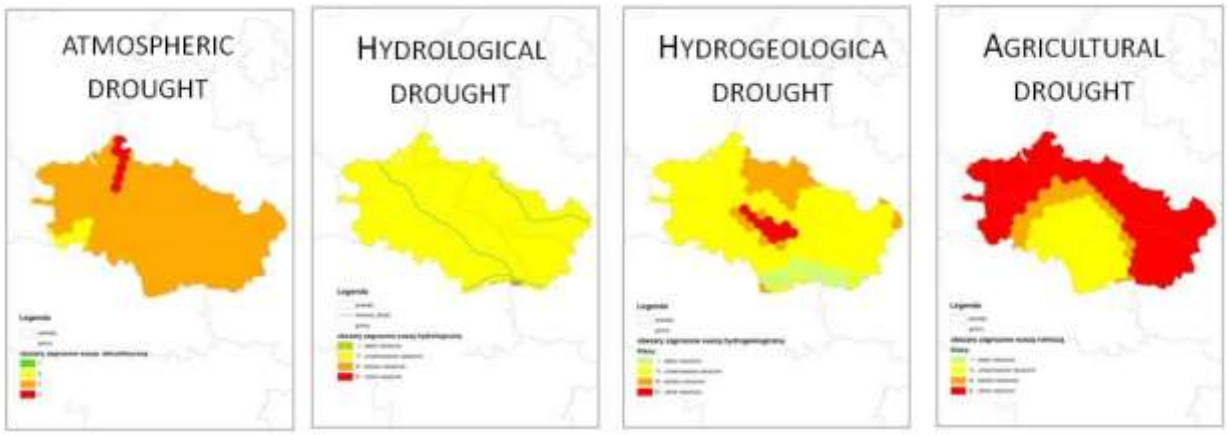
Kutno County case area, Poland by Katarzyna Izydorczyk, Wojciech Frątczak ,Kinga Krauze (ERCE PAN) and Janusz Dąbrowski (CDR)

Bedlno commune lies in the zone of the lowest precipitation in Poland. Their average annual sum is 550 mm, but in individual years it can be much lower. Lack of precipitation causes the phenomenon of agricultural steppe.

The area of the Kutno County is an important agricultural production area in the Lodzkie province in central Poland. The high quality of soil had contributed to the development of intense agriculture and thus to the conversion of the natural hydrogenic landscape (peatbogs and marshes). Only 5% of the county's area reminded covered by forest. Land acquisition was based on the drainage of the area and regulation of rivers, followed but changes in the dynamics of water flow in the landscape. Intensive plant production resulted in water pollution, especially with nitrogen compounds. Nowadays the situation gets worse due to superimposed impact of climate change, namely frequencies and duration of both hydraulic and agricultural drought. Yield loss results in increased interest of farmers in water retention and improvement of its quality.

Bedlno Commune, one of 10 communes in the Kutno County, has been selected for testing Waterdrive approach in the small agricultural catchment scale. One of the main reasons for choosing the commune was the location of the Stradzewski Channel basin, which lies entirely within the commune and is a system linked to the drainage system. The Stradzewski Channel is 14 km long and its catchment area is 5 331 ha. The

second factor was that the Bedlno Water Company (association of farmers) is one of the most effective water company in the Lodzkie Province.



Risk of atmospheric, hydrological, hydrogeological and agricultural drought on the basis of the "Plan for preventing the effects of drought in the water region of Central Vistula" of the National Water Management Authority in Warsaw 2017

Conclusions, implementation & investment plans in the case area

The start of WATERDRIVE project corresponded with the reorganisation of the water management system in Poland. in January 2018, the State Water Management Company Wody Polskie was established, which entailed the transfer of responsibility and competence for water management from multiple actors into a single handover at the level of the whole country. However, water companies remained an important local actor in water management in agricultural areas. These are voluntary associations of farmers who own the land through which the drainage system runs. The municipality may also be a member. Voluntary contributions paid by farmers form their budget. They can raise funds for investment. As a result of the reorganisation, the lack of communication between the two main actors, i.e. the national water authority and water companies, has become a serious problem. Supporting communication between them was one of the main goal of WATERDRIVE activities. During the project, there has been an improvement in the cooperation between Bedlno and Zduny Water Companies and Wody Polskie (unit: Catchment Water Management Authorities in Łowicz), which has resulted in joint, complementary actions, e.g. controlling the outflow from drainage system (the so-called river channel retention). Facilitation by regional (Marshal Office of Łódzkie Voivodship) and local authorities (Bedlno commune and Zduny Commune) was important factor to strengthen their cooperation.

A significant factor affecting work in the Kutno County case area was the occurrence of severe drought in 2018 and 2019, which had impact in agricultural production. The scale of the problem of drought effects in whole Poland is evidenced, inter alia, by the fact of compensations paid and the level of drought risk disaster aid for farmers, which amounted to 2.07 billion PLN in 2018. In 2019 ca 355 thousand applications for compensation for losses worth over 2.3 billion PLN were implemented. The droughts affecting farmers and residents have turned water management from a theoretical research task into an important element affecting agricultural production.

The discussion about the possibilities of water retention in agricultural areas was the main topic of the 1st Local WATERDRIVE Meeting, which took place in February 2020 in Bedlno. The meeting was attended by farmers from Bedlno Commune (water company, farmers, community council), representatives of Wody Polskie (local, catchment, regional and national level), water companies and local authorities from Kutno County, regional authorities, agricultural advisors, and experts. Stakeholders identified the use of the drainage system as a basic tool in the fight against drought. Renovating the drainage system and switching to a controlled drainage system allows water to be collected in open ditches and underground pipes through damming facilities. The result of the meeting was a joint action on the existing hydrotechnical infrastructure by the Bedlno Water Company and the Wody Polskie. Through weirs on the tributaries of the Bzura river, located in the Bedlno commune, water was dammed up by storing it in drainage systems and riverbeds. These activities are part of the national program "River cannel retention" launched by Wody Polskie in April 2020.

The "River cannel retention" programme has shown the potential for water retention in agricultural areas but also the need for major investments in repairing or reconstructing drainage systems and damming facilities. The funds allocated for maintenance works and investments in water retention in agricultural areas were insufficient. The high level of agricultural losses due to the drought gave a strong impetus to water retention measures by the Ministry of Agriculture and Rural Development, which started discussion with the European Commission. As a result of the dialogue, funds will be mobilised under the RDP 2021-2023 to increase water retention capacity and prevent flooding and drought in agricultural catchments.

Local work at commune/small agricultural catchment level on the possibilities to upgrade the drainage system shows two aspects in addition to the financial aspect that should be solved. One of them is the lack of access to maps and digital data. In the case of the Stradzewski Channel and the Igla River, it was necessary to collect maps of the drained infrastructure, which are important for the target location of activities in the catchment. Paper maps (1: 2 000), which are part of the documentation from 1960-1970, have been scattered in the archives of water authorities and farmers. An inventory of melioration devices and digitalization of melioration maps are indispensable.

The second conclusion is that an Action programme should be developed at the level of the small agricultural catchment as a starting point for further actions. For the modernisation of the drainage system it is necessary for the project office to produce design maps, hydrological and hydraulic calculations and the final spatial concept. These analyses will form the basis for technical documentation and permits. Preliminary estimated cost of analysis is ab. 45 000 euros. The development of the of drainage-related technical documents for building damming facilities in drainage ditches is similar in cost. However, this phase of work has not found a source of funding at the moment.

However, the Action programme should include two main elements: the modernisation of the drainage system towards controlled run-off, and the application of nature-based solutions. The use of nature-based solutions (NBS) such as buffer strips, mid-field afforestation, restoration of wetlands or construction of artificial wetlands must be backed up by a strong previous education campaign among farmers. Understanding the impact of NBS measures on increasing water retention in the landscape, influence on water self-purification processes and increasing biodiversity will be crucial for the acceptance and cooperation of farmers in the implementation of the measures. Planned ecoschemes in the new RDP perspective and climate change adaptation actions in the Regional Operational Programmes 2021-2027 may become important drivers for implementation of NBS measures in agricultural areas.

Multi-stakeholder cooperation started during the WATERDRIVE project found its continuation in official structures as a part of Local Water Partnerships in Kutno County. The initiative to create Local Water Partnerships was taken by the Ministry of Agriculture and Rural Development and the Agricultural Advisory Centre in Brwinów in cooperation with the Regional Agricultural Advisory Centres in 2020. The aim of the partnership is to diagnose the condition and principles of rational water management and drought prevention in the district. In the future, it will probably also be able to obtain funds for studies and expert opinions on water retention in agricultural areas and give opinions on planned investments. Test water advisor of the case area actively participated as a semi technical support in work of Local Water Partnerships in Kutno County.

Testing new type advisory services

The network of public agricultural advisory services operating in the case area mirrored the main features of position of advisory services regarding water management in agricultural activities at national level. Some key aspects are worthwhile to indicate:

a) scope of activity – focus of profitability of farms and effective implementation of legal requirements required at farm level,

b) dominating approach to methodology of work with farmers – individual advisory aimed at farm level with rather limited application of group advisory techniques (except training and information meetings),

c) relation to other relevant actors at local level – focus on work with farmers, occasional cooperation and contacts with other local and regional actors (more common with local authorities, less with the State Water Management Company Wody Polskie and other actors etc..)

d) relation to water management – lack of coherent focus on water as a factor relevant for agricultural production, common topics across all other day to day advisors activities without specific in-depth focus on water.

As a result of the Waterdive project activities new type advisory services – water advisor – was tested in the case area. His activities covered the following activities:

a) participation in national training for water advisors arranged by CDR,

b) refocusing his daily advisory activities for selected farms level on water issues – creation of water balance for group of selected farms,

c) transferring his experience in water balance analyses to participate in the Waterdrive team designing new analytical instrument for agricultural advisors for development of water balance at various types of farms (i.e. plant, animal production, mixed type of production, domestic water utilization). Work in the team include testing of new instrument in daily advisory activities (nine tests were carried out).

d) facilitating more focuses cooperation with farmers, active members of water companies operating in two communes – Bedlno and Kutno. Activities in this area were limited due to the fact of upcoming changes in legal position and tasks of water companies have still been under way.

Implementation- & investmentplans

See more on www.waterdrive.dk under case areas

Zuvintas Reserve and agriculture case area in Lithuania by Elvyra Miksyte

A gaggle of geese flocking in Žuvintas Biosphere Reserve during migration. Source: Žuvintas Biosphere Reserve Directorate

The Dovine River Basin covers an area of approximately 588.7 km2 and is located in the southern part of Lithuania (see Figure 1). The basin is one of the small catchment areas of the larger Neman river basin, which covers around 75% of the territory of Lithuania and is the 4th river basin in size in the whole Baltic Sea Region.

The Dovine river catchment (see Figure 3) consists of a network of rivers and water bodies formed by five big lakes (Dusia 23,3 km2, Zuvintas 9,3 km2, Simnas 2,4 km2, Giluitis 2,4 km2, Amalvas 1,9 km2) and a number of rivulets and small lakes. Within the borders of the basin lies one of the oldest and most unique protected areas of Lithuania –Zuvintas Biosphere Reserve. A part of the reserve is protected by the RAMSAR convention since 1993 and in 2011 the reserve was enlisted into UNESCO's Man and the Biosphere Programme.

In 19th and 20th century, land reclamation and wetland drainage projects were carried out in order to expand agricultural lands and make us of fertile lands in the Dovine river basin. Therefore, the natural hydrological cycle was interrupted, many wetlands were drained and meliorated to provide space for agricultural lands.

Currently, most of the surrounding areas are productive agricultural lands (productivity is higher than the average of the country). The forest cover is scarce, i.e. approximately 16 % of the area (the average in Lithuania – 33%). As a result, the water quality in the lakes within the Dovine river catchment, is

remarkably deteriorating and results in eutrophication of the water bodies within the catchment. Zuvintas lake (Figure 2) in particular and the whole wetland system in the reserve is under heavy pressure of leaching of nutrients mostly from agricultural activity in the basin, which is degrading the ecosystems and their values.

Recommendation to an action plan in the case area

In the Zuvintas Reserve and agriculture case area the case area leaders are trying to improve recommendations for the river basin management plans. Monitoring activities are crusial in interactions between all stakeholders.

a. In order to ensure the protection of the ecosystems in the protected areas, the activities of Simnas fishery ponds must be balanced with the protection needs of the protected areas, the aim must be to reduce the impact on Žuvintas biosphere reserve. There is a need for close cooperation between stakeholders on the impact minimisation of fishery ponds on the catchment and protected areas. A concrete action plan is needed for the Dovine River catchment, reconciling economic and environmen-tal objectives and comprehensively considering the impacts of the decisions at the catchment level.
b. Work closely with local farmers, educate and help them address unsustainable farming practices re-sulting in nutrient and chemical toxin run-off from fields into water bodies.
c. Progress with mainstreaming the use of soil testing and fertilisation plans and encouraging intensive farmers to use precision farming technologies to optimise fertiliser use.
d. Address the data gaps. While closely working with farmers one could collect data into a case area da-tabase on fertilization, pesticide and other hazardous chemical use in farms. Improve water quality data collection, also, ensure proper analysis and interpretation is done in order to identify pollution sources, other issues and necessary measures.
e. Terminate (or minimise) practices leaving open soil such as fallow land and minimise arable land ar-eas in the sensitive zones. There should be a targeted promotion of agri-environmental schemes, es-pecially catch crop and stubble fields over winter and extensive management of meadows and wet-lands.
f. Effective local water management in the case area could be achieved through establishing a specific expert position within the protected territory, catchment or municipality such as Catchment Officers in Denmark.
g. Empower and engage local communities and local action groups in water management and protection but for their successful participation it is important that they have a certain level of environmental and local knowledge on condition of and threats to local water bodies. Carry out environmental education of locals.
h. In collaboration with universities carry out a study on impacts of climate change and hydrological sys-tem transformations for the runoff of the Žuvintas basin and the impact on the water balance on lake Žuvintas. Research and discussions with experts and stakeholders are needed on possibilities for fur-ther restoration and renaturalisation of the hydrological cycle.

Action plan

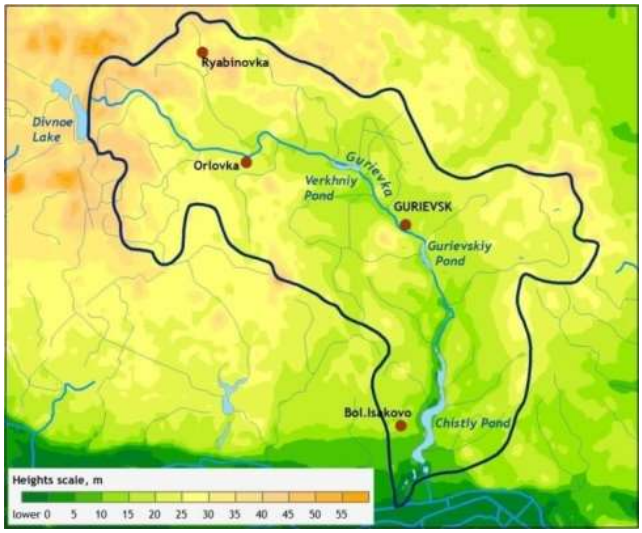
See more on www.waterdrive.dk under case areas

Gurjevsk case area in Russia, Kaliningrad Oblast by Irina Popova

According to the original Waterdrive project plan, the case area selected as the study area was the catchment area of the Upper Guryevka River pond, which is part of the main catchment area of the Guryevka River.

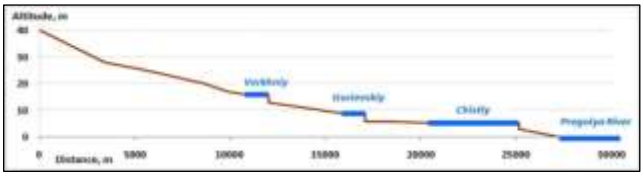
The total catchment area of the drainage channels is 1,030 ha, of which 490 ha are agricultural areas.

The choice of the project area was determined by the fact that earlier in the WaterNets-RU project, under the ICLD programme (cooperation between Guryevka municipality, Russia and the municipality of Västervik, Sweden), data had been collected on studies of the physical and chemical parameters of the Guryevka River water. And within the Waterdrive project we wanted to use the results of the WaterNets-RU project



The Guryevka River (Mühlen Fluss) is a small river in Kaliningrad Oblast, the right tributary of the Pregolya River. The Guryevka River runs in an arc around the city of Kaliningrad, through the Guryevsk urban district.

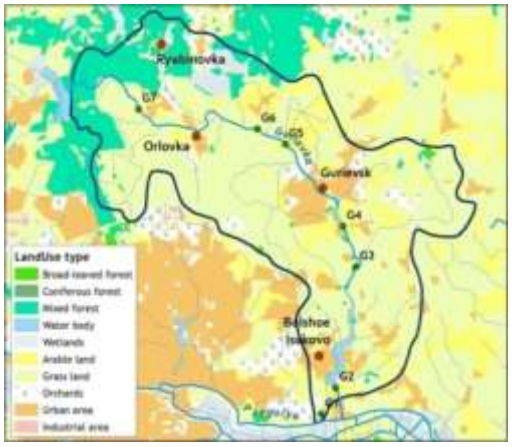
- The length of the river is 27 km.
- The catchment area is 85.2 km².
- River width: from 2 m to 6 m

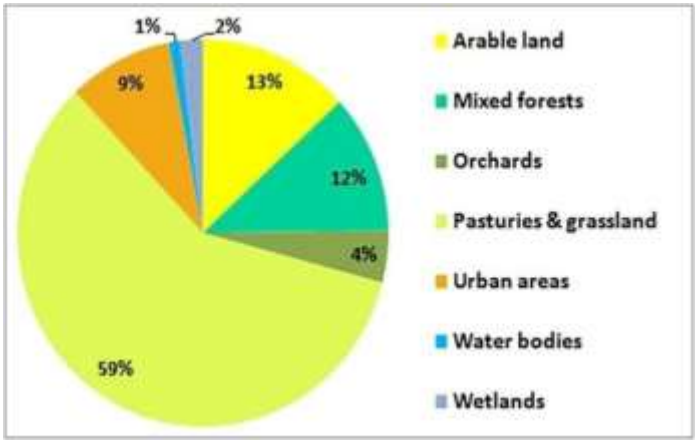


The height difference of the river bed - from 40

The river flows through ponds:
Upper/Dambus (below settlement Orlovka)
Guryevsky (city Guryevsk),
Chistyi (sett.Bolshoy Isakovo)

Landuse





Approximately 60% of the Guryevka River Basin is occupied by agricultural land, but only 13% of them are arable land.
An extensive drainage network is used to combat the waterlogging of the soil.

- The main sources of negative impact in the Guryevka River basin are settlements, industrial facilities, and agriculture.
- Of the 19 settlements located in the Guryevka River basin, 7 have a centralized system of collection and disposal of wastewater, and only three of them have treatment facilities: two treatment facilities of biological wastewater treatment, one - mechanical.
- All domestic wastewater is discharged into surface watercourses either directly or through the sewerage system and treatment plants.
- Field studies have shown that concentrations of nutrients (nitrogen and phosphorus) increase as the river flows from source to mouth, which correlates with the degree of anthropogenic impact and the population.
- The once artificially created ponds (3 ponds) on the Guryevka River now act as natural sedimentation ponds, thus contributing to the self-purification process of the river. However, this is not enough to ensure that the ecosystem does not degrade.

Field studies for the design of a wetland with surface runoff were conducted in 2020, but during the project implementation phase, there were difficulties related to legislation and the procedure of obtaining permits from several landowners at the selected site, and it is taking much longer than originally envisaged. In addition, the estimated cost of building the wetland was significantly higher than the budget of the project as a whole.
Therefore, it was not possible to realize the investment in the project by the end of 2021.

Due to the fact that it was not possible to make investments in the construction of the Guryevsk wetland, the Waterdrive project management decided to change the plan: to exclude the investment component and to move to a more systematic approach for further investments in wetland construction after project completion. At the same time, the objective to increase natural water treatment, e.g. by constructing wetlands in agricultural areas of Kaliningrad Region, remains the same.

New case area - new implementation and investment plan, 2021

The updated work plan foresees closer cooperation between the Waterdrive project teams from Leningrad and Kaliningrad oblasts and develops the already established cooperation with regional and federal authorities in Kaliningrad, in this case with the representative in Kaliningrad oblast Federal State Budgetary Institution "Department of Land Amelioration and Agricultural Water Supply in Kaliningrad oblast, FSBI "Kaliningradmeliovodkhoz".

Main objective:

- To select locations of agro-ecological measures: constructed wetlands, two-level channels;
- To study the effectiveness of selected agro-ecological measures;
- To consider the possibility of incorporating the selected measures into the existing drainage system;

The new project implementation plan includes the following components:

1. The educational component

Implementation of activities aimed at raising the awareness of representatives of municipal departments of agriculture about agroecological measures.

For this purpose, the Administration of the Guryevsk Urban District, the state autonomous institution of the Kaliningrad Region "Ecological Centre "EKAT-Kaliningrad" organized a series of information workshops "Increasing ecological efficiency in agriculture in the framework of the implementation of the international project WATERDRIVE" under the "Interreg Region of the Baltic Sea" program.

The purpose of the workshops was to present good practices and modern methods used in Northwest Russia and internationally in the Baltic Sea Region to reduce pressures on the aquatic environment.
The main focus was on the peculiarities of the land reclamation system of the Kaliningrad region. The territory of the Kaliningrad region is located in the zone of excessive moisture, it accounts for 23% of all drained and 70% of polder land in Russia.

Polders have a high agricultural potential, as evidenced by high crop yields.
However, special attention should be paid to the restoration of the ameliorative system of the Kaliningrad Region.

The first systematic reclamation works on the territory of the present Kaliningrad Oblast were carried out in 1613-1616 in the Gilge-Tave-Sköpen area. Mass reclamation works started in the 17th century. Closed drainage was applied at the beginning of the 19th century. The most intensive reclamation works were carried out at the end of the 19th century and the beginning of the 20th century.

At present, the ameliorative economy of the region includes:

- 114 pumping stations;
- 713.5 km - water protection dams;
- 13,565 km - open drainage/regulation network;
- 11,909 km - main canals;
- 362,500 km - closed drainage.

In the 1990s the ameliorative system of the region fell into disrepair, which resulted not only in a reduction of crop yields but also in the threat of flooding of both agricultural areas and settlements. There are more than 90 settlements on the polder lands, where about 80 thousand people live.

The development of agricultural production is directly dependent on the functioning and technical condition of the land reclamation system. Land reclamation systems of polders must:

- provide protection of the territory from flooding by flood and surge waters;
- maintain normal living conditions on the territory of settlements.

Since 2018, the Kaliningrad Oblast has been actively restoring and developing its amelioration system, hydraulic engineering and drainage facilities are being restored to a workable condition.

To this end, the amelioration sector is being financed from the federal and regional budgets to carry out anti-flooding and operational works at federal and regional facilities.

The list of facilities to be reconstructed includes the construction of additional pumping stations and water protection dams and the cadastral registration of amelioration canals, works related to fishery-economic reclamation, cleaning of canals within the boundaries of the State Forestry Fund.

Funding from the federal budget is provided under:

- State Programme for the Development of Agriculture and Regulation of Markets of Agricultural Products, Raw Materials and Foodstuffs (2013-2025). Subprogram - "Development of land reclamation for agricultural purposes in Russia".
- State Programme for the Effective Involvement of Agricultural Land in the Turnover and Development of the Land Reclamation Complex in the Russian Federation (2022-2031).
- The Federal Target Programme "Development of the Water Sector of the Russian Federation in 2012-2020" / FTP "Voda Rossii".
- The Programme is implemented under the auspices of the Ministry of Natural Resources and Environment of the Russian Federation and is one of the main practical tools for implementing the "Water Strategy of the Russian Federation".

The state programmes include practically all ameliorative facilities of capital construction that require reconstruction. Under the relevant Programmes, subsidies are planned from 2022 for crop works, hydro-ameliorative works for the construction and reconstruction of ameliorative systems, and lime treatment of acidic soils on arable land.

Our workshops focus on state support measures and the procedure for granting subsidies aimed at agricultural land reclamation and restoration in the Kaliningrad region. Among the speakers of the event are representatives of scientific institutes from Russia, Finland, Sweden and Denmark.

Two conferences and 4 information workshops are planned. The participants of the workshops are specialists from municipal agriculture departments, farmers, and students from Kaliningrad State Technical University.

The first conference "Water Sector in Agriculture": Current Trends in the Baltic Sea Region and the Russian Waterdrive Project Experience", was held on 03 June 2021 in a mixed online/offline format. Due to the limitations related to Covid-19, the workshops had to be held in the online format. But the interest of 13 municipal agricultural authorities was nevertheless noted.

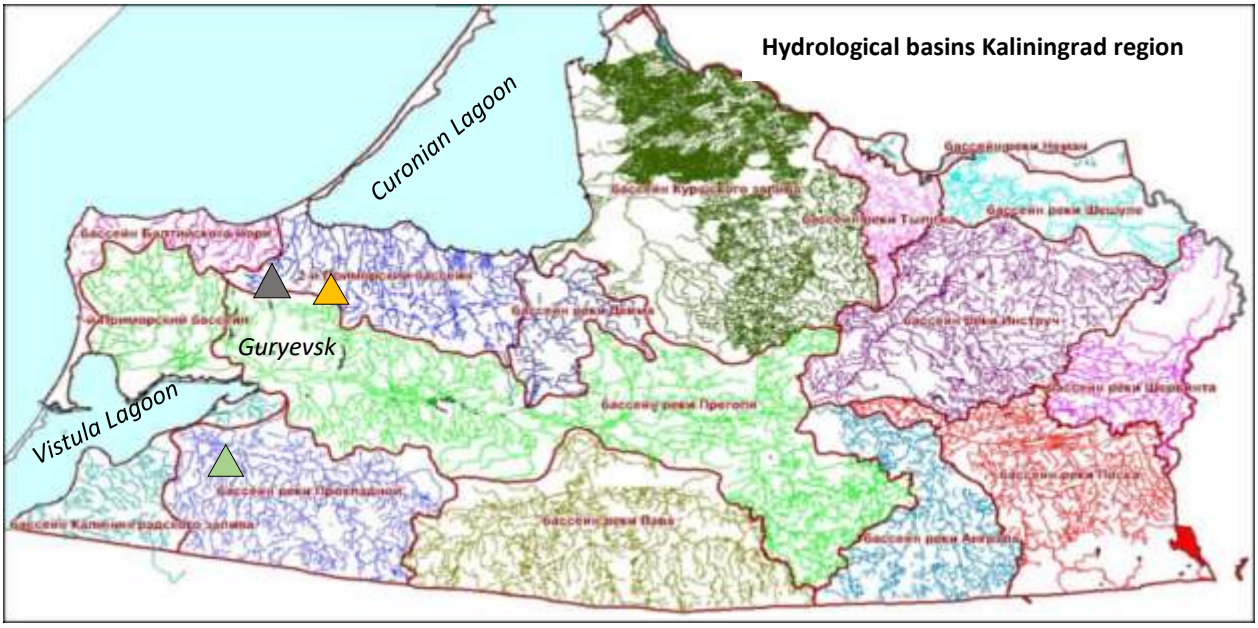
The Information component

Also, in order to disseminate knowledge about agri-environmental measures and raise the awareness of stakeholders, farmers, agricultural specialists, it is planned to develop an information block, which will be placed on the platform of the official website of the Guryevsk Urban District Administration. Preparation of text and visual materials for the website includes an overview of materials on agroecological measures in Kaliningrad Oblast and the Catalogue of Measures developed within the Waterdrive project.

The research component

As research has shown, the main sources of negative impacts on the aquatic environment are human settlements, industrial development, and agriculture.
A significant source of nutrient compounds is diffuse runoff from agricultural land, so the Waterdrive project focuses on agroecological measures aimed at reducing the eutrophication of water bodies.
One of these measures, which was supposed to be implemented in the Guryevskiy district, is, in particular, the use of "constructed wetlands" technology.
Experience from the use of wetlands in the Nordic countries shows that artificially constructed wetlands as treatment facilities for agricultural run-off are effective measures for reducing nutrient loads.

A new phase of Waterdrive project focused on the study of the Guryevsk urban district in Kaliningrad region for the selection of agroecological measures, such as constructed wetlands and two-stage ditches. The works were carried out jointly with the FSBI "Kaliningradmeliovodkhoz Directorate". Initially, a review of the catchment area of all reclamation canals under the jurisdiction of FSBI "Kaliningradmeliovodkhoz" was carried out.



The catchments of three drainage ditches were selected, two of which (No. 1, 2 ▲▲) belong to the Primorsky hydrological basin (Guryevka river catchment) with the Curonian lagoon as its recipient, and one more (No. 3 ▲) belong to the catchment of Prokhladnaya River, with the Vistula Lagoon as its water recipient.

The presence of the Curonian and Kaliningrad lagoons is a characteristic feature of the formation of biogenic load to the Baltic Sea from the territory of the Kaliningrad region, which is separated from the seawater area by narrow strips of land - Curonian and Baltic Spits.

The main part of freshwater runoff from the territory of the Kaliningrad region is directed not to the Baltic Sea, but to the transboundary coastal lagoons, which are geochemical barriers, preventing the removal of chemical substances and nutrients from the catchment area to the marine ecosystem.

The next step is to study and analyze the use of the catchment area of the selected reclamation canals, indicating catchment boundaries, and to select several effective agroecological measures.

In the work process, the proposed zone of mini-wetlands location and the zone for the arrangement of two-level canals as part of the ameliorative system or by reconstruction of ameliorative canal beds in accordance with their cross-sections have been established.

The analysis of options of investment implementation with the technology "two-stage drainage canal" has been carried out and the map-scheme of potential agro-ecological measures in Guryevsk city district of Kaliningrad region for investments in wetland construction has been drawn up.

Research area and results

The Bolshaya Moryanka river basin (Guryevka river catchment)

Drained channel 1 (ШБ8)

Length - **9.2 km,**
Channel width **6-10 m**
Water discharge - **1 m3/s**
Catchment area - **424.37 ha**
Farmland area - **124 ha**
Farming enterprise - PSP Ltd.

Area opportunities:

1. Location 2 or 3 mini-Wetlands with surface runoff (area of the wetland up to 1 ha);

The location of the wetland has been chosen in view of the location of the estuary, in the area of natural lowering of the relief.

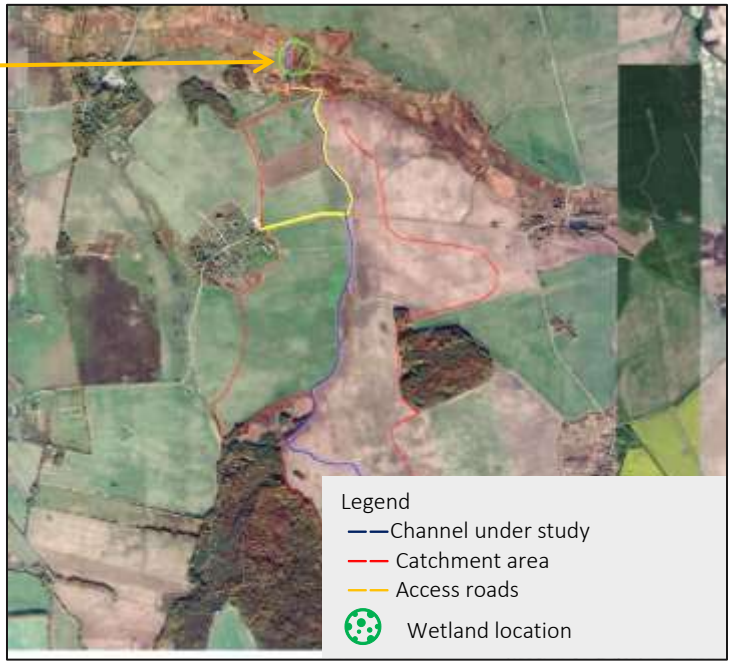
2. Reconstruction of the existing drainage channel into a two-level one, up to 1 km long.

The Kamyshevaya River basin (Guryevka river catchment)

Drainage channel 2 (B-4-7)

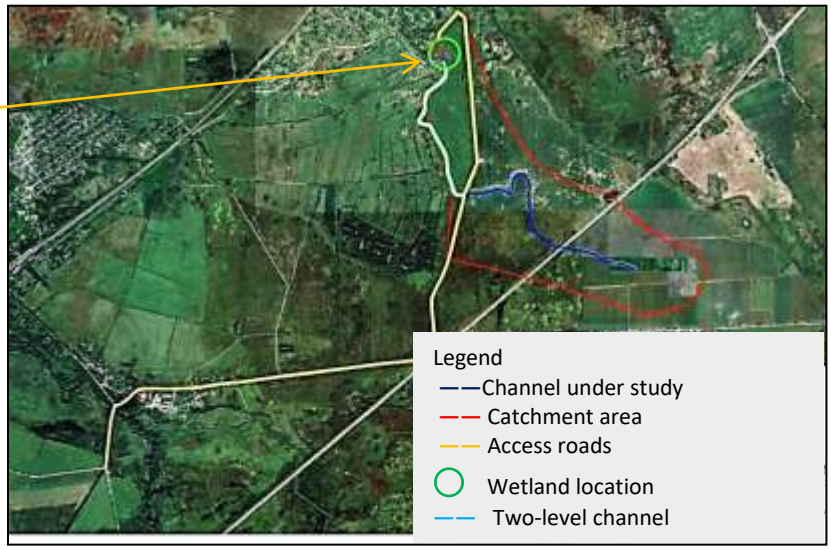
Channel length 7.8 km
Channel width 4-6 m
Catchment area - 359.54 ha
Farmland area - 340 ha
Farm - LLC Guryevsk-Agro

Area opportunities:
Location mini-wetland with surface runoff (area of the wetland up to 1 ha);
The location of the wetland has been chosen in view of the location of the estuary, in the area of natural lowering of the relief.



The Prochladnaya River basin

Drainage channel 3 (ФР-6-1)
Channel length 3.0 km
Channel width 4-6 m
Catchment area - 163.36 ha
Farmland area - 114 ha
Farming facility - LLC LPG AGRO, LLC Biodor



Area opportunities:

1. Location 2 or 3 mini-Wetlands with surface runoff (area of the wetland up to 1 ha);

The location of the wetland has been chosen in view of the location of the estuary, in the area of natural lowering of the relief.

2. Reconstruction of the existing drainage channel into a two-level one, up to 1 km long.

Conclusions, implementation & investment plans in the case area

The Kaliningrad Region is located in a zone of excessive moisture. The technical condition of the land ameliorative system affects not only the development of agricultural production, but also ensures safe livelihoods in the polder areas.

At present, there is state support and subsidy system aimed at rehabilitation of the land ameliorative system of the Kaliningrad region.

State programs include practically all ameliorative facilities of capital construction that require reconstruction.

On the territory of the Gurievsk district in 2020, state subsidies were used to renovate:

13. 3 km of closed drainage channels ;

107.27 km of open melioration channels;

7.97 km of dams;

👉 This returned 454 ha of farmland to use.

However, of all the agri-environmental measures recommended by Waterdrive, only structural liming and afforestation are subsidized in Kaliningrad Region

Subsidies for measures such as the construction of artificial wetlands, two-level channels as well as the use of other nature-based solutions have not yet been applied.

To use agro-ecological solutions such as buffer strips, two-level channels, wetland restoration, or construction of artificial wetlands, a strong education campaign is needed, not only for farmers but also for specialists in regional and municipal agricultural administrations.

One of the positive results of the Waterdrive project is the cooperation with federal and regional structures and scientific specialists from Kaliningrad Technical University.

We hope that cooperation with the federal structure FGBU Kaliningradmeliovodkhoz will have positive results.

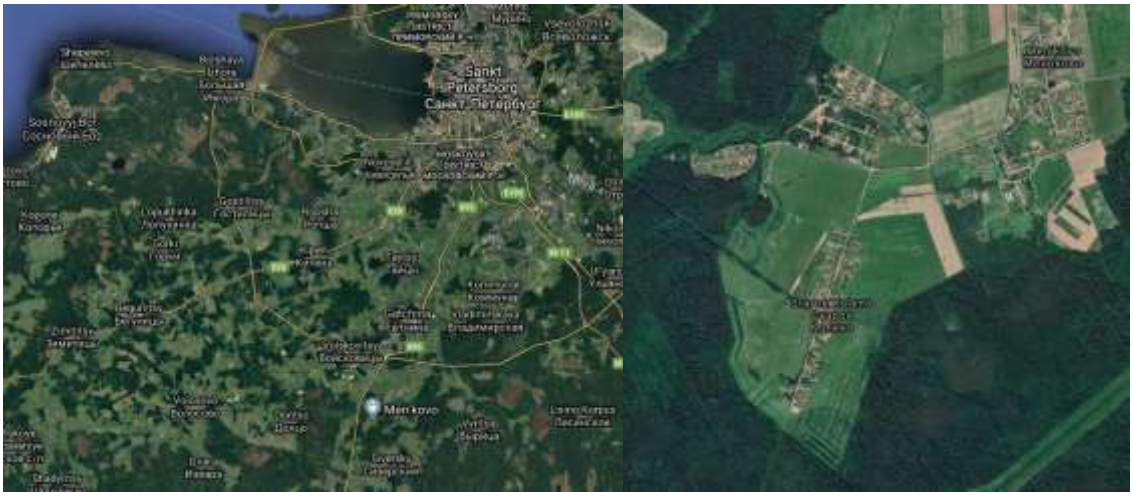
Implementing agro-ecological measures and incorporating mini-wetlands as part of the integrated amelioration system:

- On the one hand, it will significantly improve the state of the farmland returned to use, which will lead to higher crop yields,
- On the other hand, it will reduce nutrient inputs to the region's water bodies.

Implementation- &investmentplans

See more on www.waterdrive.dk under case areas

Ljuga River case area in Russia, Leningrad Oblast by Mikhail Ponomarev



Upcomming testsite at the Agricultural experimental field nearby Men'kovo, Leningrad oblast. From Google

Suidariver flows through the territory of the Men'kovo Experimental Station owned by the Agro-physical Institute. There is 173.8 hectares at the station, the catchment area are 1,96 km2. The water in Sudia Riveris characterized as "polluted" (class 3, category "a") in 2018.

The agricultural fields at Men'kovo Experimental Station could in the future has a funcion as a scientific testsite with agri-environmental measures and in the same time be a demonstrationarea for agricultural advisors and farmers.

In the case area there has been focus on:

a. Find 1-2 suitable environmental measures at the Men'kovo Experimental Station. Focus on constructed wetlands, sedimentation ponds for phosphorus, bufferzones, intelligent bufferzones IBZ and saturated buffer zones, controlled drainage, two stage ditch, bevelling ditch, filter ditch (lime filtration drainage) and structure liming.
b. Study the effectiveness of the selected environmental measures
c. Check the possibility to include the measures in the existing drainage system
d. Develop of the technical documentation for construction / implementation of measures or reconstruction of the existing drainage system with the inclusion of the measures

Conclusions, implementation & investment plans in the case area

The next step is to select 1-2 suitable and effective measures at the Men'kovo Experimental Station. 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.

Testsite in the future

See more on www.waterdrive.dk under case areas

Southern Finland drainage case area, the Gammelbacka stream called Storängsbäcken in Finland by Mikko Ortamala

A two-stage ditch, with both flood plain on both sides. Photo Mikko Ortamala

The Gammelbacka stream, also called Storängsbäcken, flows from the forests of Kuninkaanportti and Ernestas through Eestinmäki and Karjalaiskylä fields through the built-up urban area and park area of Gammelbacka to the issue of river Porvoonjoki. The length of the stream is about seven kilometers. Salmo trutta have been restocked in Gammelbacka stream in the urban area and park area. This part of the stream was restored in 2014.

Storängsbäcken has its own Drainage corporate body. Drainage corporate bodies are organizations that consist of those land owners that gets benefit or profit of the drainage. Drainage corporate bodies have been established in Finland since 1883 for maintaining the ditches. Storängsbäckens Drainage corporate body was established in 1932. First drainage plans have been made in 1916.

The most of drainage corporate bodies are not active and maintenance of the ditches has been delayed. Many cases drainage corporate body has not been active in 50 years. Farmers are trying to excavate small

shots of the ditch in their own lands with locally-based contractors and the results are largely qualitatively weak.

The drainage main channel of Storängsbäcken is a typical case, not renovated during decades. The problems consist of small difference of field surfaces and channel water level. By drainage planning norms this difference should be at least 80 cm. This problem was caused by erosion which resulted silt and mud accumulation to the channel and also depression of the soil. Humidity and floods have during the years compressed and weakened soil structure and farming capacity, and also increased depression.

Conclusions, implementation- & investment plans in the case area

In large-scale holistic water management and maintenance demands a clear division of roles for different stakeholders. Planning has been relocated from authorities to private service providers and advisory together with guidance is transferring to advisory organizations. Juridical review remains to state authorities and province administration are taking over the financial subsidizing. There is a need of a clear "command chain" from the catchment area to water bodies. The links of this chain would be drainage cooperatives, authorities, fishery regions, land owner cooperatives, foundations, associations, planners, contractors, scientists, advisers, farmers and land owners. Catchment officer could offer a link between all of these stakeholders.

Responsibility of actions could not remain to separate actor of the chain, but we need an operative set. Everyone should have a clear approach, which leads the activities towards operational basic and local drainage including surface water management. As a result should be the good status of waterbodies according to the demands of Water Framework Directive. Catchment area wide cooperation groups, negotiation committees and foundations which coordinate the projects have been solutions adapting and combining the actors, enabling the formation of operative chain.

A systematic, phased implementation on a catchment-scale is more likely to secure better results concerning both sufficient drainage on agricultural lands as well as decreased nutrient load. In order to decrease the renovation debt, a more systematic and planned approach should be strived for in contrast to the current unsystematic and random operating model/activities.

Information about holistic water management should primarily be targeted to farmers, landowners and drainage corporate bodies in the risk areas. The regional authority (in Finland ELY-centre) would be a natural actor to coordinate the targeting of funds to the most critical areas. A regional coordinator could be funded by state subsidies either through a project or a new form of support or service.

Costs of holistic main channel renovation in Storansbäcken	Euro
Preliminary work - Marking measurements	3,788
Excavations	2,5815
Spreading of excavated sediment	3,1315
Two stage ditches (excavations and spreading of excavated sediment)	9,456
Drum installations	5,000
Drum materials	9,550
Repair of broken discharges	2,400
Landscaping and unforeseen costs	800
Overheads (planning, supervision and management)	8,091
Total cost	65,400

Links to all material in the case area

Implementation- & investmentplans

Video: At the Edge of Shared Waters

See more on www.waterdrive.dk under case areas

Main conclusions in Waterdrive case areas

The consclusions in the reports *New services for water management in agricultural landscapes - a catalog of ideas and experiences* and *New and innovative solutions plus key findings in Waterdrive case areas 2019-2020* are deeply connected to the work and the experiences gained through several years of environmantal work in the 8 selected Waterdrive areas in the Baltic Sea Region.

The overall conclusions have been worked out by public and private funded catchment officers, NGO´s, research instituts and agricultural advisors.

Västervik case area	Catchment officer - public funded
Svete River, Jelgava municipality case area	Test of a catchment officer funded by Waterdrive
Odense Fjord catchment case area	Catchment officer – privat & public funded
Kutno County case area	Test of water advisors/agricultural advisors – privat & public funded
Zuvintas Reserve and agriculture case area,	NGO
Gurjevsk case area in Russia, Kaliningrad Oblast	Research Institute
Ljuga River case area in Russia, Leningrad Oblast	Research Institute
Southern Finland drainage case area, the Gammelbacka stream called Storängsbäcken	Water Protection Association - private funded

In Waterdrive 10 important steps to kick-off local implementation of mitigation measures were identified as crusial for a real implementation of environmental measures to be initiated.

1. Monitoring	Improvement of local monitoring, analysis, and interpretation of data. Monitoring data available for all stakeholders on the website.
2. Test & pilots	Case areas and demonstration sites for the implementation of agri-environmental measures are important as a first step in involving landowners. Pilots and tests should ensure that landowners become involved in local solutions and implement scientifically proven environmental initiatives only.
3. Agricultural schemes, AES	Rural development programmes and funding systems for agri-environmental measures, catchment officers, catchment teams, water managers, water advisers and local facilitators are crucial for ensuring real progress in the landscape.
4. Spatial planning	Holistic water management plans should be elaborated at local level in sub-catchment scenarios or local action plans, and developed by expert teams in collaboration with catchment officers, water managers, farmers, landowners and other stakeholders. Digitalisation of land drainage systems/water/soil/climate/geology data management system that allows for point-based analysis for the establishment of new agri-environmental measures. The right measures in the right place.

5. Agricultural advisory service/municipality and other services	The agricultural advisory service, the municipalities and other services involving water management specialists, catchment officers, catchment teams, water managers, water advisers and local facilitators need to ensure more holistic water management in close collaboration with landowners.
6. Capacity building	Capacity building requires the involvement of expert groups with a holistic view, who are searching for a "balance" and an inter-disciplinary approach based on specialist knowledge in agriculture, water, nature, biodiversity, forestry. The implementation of environmental initiatives is often highly dependent on long-term funding.
7. Education, training & support	Expert teams should support local water partnerships in terms of educational programmes andin providing training in holistic water management, the impact on water quality and quantity, agricultural practices within the context of water retention in the landscape, efficient water use and the implementation of agri-environmental measures, agrotechnical solutions etc.
8. Multi-actor collaboration	Consolidation of local partnerships, teams and networks to encourage commitment between all stakeholders in the area. Collaboration between landowners, farmers, catchment officers, catchment teams, water advisers, municipalities and local authorities to establish common objectives that generate "win-win" concepts for reduced eutrophication and increased harvest.
9. Implementation	Implementation of agri-environmental measures.
10. Monitoring effects	Monitoring the effect of all the agri-environmental measures in the landscape.

In th Waterdrive case area leaders were asked to assess whether all these steps were in place in their local area as this is crucial for actual implementation. The answer is in the table downbelow.

Steps	Lithuania	Russia	Latvia	Poland	Denmark	Sweden	Finland
Monitoring	x	x	x	x	x	x	x
Test & pilots			x	x	x	x	x
Agricultural schemes, AES	x				x	x	x
Spatial planning	x	x	x		(x)	x	x
Agricultural advisory service/municipality or other services	x		x	x	x	x	x
Capacity building			x	x	x	x	x
Education training & support	x	x		x	x	x	x
Multi-actor collaboration	x	x	x	x	x	x	x
Implementation			x		x	x	x
Monitoring effects					x	x	x

It is always important to decide who has the decision-making power and the responsibility. In the Baltic Sea Region the institutions are very differently composed, see the link Leadership "Institutional structure" scale,so this table can only give a very general answer to this challenge.

Steps	Responsibility
Monitoring	Monitoring is a state task
Test & pilots	The state secures funding for scientific studies and tests. Cooperation between researchers, The Environmental Protection Agency, Agriculture agencies, agricultural advisors and farmers
Agricultural schemes, AES	The Environmental Protection Agency and Agriculture agencies
Spatial planning	State and municipal
Agricultural advisory service/municipality or other services	Fundig of catchment officers/water advisors is a state task
Capacity building	State
Education training & support	Agricultural advisory service/municipality or other services
Multi-actor collaboration	All are responsible to secure progress
Implementation	Landowners, catchment officers/water advisors and contractors
Monitoring effects	Monitoring is a state task

Selected conclusions in Waterdrive case areas

Based on the work in 8 case case areas, leaders practical experience with the implementation of mitigation measures, focus group meetings with landowners important conditions and tools are verified for the local leaders, catchment officers or water advisors to secure local implementation of mitigation measures.

Crucial statements:

a. Longterm funding of local catchment officers and water advisors, because short term funding can´t solve complicated environmental challenges.
b. Legislation with very clear environmental and climate objectives based on local monitoring, agricultural schemes/fundig systems that promotes local implementation of scientifically proven mitigation measures with good and clear incentive structures for the landowners.
c. Longterm fundig of local multi-actor cooperation with the most important stakeholders. Securing local involving and participating processes. A task for educated and skilled local facilitators.
d. Educationprograms in communication, guidelines for mitigation measures, GIS tools, SCALGO, Trimble GPS equipment and other programmes.
e. Advisors with skills in municipal approvals of mitigation measures and preparation of funding applications to the agencies.
f. Collaboration between catchment officer/wateradvisors, landowners and the local contractors to plan and implement mitigation measures.

If these structures are not in place everyone just will waste both time and money.

Farmers Union, Vejle Municipality, Velas the advisory service and SEGES are planning the next steps. Foto Frank Bondgaard

Construction of new wetland in Västervik 2021.

"The truth of the matter is that you always know the right thing to do. The hard part is doing it."

Norman Schwarzkopf

STØTTET AF

Promilleafgiftsfonden for landbrug