

# The work of catchment officers in Denmark

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WaterDrive March 26-27, Riga Latvia

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*Waterdrive*



# Agriculture in a few numbers

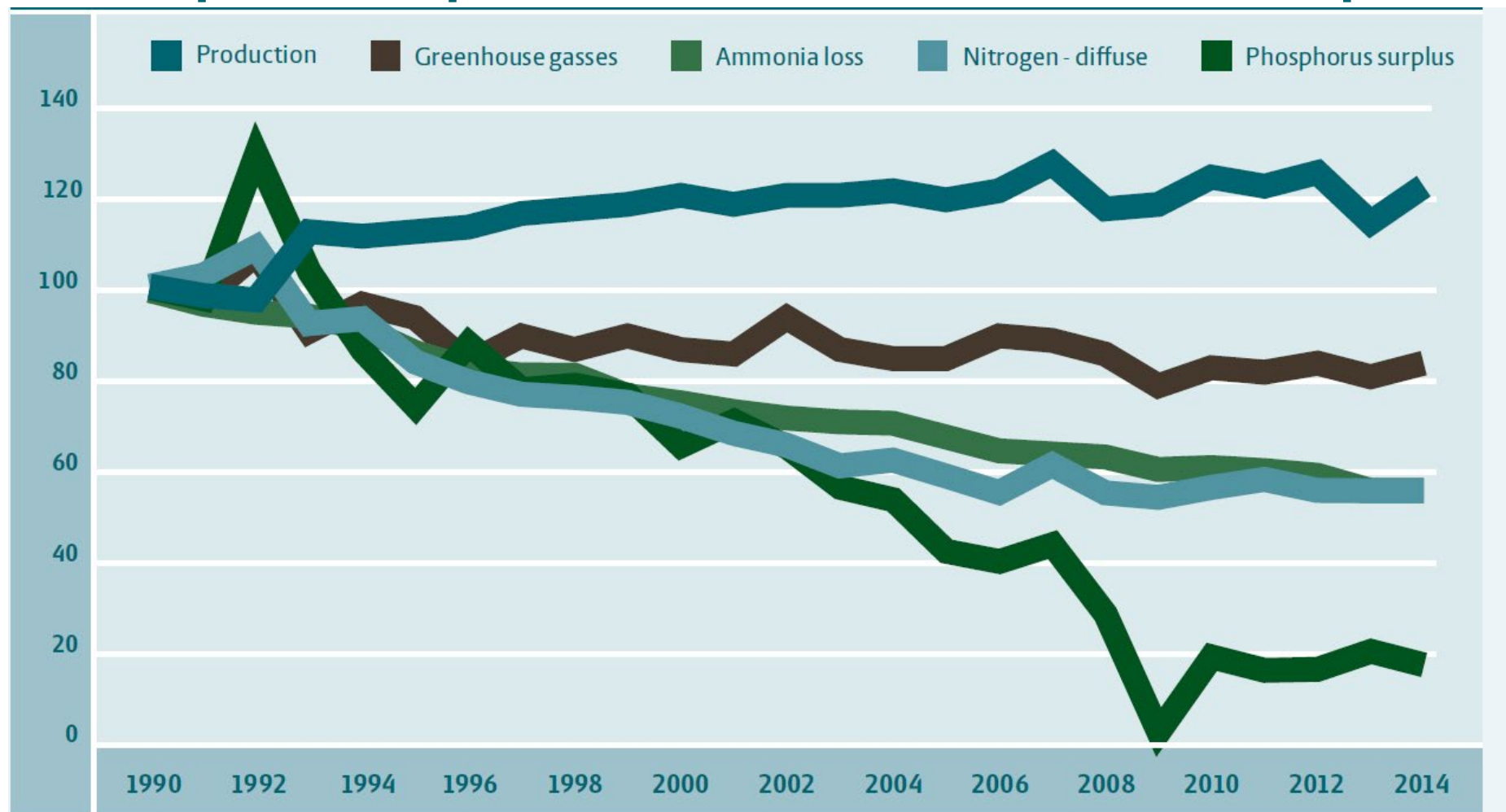
**63% of the land area of Denmark is used for agricultural production**

**62,000 people, or 2.5% of all employed people worked in agriculture**

**agriculture and food sector: 25% of total Danish commodity exports**



# Development in production and environmental impact



Source: Statistic Denmark.

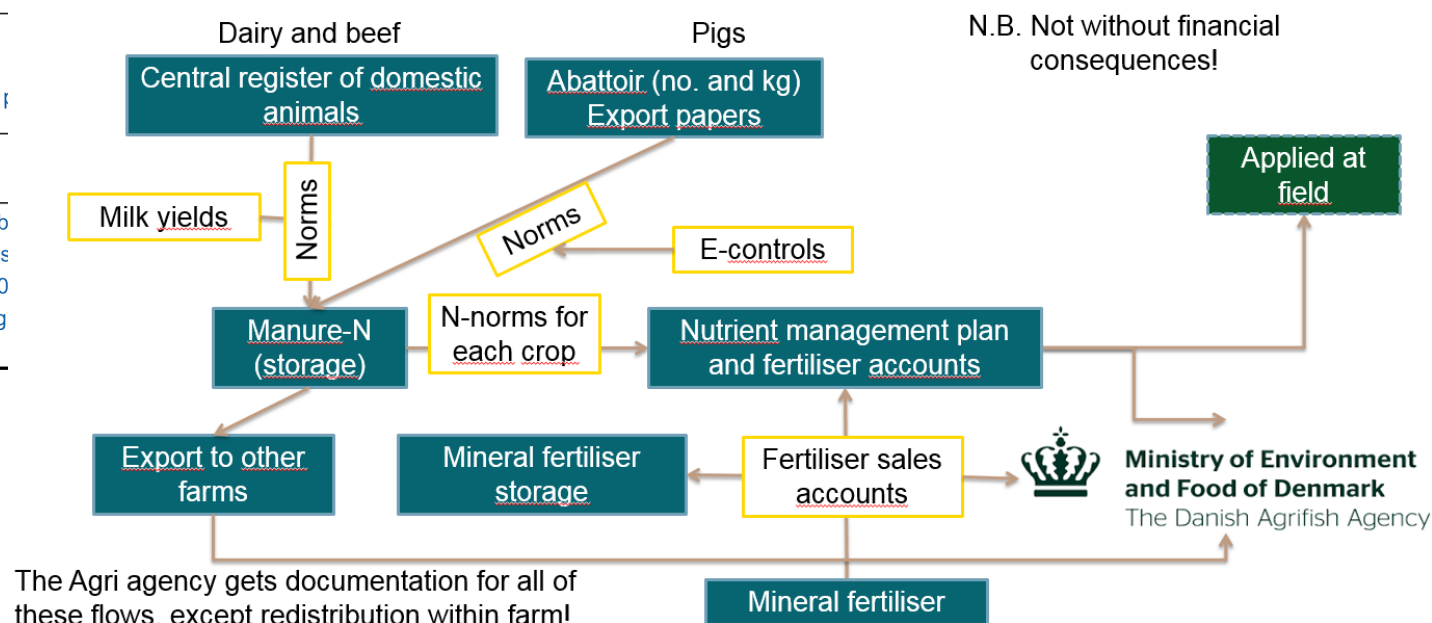
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# Legislation

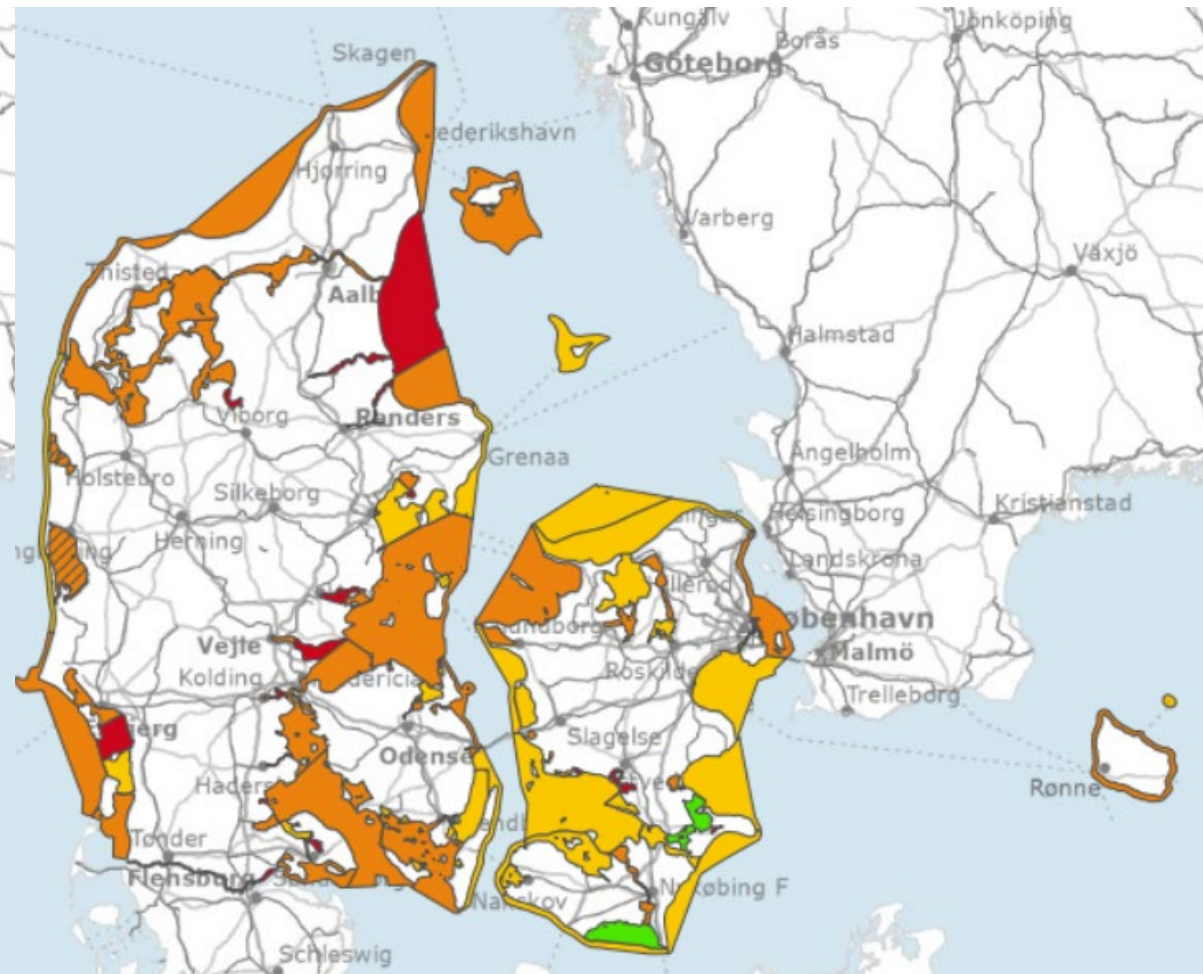
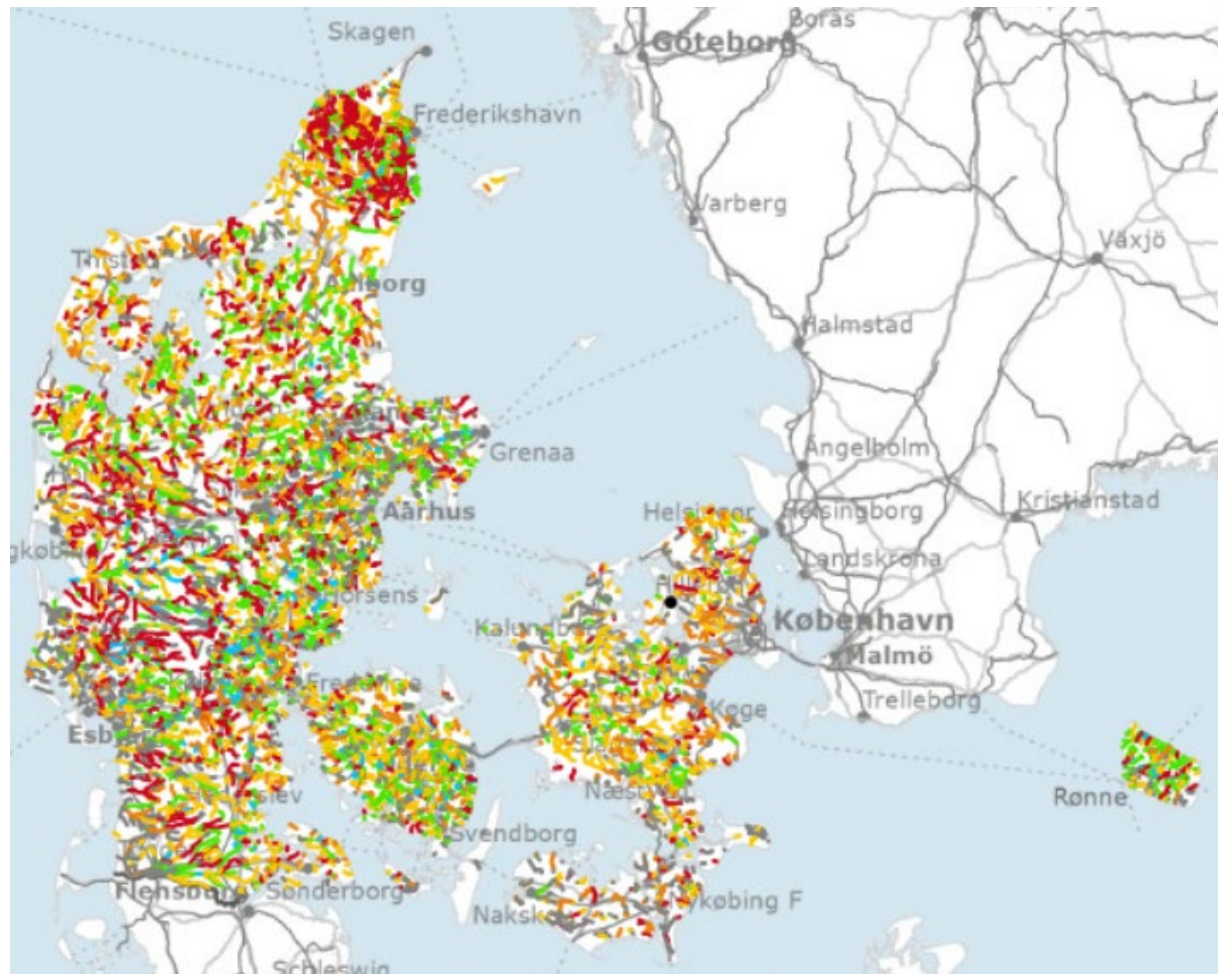
Time	Plan	Significant elements in legislation:
1985	NPO-plan	-regulation of allowed animal unit per ha. - min. storage capacity for animal manure
1987	Water Environm. Plan I	-50 pct reduction in N-leaching from agr. -65 pct "autumngreen fields" -Slurry in autumn only to wintercov. fields
1992	Action plan for sustainable agriculture	-Slurry only to grass or oilseed rape in autumn -Max. N-standards for crops (N-quota per farm) -Min. utilisation of nitrogen in animal manure -Fertilizer plans and -accounts.
1998	Water Environm. Plan II	-10 pct decrease of N-standards (The N-quota) - 6 percent "super" green fields in autumn -15 pct higher utilization of N in animal manure
2003	Water Environm. Plan III	-Target for decrease of P surplus -More wetlands - 10/14 pct. covercrops (10 at <80kg manure-N t
2011-2013	WFD	-More cover crops -Establishment of wetlands
2016	Agricultural package WFD 2. gen plans	- Area specific regulation based on need to ob - N-standards back to financially optimal levels - Raised N-standards compensated by 140.00 - Max. 170 kg N pr. ha (previously 140) for pig

## Danish fertiliser accounts and nutrient management plans – a closed mass balance based on register data

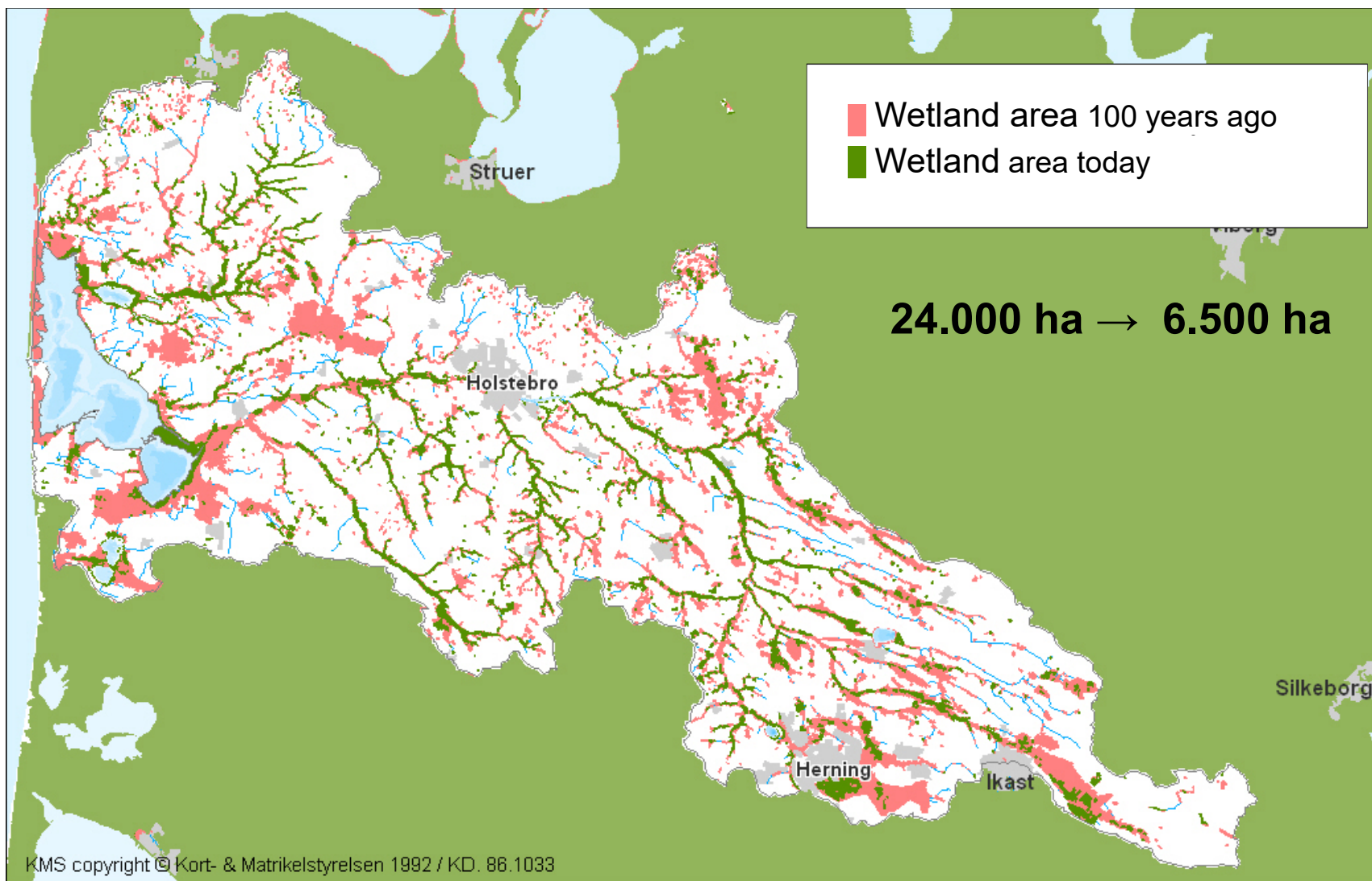




# Status in Danish waters



# Potential for reducing nutrients to surface waters

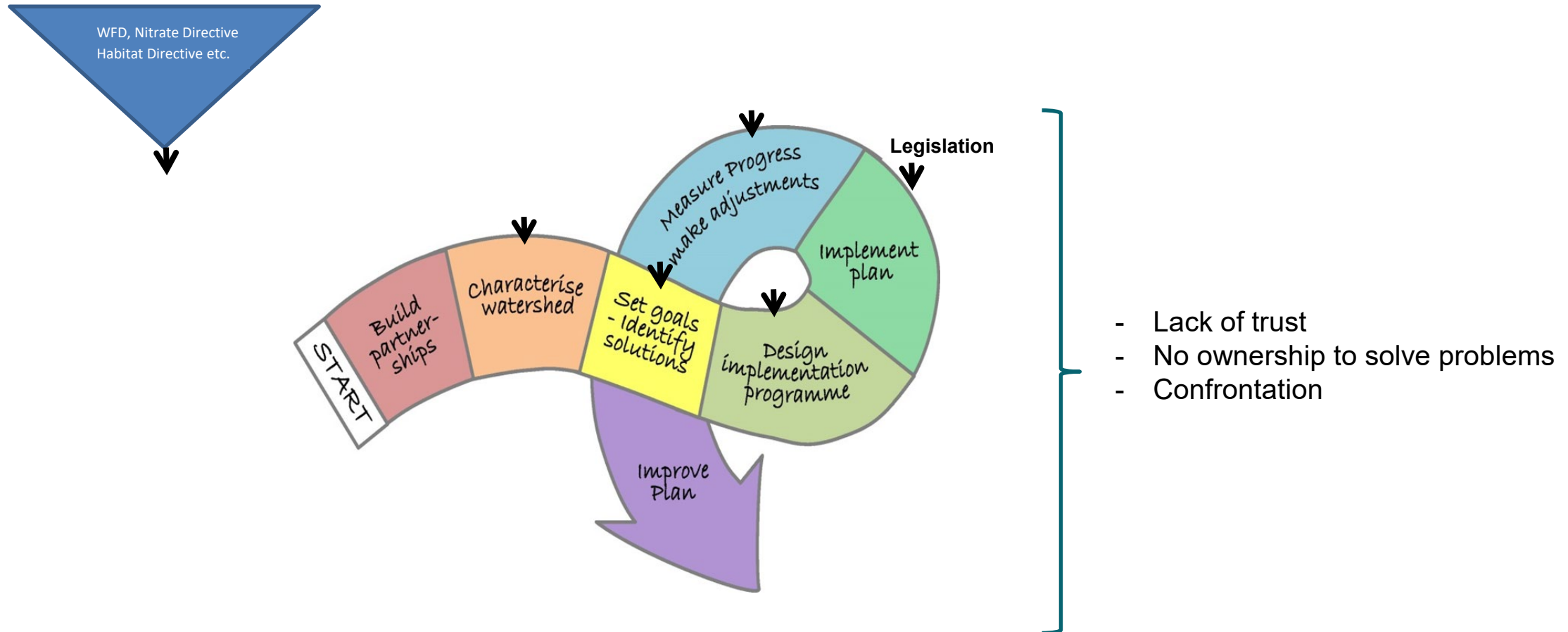


# Restore the landscape

Government decision 2015

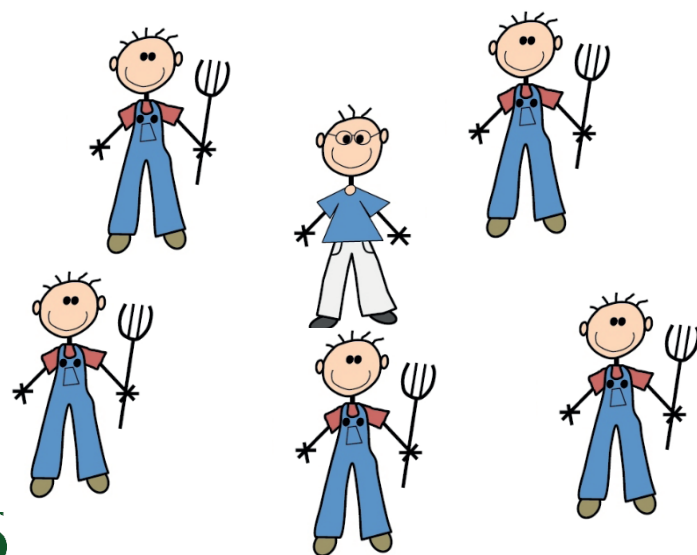
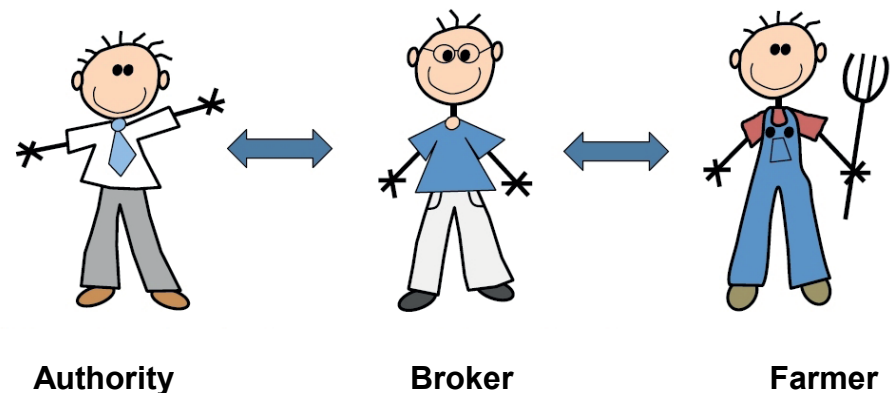
- Continue restoring larger wetlands
- Implement 900 ha of constructed wetlands (approx. 1500)
- 4 years and budget 270 million eur

# 30 years of Top down regulation - consequences

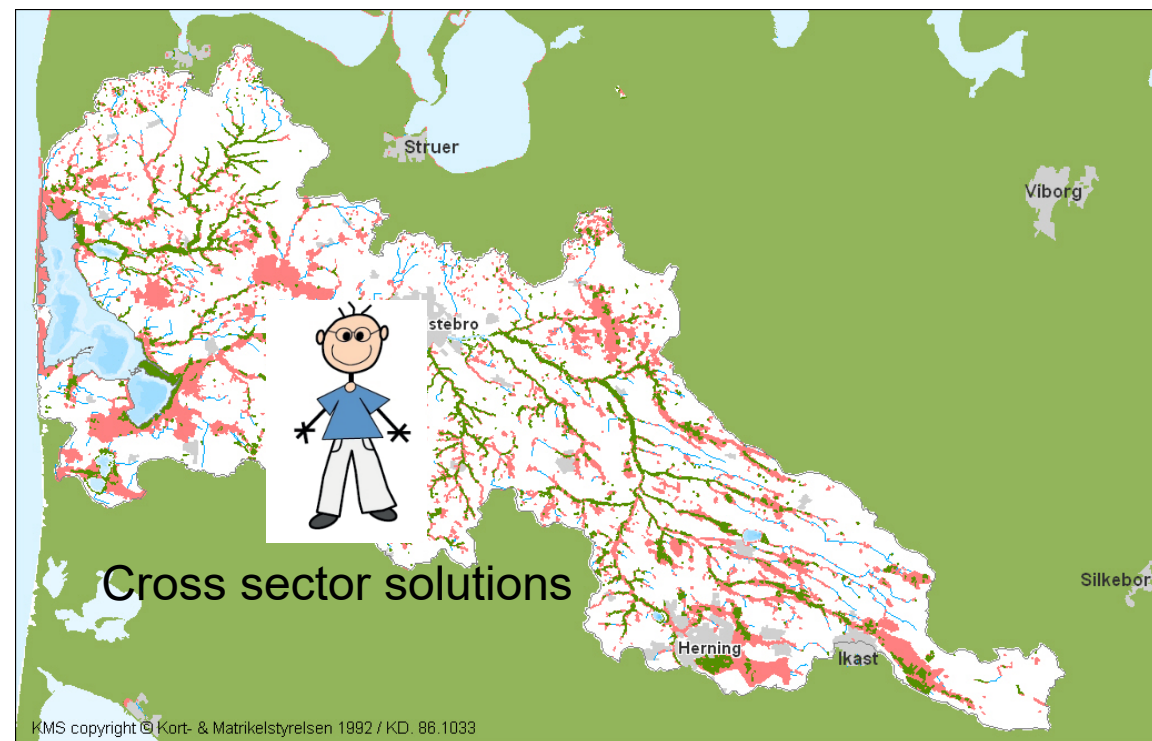




# Catchment officer



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Tested in Water CoGovernance in 2016



# Catchment officer – new concept in Danish water management

- National Program in 2017
- 25 Catchment officers (16 full time)
- Budget: 8 million eur over 4 years
- 50 % payed by farmers (farmer union) and 50 % payed by the government
- No direct payment for the farmer
- Applications for 78 projects (CW) in 2018 (46 approved, 9 started )
- Goal for 2019 are 205 ha (CW) or 250-300 projects



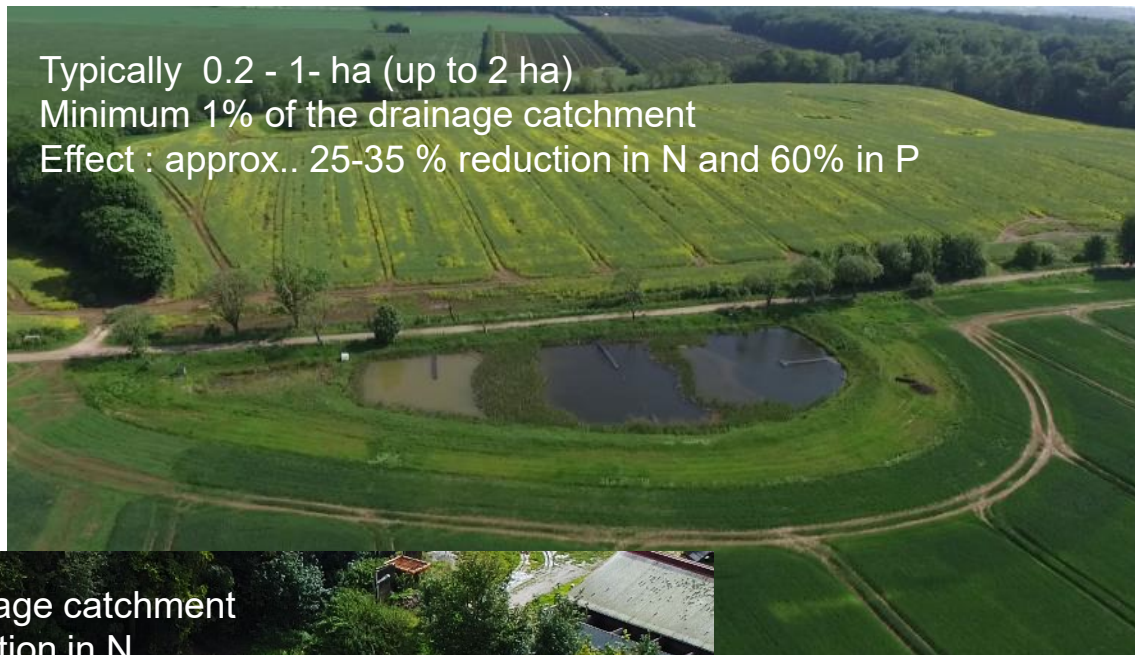


# Wetlands restoration and constructed wetlands

Typically 100-500 ha (up to 2000 ha)  
Minimum effect : 100 kg N/ha



Typically 0.2 - 1- ha (up to 2 ha)  
Minimum 1% of the drainage catchment  
Effect : approx.. 25-35 % reduction in N and 60% in P

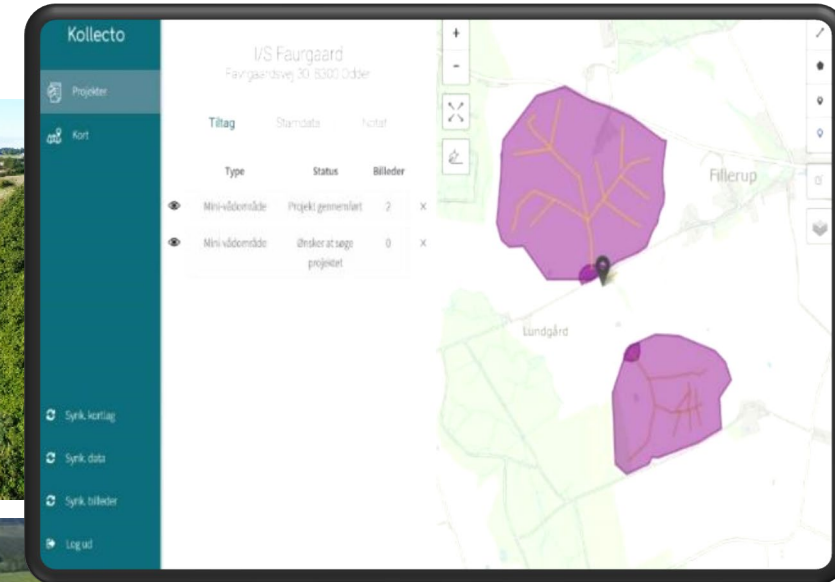
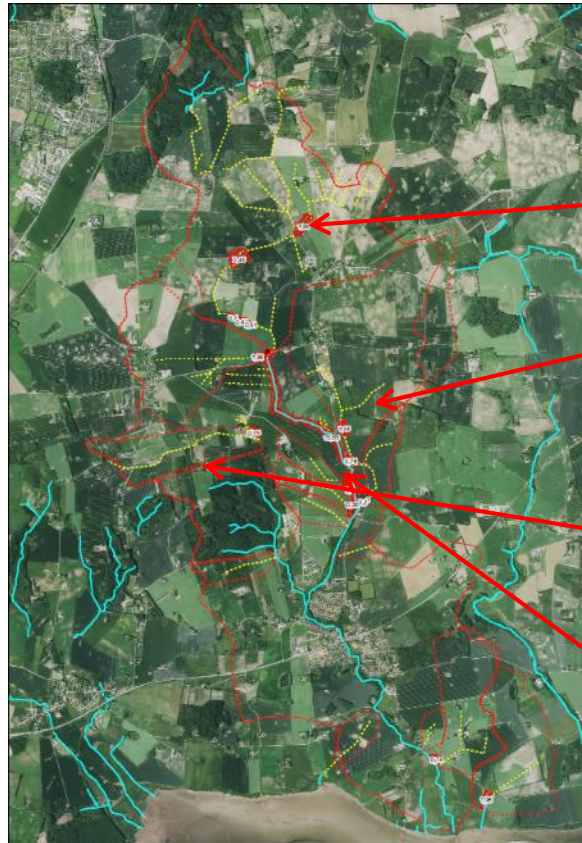


Minimum 0.3 % of the drainage catchment  
Effect : approx.. 50 % reduction in N



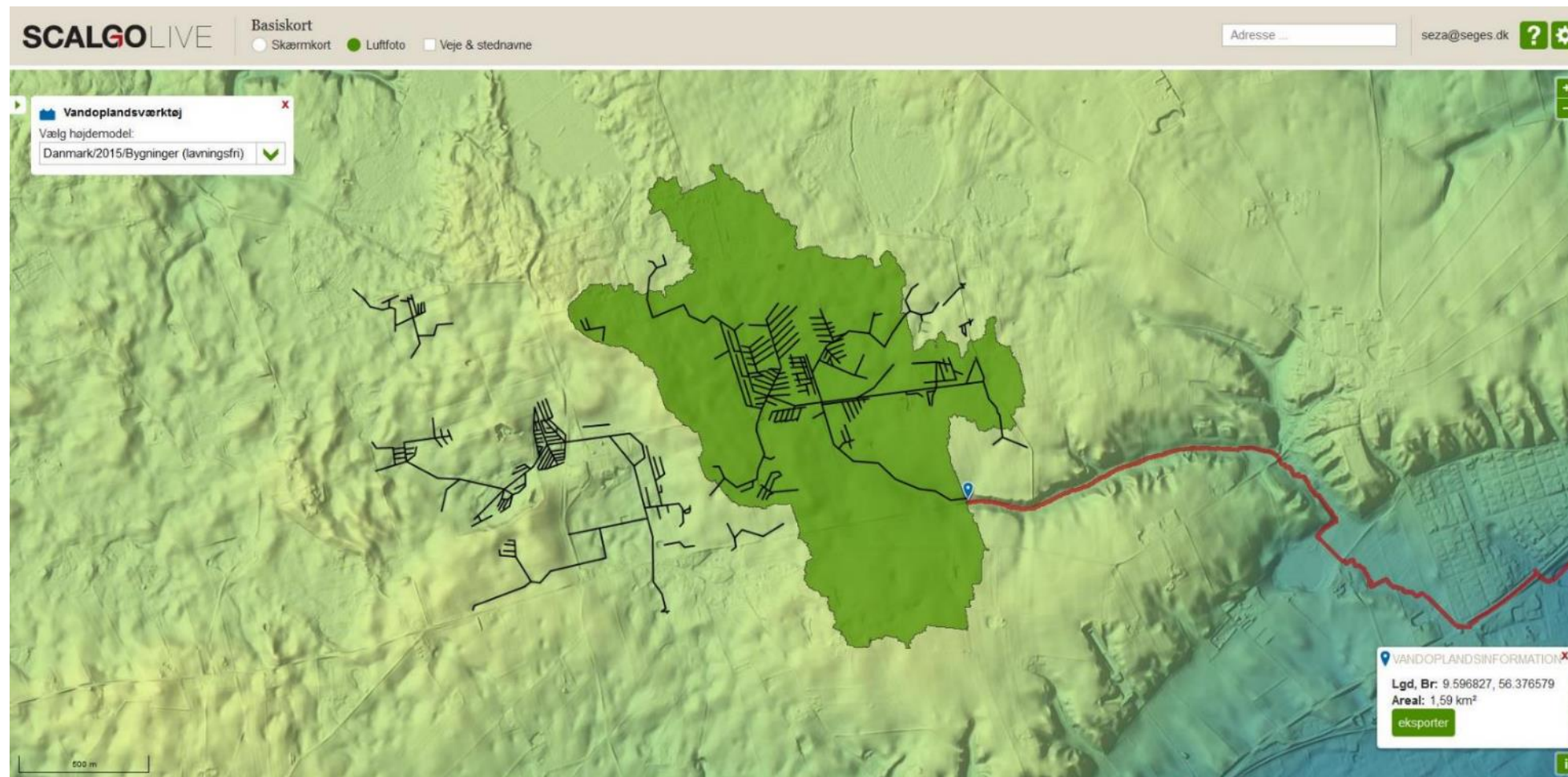


# "Kollecto" – collect data in field

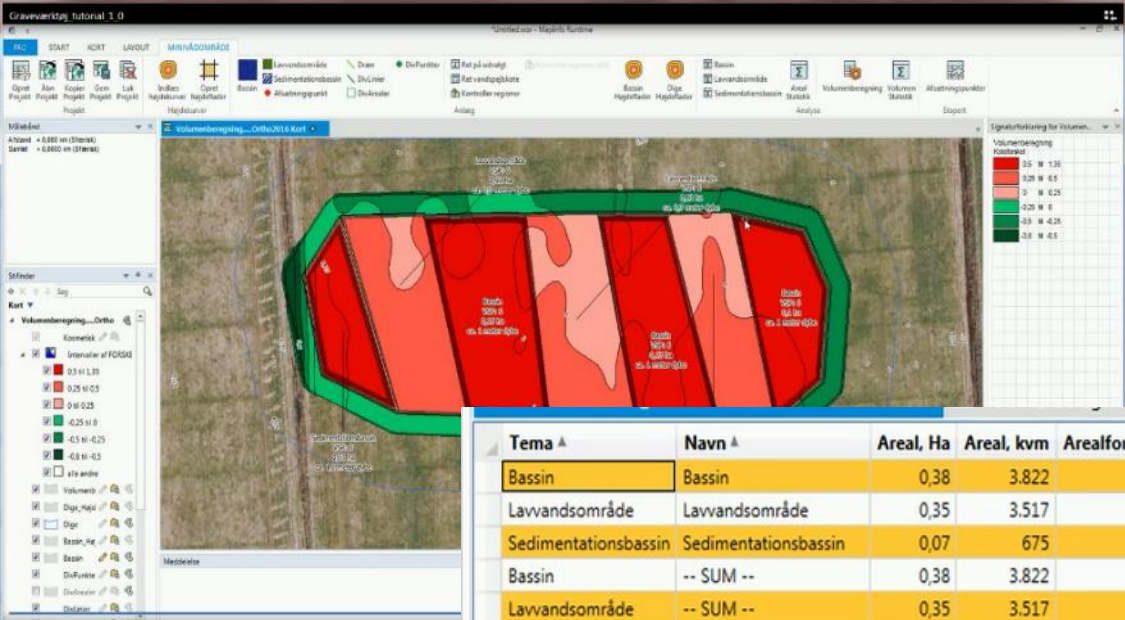
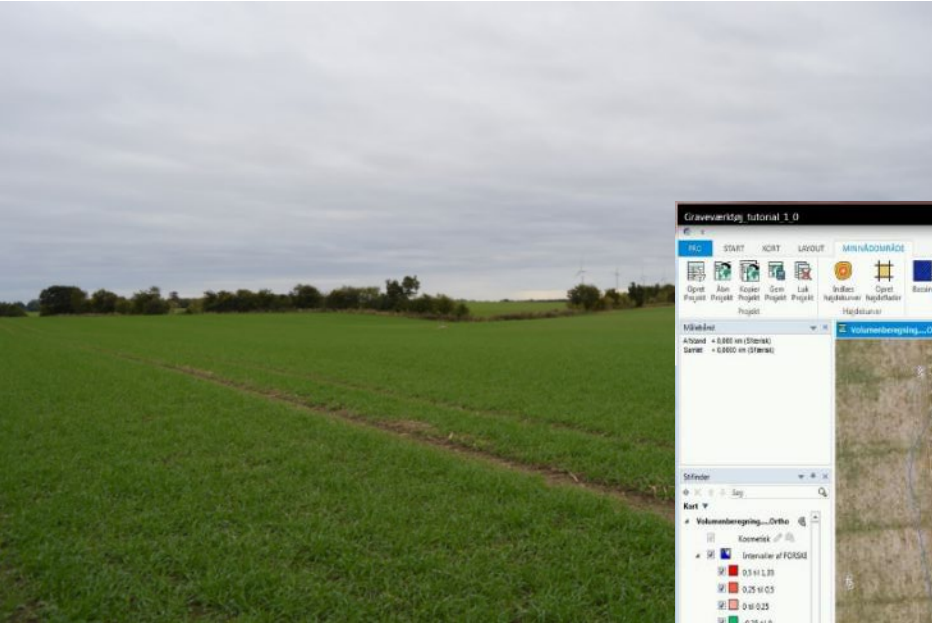




# Scalgo Live – to find drained catchment

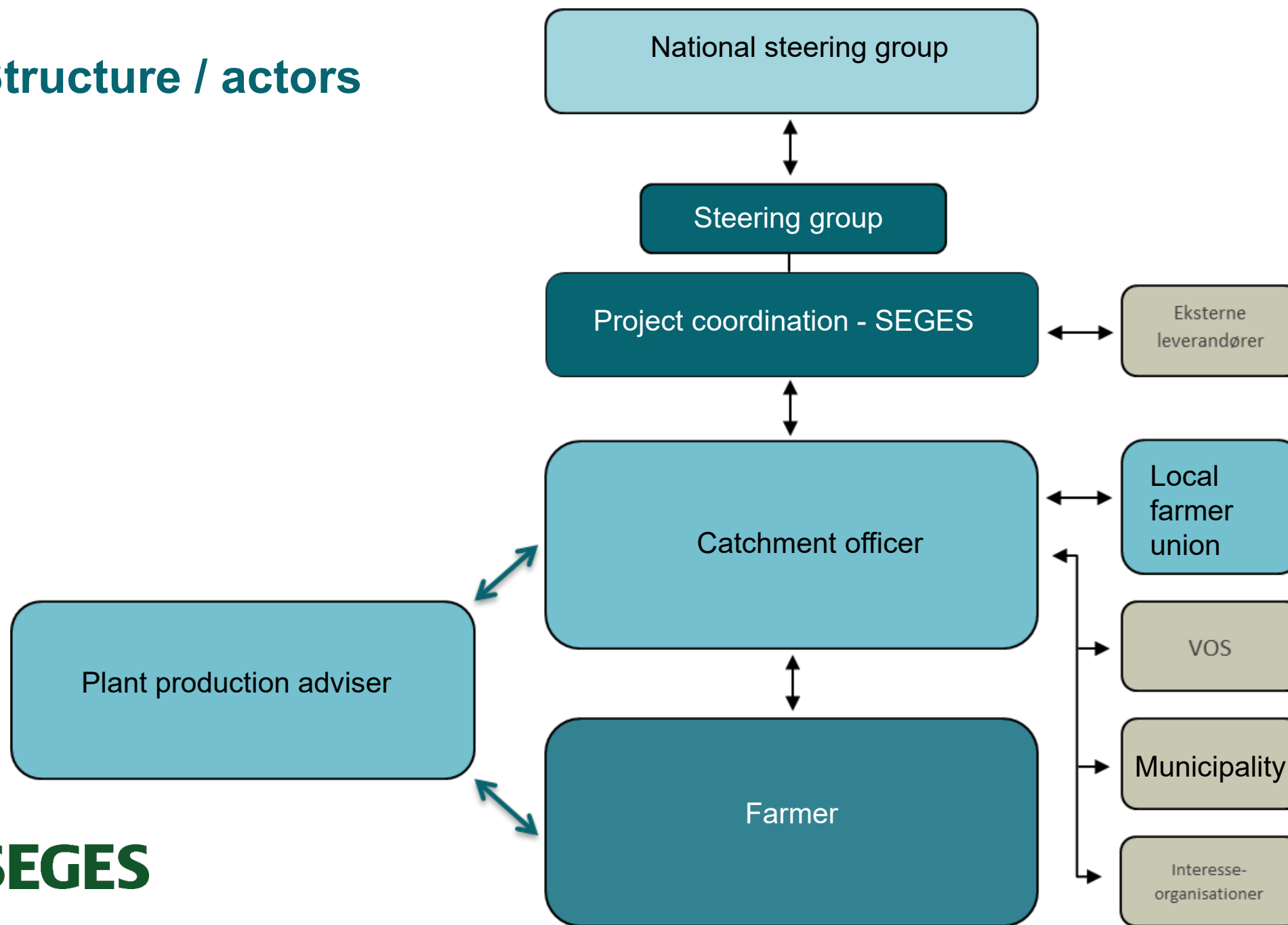


# Digital “dredging” GIS-tool



Tema	Navn	Areal, Ha	Areal, kvm	Arealfordeling, %	Afgraves, kbm	Påfyldes, kbm	Volumen, kbm	SORTERING	Tabel
Bassin	Bassin	0,38	3.822	0,0	4.108	-1	4.107	1	Bassin
Lavvandsområde	Lavvandsområde	0,35	3.517	0,0	1.107	0	1.107	1	Bassin
Sedimentationsbassin	Sedimentationsbassin	0,07	675	0,0	731	0	731	1	Bassin
Bassin	-- SUM --	0,38	3.822	47,7	4.108	-1	4.107	2	Bassin
Lavvandsområde	-- SUM --	0,35	3.517	43,9	1.107	0	1.107	2	Bassin
Sedimentationsbassin	-- SUM --	0,07	675	8,4	731	0	731	2	Bassin
-- SUM --	-- SUM --	0,80	8.014	100,0	5.946	-1	5.945	3	Bassin
Dige	Dige - Indvendig skrænt	0,01	136	0,0	0	-29	-29	1	Dige_H
Dige	Dige - Kronetop	0,20	2.005	0,0	0	-640	-640	1	Dige_H
Dige	Dige - Udvendig skrænt	0,03	261	0,0	0	-56	-56	1	Dige_H
Dige	-- SUM --	0,24	2.402	100,0	0	-725	-725	2	Dige_H
-- SUM --	-- SUM --	0,24	2.402	100,0	0	-725	-725	3	Dige_H
-- SUM --	-- SUM --	1,04	10.416	0,0	5.946	-726	5.220	1	TOTAL

## Structure / actors



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# What do we need

- More cross-sector thinking/solutions (Nutrients, water, climate, nature)
- New local structure for corporation – local based planning
- Better bottom-up / top-down interaction in the Danish governance



Thankyou for your attention

