

Instructions for WP4.2. report

WP4.2 Pilot case summary report

Denmark, Odense Fjord

Why this case, what is/was the challenge, who was involved and what results were gained

The challenge:

In the Waterdrive project the catchment area of Odense Fjord has been selected as a case area. In the catchment 2 subcatchments are selected, in Denmark they are called ID 15 – each cover around 1.500 hectares of arable land. There is it's around 3.000 ID 15 subcatchments in the whole Denmark.

"According to the River Basin Management Plan, nitrogen emissions to Odense Fjord must be reduced by a total of 549,3 tonnes N on 63.960 ha agricultural area. 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 expected effort with constructed wetlands is according to water plan 2 (2015 – 2021) 67,7 tonnes of nitrogen per year in the catchment area of Odense Fjord. A constructed wetland has an N-effect on approx. 580 kg N/hectare/year in average. This means that 117 hectares of constructed wetlands (67.700 kg: 580 kg/ha) should be made before 2021 in the catchment area of Odense Fjord.

Main focus in Waterdrive has been implementation of constructed wetlands, wetlands and other potential environmental drainage measures in the catchment area to Odense Fjord.

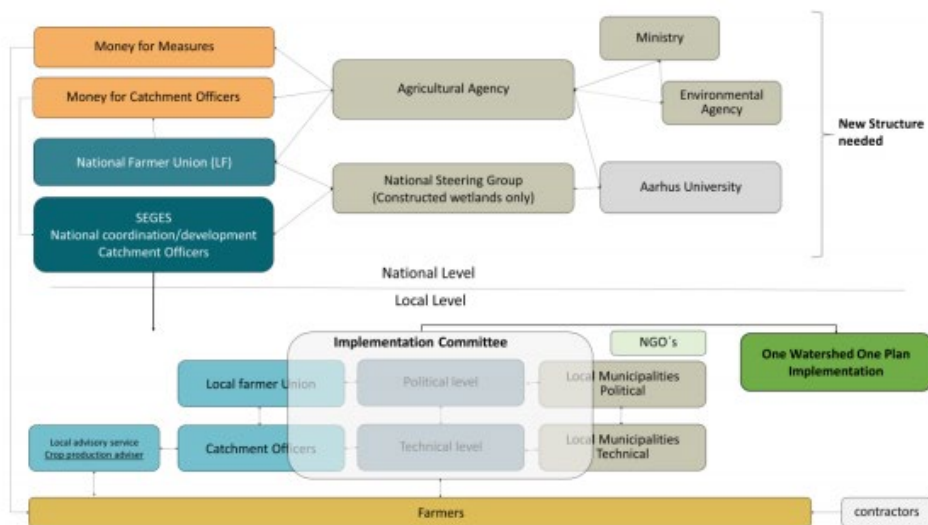
The work in Waterdrive is based on these links:

1. [Odense Fjord](#)
2. [Water area plans 2015-2021](#)
3. [Water area plans 2015-2021](#)
4. [The nitrogen effort in the catchment to Odense Fjord](#)
5. [Potential for further wetland restoration in the Odense River Catchment and nitrogen and phosphorous retention.](#)
6. [Environmental measures in Denmark](#)
7. [Success story in Denmark - Implementation of new drainage measures](#)
8. [Implementation of constructed wetlands.](#)
9. [Wetlands](#) & www.vådområder.dk

Who was involved in 2019 and 2020?

In Waterdrive we have focus on real implementation of environmental measures and the main actors until now has been farmers, landowners, the local Farmers union, [catchment officers](#), [The consulting company Velas](#) (in the start the name was Centrovic), Odense and Assens Municipality, IFRO Copenhagen University and SEGES. There has been 3 focus group meetings and the minutes are on www.waterdrive.dk under Focus groups. In 2021 we maybe shall expand the participation at a governmental level of several municipalities in the catchment to Odense Fjord. At the moment it is quite unclear because of the Corona situation.

The approach in the Waterdrive projects you see in the document [Leadership “Institutional structure” scale](#). Below a figure with a suggestion for a new better cooperation structure.



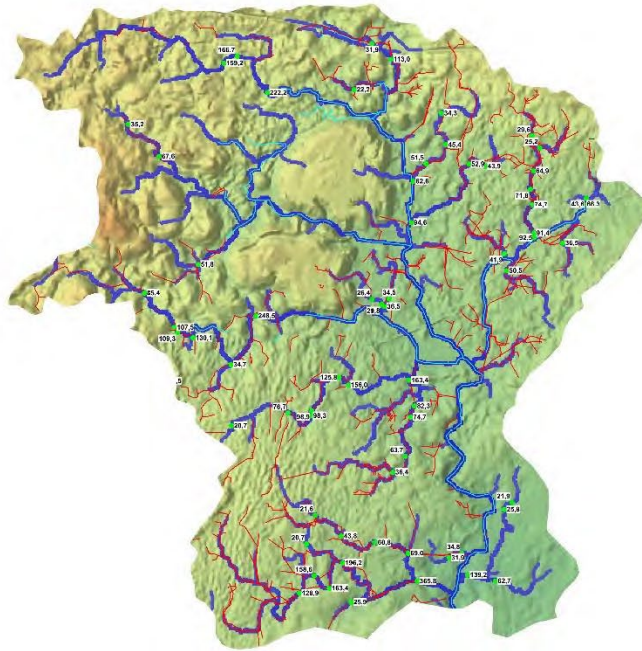
New optimized structure by Flemming Gertz, SEGES



Farmers, Odense municipality, catchment officer and SEGES. Photo Frank Bondgaard, SEGES

The results

Conclusions after researching 3.000 hectare (2 ID 15 catchments) in the Waterdrive project. The green spots show potential places for constructed wetland. An obvious project area in the start, but later proved to be a major challenge because the terrain is a palteau with very deep drains. In such an area, farmers will incur greater costs than farmers in hilly areas.



Main conclusions in the case are report from 2020:

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 unlikely 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:

1. The demands to the catchment area of having 80% area with crops in rotation (a show stopper rule at the moment)
2. Deep drains- are pumps the solution to this?
3. § 3 protected nature where we are not allowed to place constructed wetlands
4. Possible costs to pumps for 10 years – are “pump-unions” the answer to this?
5. Open drain ditches protected by § 3 in Nature Conservation Act, so we are not allowed to lead the water trough a constructed wetland
6. 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 the state) generally learned to cooperate more closely in order to see all possibilities and choose the best. We ought to have the same goals.

Report: [Implementation and investment plans in 2 ID15 subcatchments at Funen, catchment to Odense Fjord in Denmark](#)

- **WHY:** The challenge (for example: poor environmental status, weak joint action, weak adoption of new measures by farmers, weak cooperation between the stakeholders, etc etc)

Debriefing of the Waterdrive farmers in 2020:

Reflections from IFRO, Velas & SEGES on catch crops and constructed wetlands after 3. Focus group meeting in Waterdrive. See [link](#)

Catch crops

The rules for catch crops are now very complicated in Denmark. The next years the demand will be on 30-50 percent of the farmers land.

Certain catch crops have a complex set of regulations. The main practitioner (the farmer) is unable to find out for him/herself without the assistance of a consultant and even the crop consultant may be in doubt. These conditions make the regulations extremely alienating and involve shifting responsibilities. When the individual farmer is unable to determine what he/she is supposed to do, there is a risk that they will lose respect for the task and may become rather indifferent "It can't be helped if what I do is illegal" (a frequently heard statement in agricultural advisory circles).

Constructed wetlands

With regard to the establishment of constructed wetland areas, there are many barriers to be overcome. Consultants often find that when one barrier has been defeated, another one emerges. Do we really get the most environment for our money when there are such rigid regulations for everything? In any case, this means that there is a risk that the individual will feel alienated and less personally involved. Many good and different aspects emerged at the meeting. Landowners are actually ready to enter into transparent environmental contracts with clear financial agreements and with a very clear division of responsibilities if things go wrong. Responsibility could be assigned through CVR numbers. It is also clear that advice is required to set up transparent individual and collective contracts that everyone can identify with. Establishing pumps with drainage equipment is a challenge because the landowner at the end of the drainage system bears full responsibility. Moreover, the drainage water in the project area does not necessarily end up with the producer-farmer who has a catch crop requirement of 30-50 per cent. Currently, there are unfortunately no rewards to solving the challenges locally in a catchment. Establishing pumps are only an added future cost for the individual landowner to bear



Debriefing of farmers in Waterdrive under Corona restrictions- max 10 persons. Photo Frank Bondgaard, SEGES

➤ WHERE: The area description, incl a map

Waterdrive case area is in the red circle.

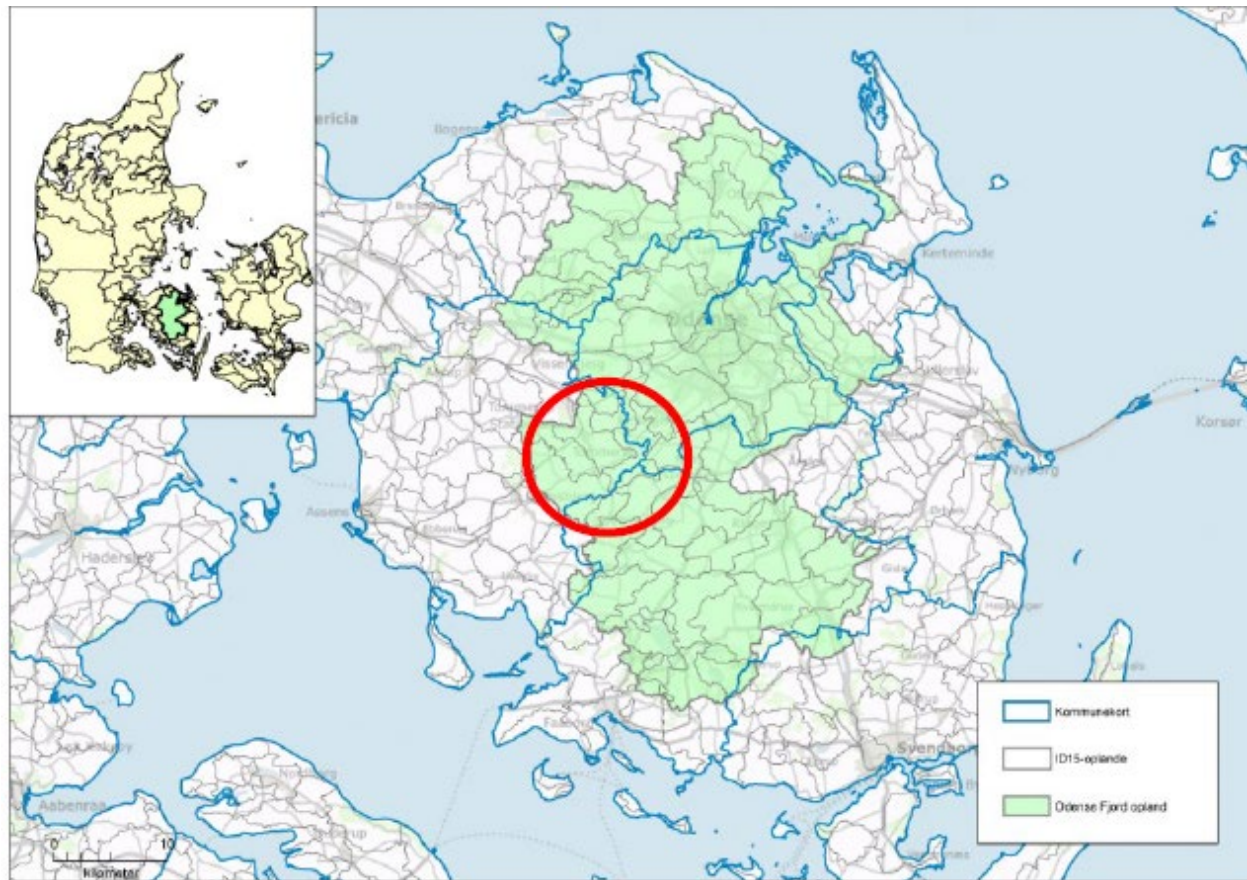


Figure 1. Odense Fjord catchment area.

See a short description of the Waterdrive case area in the report [Waterdrive case area in the catchment area of Odense Fjord](#). Based on the Danish report [The nitrogen effort in the catchment to Odense Fjord](#) from SEGES.

➤ HOW: The water governance system in the area (policies and administration)

Ministry of Environment and Food of Denmark takes care of the environmental objectives and the water governance throughout the whole Denmark. [Environmental GIS for grants to water projects.](#)

Ministry of Environment and Food of Denmark approve environmental measures in cooperation with Universities. Spatial planning for nature, wetlands, [constructed wetlands](#) ect is done on national level and municipalities level.

The Danish Agricultural Agency takes care of agricultural schemes, grants, subsidies and guidelines for all environmental measures in Denmark.

Nature Agency Ministry of Environment of Denmark & the municipalities implement nature projects & [Nature 2000 \(biodiversity\)](#), [wetlands](#) and [rewetting organic soils](#)

In general, there is a strong top down process, but everything is based on voluntariness from the landowners.

➤ WHAT are the reasons for the challenges: gaps and bottlenecks (for example: poor data, poor advice, weak cooperation, etc etc)

In general, we in Denmark have a good infra- and implementation structure. We need:

A stronger cooperation between the local municipality and the local farmers union on a political level.

A stronger cooperation between the agricultural advisory services, The Nature Agency, Catchment officers at a technical level. Funding are missing for this very important work

The scheme with catchment officer are established, but the funding structure in the future is very insecure.

Funding are missing for local skilled process facilitators. We need to work with facilitators and advisors that the farmers trust.

Compensations often do not reflect market prices and therefore nothing happens so easily. The state needs to realize that Europe is based on a market economy. Farmers want the right prices for their land.

SOLUTION: Proposal for the way forward (changes in regulation and administration, adoption of certain measures, cooperation between actors, improvement of advisory service, data collection, monitoring etc).

There is several important focus points:

1. Better feedback systems in relation to Ministry of Environment and Food of Denmark and The Danish Agricultural Agency when it don't work at catchment and farm level and there is no progress or big troubles. Who have then the lead?
2. More municipal self-determination.
3. Funding of a better cooperation. At the moment only the municipality and the The Nature Agency are most sure to get funding for their work in Denmark. More uncertain funding in the future for the [catchment officers](#). At the moment the half is paid from [Danish Agriculture & Food Council](#) and the other half from the Danish state.
4. Funding of local facilitators in complicated processes like wetlands, multifunctional land consolidation ect. It is very important that landowners trust the local facilitators.
5. Compensations always assessed after the current market price.
6. It must be easier to use the agricultural schemes. Often the schemes conflict with each other. In Denmark wetlands, rewetting organic soils, nature and multifunctional land consolidation in principle could be in one scheme. At the moment they are in several different environmental schemes – but it is the same agricultural we are talking about.
7. Approval of new environmental measures take often a very long time. Research of constructed wetlands started around 2008/2010 in Denmark and was first approved in 2017 in a pilot scheme. Research in intelligent bufferzones started in 2010/2013 and are not ready for implementation yet.

It takes 5-10 years to approve a new environmental measure. In principle, farmers should not implement new environmental measures that do not have an "effect approval" from the Danish state.
8. First movers of environmental measures are rarely appreciated. They often don't fit into the new guidelines, because everything is moving all the time. That can be a challenge or a problem.



Fieldwork. Foto Frank Bondgaard

STØTTET AF

Promilleafgiftsfonden for landbrug

Timeline: Drafts to be uploaded to Waterdrive Sharepoint under WP4.2. outputs by 10 December, final version 21 December 2020.