

Soils2Sea: Future governance approaches for reducing excess nutrients at local farm scale – Part II

15-16 November 2016 | Jordberga Gård, 231 99 Klagstorp, Sweden

Programme	
Tuesday, 15 November 2016	
From 16:00	Arrival - welcome coffee & introductory round
17:30	<p>Film Screening of Soils2Sea – the Movie</p> <p><i>The film script was developed and produced by Grit Martinez (Ecologic Institute, Berlin) and Anne Berrini (Berrini films, Berlin) and is approaching the goal of BONUS Soils2Sea - to develop local level solutions to reduce agricultural pollution in the Baltic Sea - from a socio-cultural and historical perspective with a special focus on the Soil2Sea. case study site in Poland</i></p> <p><i>All workshop participants are very welcome to join the film screening</i></p> <p>Discussion</p>
19:00	Networking Dinner at Jordberga Gård



Wednesday, 16 November 2016	
9:00 – 9:30.	Arrival - welcome coffee
9:30-10:45	<p>Opening and Welcome to the Workshop <i>Otto von Arnold, Chairman, Tullstorpsån project & Grit Martinez, Ecologic Institute</i></p> <p>The Tullstorpsån project <i>Katrine Möller Sörensen, Project leader, Tullstorpsån project</i></p> <p>Setting the Scene: Project Results from Sweden <i>Ida Morén (KTH)</i></p> <p>Looking back and ahead: The socio-cultural dimension of agricultural practices in Sweden <i>Grit Martinez, Ecologic Institute</i></p> <p>Views and experiences from the County Administration Board of Skåne <i>Karin Olssen, County Administration Board of Skåne</i></p> <p>The future: Storylines and Scenarios for the coming years <i>Nico Stelljes, Ecologic Institute</i></p> <p>Discussion</p>
10:45 – 11:00	Coffee Break
11:00-13:00	<p>Group discussions of the scenarios</p> <p>World Café <i>Table 1: centralized scenario</i> <i>Table 2: flexible management</i> <i>Table 3: self governance</i></p> <p>Reporting back from the group discussions</p> <p>MoSCoW Prioritisation Method <i>Table 1: centralized scenario</i> <i>Table 2: flexible management</i> <i>Table 3: self governance</i></p> <p>Reporting back from the group discussions</p> <p>Wrap-up and closing of the workshop <i>Chantal Donnelly and Nico Stelljes</i></p>
13:00 – 14:00	Lunch
14:30 – 17:00	<p>Site visit to the Tullstorpsån project <i>A guided tour by Katrine Möller Sörensen, Project leader, Tullstorpsån project and Otto von Arnold, Chairman, Tullstorpsån project</i> <i>Optional for all workshop participants</i></p>
17:30 – 18:30	Visit to Hönsinge Hantweksbryggeri, a local microbrewery in Klagstorp
19:00	Networking Dinner, Smygehus Havsbad, Smyge Strandväg 136, Smygehamn

Summary of the Workshop

Introduction

The second BONUS Soils2Sea workshop in the Swedish case study region was held on 15-16 November 2016. The workshop took place at Jordberga Gård, within the Tullstorp catchment area. It started in the afternoon of November 15th with the Polish and Swedish stakeholders introducing themselves and getting to know each other. This welcome round was followed by the screening of the documentary film "Soils2Sea: Reducing nutrient loadings into the Baltic Sea". The movie illustrates the societal story of implementing the EU's nitrate directive at regional realities in the EU member states, particularly in the Kocinka catchment area in south central Poland. The 35-minute film can be seen at the BONUS Soils2Sea website (<http://ecologic.eu/14284>). It was developed and produced within BONUS Soils2Sea by Grit Martinez (Ecologic Institute) and Anne Berrini (berrini films) with support from Przemyslaw Wachniew (AGH University of Science and Technology Krakow). Filmed across several small and larger scale farms in the Kocinka catchment, the film features perceptions, interpretations, and suggestions for actions by farmers, water treatment specialists, local policy makers, and scientists from an observatory perspective. Polish stakeholders were invited to join this workshop in order to start a first exchange and uptake of project results. During the following dinner, participants had the chance to discuss the issues portrayed in the film and find out more about the Kocinka catchment, with most of the farmers that were portrayed in the film being present at the workshop.

On November 16th the workshop continued at Jordberga Gård with a total of 27 people attending. The participants were project partners from BONUS Soils2Sea, Polish and Swedish farmers, actors from the community Mykanow, a representative from a fishing association, the Länsstyrelsen Skåne (The County Administrative Board Skåne), and Havs- och vattenmyndigheten (Swedish Marine and Water Authority) (see Appendix 2 for list of participants).

In the first part of the workshop, Otto von Arnold, our host at Jordberga and Chairman of the Tullstorpsån project warmly welcomed all participants and provided some first insights into the the Tullstorpsån project, an effort to restore the 30 km long Tullstorp river and creating around 50 wetlands in its immediate vicinity. He emphasized the grassroot approach of the project, that has been focusing on 'carrots' rather than 'sticks' when involving the surrounding farmers as key actors within the project. Otto's presentation was followed by Katrine Möller Sørensen, Project Manager for the Tullstorpsån project, who provided details on the numerous goals of this pilot project, such as reducing flooding, increasing biodiversity, achieving a good ecological status, and ultimately reducing nutrient loadings in the Baltic Sea. Sørensen also outlined the project's development since the first idea came up in 2008. Karin Olssen from the County Administration Board of Skåne gave an introduction to her agency and its role as funder of the project. She outlined four crucial factors that have contributed to the project's success and goes into detail of each of the four: a holistic approach, collaboration, local commitment and the necessary financial resources. Ida Morén, KTH, and Grit Martinez, Ecologic Institute, provided insights into the BONUS Soils2Sea project's activities and results. Nico Stelljes, Ecologic Institute, introduced the workshop methods and the scenarios to be discussed during the World Café in the afternoon.



World Café and MoSCoW on Scenarios

BONUS Soils2Sea has an objective of developing proposals for new governance regimes suitable to spatially differentiated nutrient regulations. The group work aimed at obtaining stakeholder views on the governance issues. For this purpose three governance regimes (Appendix 1) were outlined (see more detailed descriptions below):

- Scenario A – centralised
- Scenario B – flexible (marked oriented)
- Scenario C – self-governance (water boards)

The group work was divided up into three sub-groups, and seated at three tables, according to the World Café method. While one group consisted of the Polish stakeholders, the Swedish stakeholders were split up into two groups. Each group discussed all three governance scenarios. Subsequently, the findings were prioritised using the MoSCoW method.

The key conclusions to the questions from the groups are given in the following. Given this special setting, the conclusions describe the views of the Polish and Swedish stakeholder groups separately.

Scenario A: Centralised

“In the ‘Centralised’ context, the State makes all decisions on the use of measures, including fertilisation norms, at farm or field level. The government uses retention maps at a low resolution (e.g. 15km²) to produce spatially differentiated regulations for land-use. This differentiation can increase the effectiveness of catch-crops, constructed wetlands, and help to define fertilisation norms. Government monitors at large catchment level to evaluate if N reduction targets to coastal waters are met. To monitor and control implementation, farmers are required to report detailed plans for cropping systems and fertilisation. Farmers fulfilling the government requirements receive subsidies from the EU CAP.”

This scenario was rated rather negatively by the Swedish stakeholders. It can be unfair or affect certain landowners more negatively than others. In principle the stakeholders characterized this scenario as a one size fits all approach with no flexibility. Local knowledge and local variations are not acknowledged and will eventually be lost. Enforcing such a scenario would require large and expensive monitoring and control activities by authorities. Stakeholders also stated that this approach would not be compatible with current monitoring in the Water Framework Directive and would be very expensive and lack acceptance if enforced.

The Polish stakeholders stated that the issue of centralizing is a trend in Poland, so this scenario might become reality in Poland in the future. Stakeholders have the impression that authorities in this scenario would only manage the guidelines from national or EU level and no actual decisions would be taken on the local level. To manage these implications in the best way and in the interest of the farmers, an expert is needed. This expert would function as bridge between national and local/farmer level, giving the farmers advice for example how to apply for subsidies or inform about new regulations. This person would be an agricultural advisor located at commune or regional level. Another issue that was raised concerned the implications of reducing fertilizer use for the already low efficiency of farming. Farmers would need subsidies, if fertilizer use has to be reduced. But overall, the stakeholder did not perceive this scenario as generally negative. If regulations are set very clear, fair, and easy to follow, this would be even a positive scenario giving the farmers more time to concentrate on farming and take the burden off them to perform too many administrative tasks.



Scenario B: Flexible (marked oriented)

“Under the ‘flexible management’ scenario, authorities and farmers work together to reduce N emissions through a market-based ‘cap and trade’ system. This would be initiated by government authorities per catchment, with all farmers obliged to participate. Based on retention maps with relatively high resolution (e.g. 25 ha), permits for N loading are distributed on a field basis. The community of farmers can trade N load allowances amongst themselves. To document compliance each farmer reports with detailed plans for cropping systems and fertilization (as in Scenario A). Non-compliance with individual allowances is sanctioned by forfeit of a deposit that is then passed onto other farmers for carrying out mitigation measures. Government authorities can intervene in the market by buying up or selling permits from the system to reduce or allow increases to N loads. The government performs control monitoring at catchment level to evaluate if the reduction targets to the coastal waters are achieved.”

Generally, the Swedish farmers were negative towards this scenario. A main issue was that this approach would be very complex to administrate and govern, and the administration could cost more than the gains. Especially the technical implementation based on the retention maps was doubted. The accuracy of the maps was addressed and said that resolution of 25ha does not capture the local variations in some cases. It has to be ensured, that maps can be trusted. Therefore underlying maps and modelling tools would have to be much better than we have available today. It was also mentioned that N and P have to be addressed together. Another problem that was stated was that there is an insufficient data basis available. Especially information of extend and function of tile drainages is missing for many fields. But also knowledge of the effects of changing crops to their allowed loads as well as simply using the best science available for determining fertilisation amounts is needed.

This call for strong Farm Advisory Services, the program 'Greppa Näringen' was stated as a good example.

Generally the Polish farmers were more positive than the Swedish stakeholders; especially the idea of trading N-licenses was seen as a possibly good idea. But in order to be a successful scenario the regulations have to be understandable and very clear rules for subsidies and sanctions are needed. To create such regulation, cooperation within different sectors on the ministry level is recommended. But these regulations stemming from the national or EU level should be adjustable to the local circumstances. A project manager/expert on the local level should be installed. The issue of monitoring was raised as a problem, because it can be very costly. A third party or an authority should be responsible for the monitoring. If farmers have to take this burden, they should be compensated. Within the Kocinka Catchment, there are a lot of different farmers (over 160), this would hinder an effective cap and trade system.

Scenario C: Self governance (water boards)

The 'self-governance' approach describes a low level of State involvement in the management, monitoring and control of N loading. This scenario places a focus on the self-governance of farmers within one catchment. Farmers in the catchment self-organize, (e.g. forming a water council) to decide on measures to reach government-set targets. Detailed retention maps - at 1 ha resolution - have higher uncertainty, but can be used by farmers as a tool for spatially differentiated management of the catchment. A system of self-monitoring is established to check and modify the retention maps and ensure that the target goals are reached (e.g. monitoring at a field or sub-catchment level). Authorities support the process of self-monitoring by providing financial and technical support and information (e.g. establishing a water council with a technical support, detailed retention maps, monitoring process support). The authorities will monitor only the entire catchment at the outlet. The allocation of EU CAP subsidies is based on reaching the target loads for the entire catchment and their distribution is negotiated between the farmers. If farmers/water council cannot agree on a plan for implementation, the State will impose a central regulation based on Scenario A.

For the Swedish Stakeholder, this scenario would put a high level of responsibility on them. Acceptable goals for all stakeholders and yearly variations of yields should be taken into account. It would require of clear and comprehensive data and retention maps. These should be provided by the authorities (basically the same authorities would be involved as today), which have rather a supportive and consultative role in this scenario. For example, authorities could provide satellite imagery or incentives to use new technologies for monitoring. It was also strongly recommended to make use of landowners' knowledge and the monitoring technology that is already available on the market. For example a machine cooperation among farmers could be a good idea. The aspect of differentiated regulation could be of good use for this scenario, implying great responsibility for the farmers for implementing and achieving the goals and self-monitoring. Although the farmers in this specific area have managed to cooperate in questions considering water management and the environment there is an imminent risk for disagreements between stakeholders if government-set targets are difficult to reach. A good and established communication procedure between farmers and authorities and among the farmers themselves was seen as very necessary. Overall, this scenario could be fairer for individual farmers, and as one stakeholder stated, it could create a 'positive peer pressure' among the farmers.

A first issue that was addressed by Polish Stakeholders was that not only farmers contribute to the eutrophication problem in the Kocinka area and everybody contributing to the problem should also help to solve the problem (for example, households should be connected to the sewage system). But

in order to work, a cooperative among the farmers is needed. This is seen as rather unrealistic, because they too are many farmers in the catchment and previous experiences with cooperative have failed. Also a strong leadership for this cooperative would be necessary (which is at the moment lacking), in order to steer the group of farmers but also to negotiate with regional or national authorities. The presented Tullstorp Span project was seen as a good example, especially because they managed to collect subsidies for their work.

But overall, this scenario was seen as a fairy tale and was seen as very unrealistic. It would take a lot of effort (time, money, knowledge) that would keep them from farming. Stakeholders are even afraid to lose power as individual farmer in this scenario, because decisions have to be taken in a group and not on their own.



Final plenary

The views expressed at the tables were presented and briefly commented in plenum. Subsequently, Nico Stelljes thanked the participants for having spent time providing valuable inputs to the research projects and invited the participants to join the following excursion to the Tullstorpså-Project.

Excursion

1. Tullstorpså

Following the workshop, an excursion to the Tullstorpså, the Tullstorp river, was organized. The Polish delegates together with Swedish farmers were guided by the Project Manager Katrine Möller Sörensen. The site visit provided some practical insights on how the project was implemented and the actions that have been taken since its beginnings in 2009. We visited three sites, where measures of renaturation and constructed wetland have been implemented.

More information about the project can be found here: <http://www.tullstorpsan.se/>



2. County Administration Board of Skåne

On November 17th the Polish delegation was invited to the County Administration Board of Skåne, where the tasks of the board were introduced. First, Karin Olsson, who also participated in the workshop in Poland, explained that the function of the Board is to be a representative of the state and serves as a link between the inhabitants, the municipal authorities, and the national state authorities. Water is an important topic for the board, because they deal with drinking and waste water issues, but also with the different EU directives (like Water Framework, Nitrate or Habitat directive). They are also responsible for the approval and monitoring of measures like constructed wetlands or meandering of rivers. In a second presentation, the focus was on the financing of water-restoration measures. Different schemes can be utilized for financing these measures, like the Landsbygdsprogrammet (the rural Development Programme), LOVA (local water projects) or EU-LIFE projects. The Tullstorpså-Project is one example of how restoration measures can be financed and implemented.

Concluding, the trip to Malmö was completed by a guided tour through the old town of Malmö.



Outlook

The workshop was the second workshop in the second round of workshops at the BONUS Soils2Sea Case Study sites. Workshops in Denmark and Poland were undertaken with a similar approach with similar scenarios in Denmark and slightly different scenarios in Poland as basis for discussion. The results from these workshops as well as the results from the first round of workshops will feed into a BONUS Soils2Sea report on new governance concepts to be published in 2017.

The workshop was also used as the first part of an exchange and uptake of results that is foreseen in the project.

Appendices

1. Group work – scenarios
2. List of participants

Scenarios for the workshop in Klagstorp, Sweden, 16 November 2016

Background

In Sweden, total allowable organic fertiliser inputs to crops are defined by the national government and targets for load reductions to surface waters and total loads to the Baltic Sea basins have been set via the WFD and HELCOM. Yet imagine that we as stakeholders have the possibility to influence the way in which nitrate loads are managed under the third WFD implementation cycle (2021-2027). We would like to have a discussion of the three alternative governance scenarios outlined below. Rather than regulating what farmers may put on crops, we suggest a form of governance where farmers are regulated by the loads from their fields (or in the nearest waterway). These scenarios differ in the degree and approach to centralised/decentralised decision making and the data used to plan and monitor the regulation.

Spatially differentiated measures

Spatial targeting of mitigation measures has the potential to produce economic and environmental benefits. Between the rootzone of crops and outflow to streams, Nitrogen is reduced in the groundwater. This is called groundwater retention. How much reduction occurs in the groundwater varies with factors including the soil-type, soil depth, slope and how much tile drainage there is. If the retention is high, lower amounts of N reach the stream. We could therefore exploit this fact by relocating crops with larger nutrient needs to fields with higher retention.

In the Norsminde and Odense catchment area (Soils2Sea Case Study area in Denmark), 10-20% extra nitrate reduction can be obtained in the subsurface through optimal spatial location of crops. We estimate that similar gains could be made in Tullstorp. Further gains can be made through optimal location of constructed mini-wetlands, but also of in-stream mitigation measures prolonging the transport times, increasing the uptake in vegetated zones or enhancing filtering in streambed sediments. Altogether there can be substantial economic and environmental gains, because it will be possible to produce the same crop yield with reduced nutrient load or increased crop yield with unchanged nutrient load.

To exploit the full potential of spatially targeted measures, retention maps with a fine spatial resolution (1- 25 ha) are necessary. However, in Denmark for example, the level of uncertainty associated with maps at this resolution is seen to be too high for use in government regulation. For this reason, the Danish government currently uses retention maps at around 1500 km² resolution, while expecting to improve this towards 15 km² resolution in the future. Although 1500 km² resolution maps have a lower level of uncertainty they also cancel out almost all economic and environmental gains of a spatially differentiated approach.

Scenario A

In the '**Centralised**' context, the State makes all decisions on the use of measures, including fertilisation norms, at farm or field level. The government uses retention maps at a low resolution (e.g. 15km²) to produce spatially differentiated regulations for land-use. This differentiation can increase the effectiveness of catch-crops, constructed wetlands, and help to define fertilisation norms. Government monitors at large catchment level to evaluate if N reduction targets to coastal waters are met. To monitor and control implementation, farmers are required to report detailed plans for cropping systems and fertilisation. Farmers fulfilling the government requirements receive subsidies from the EU CAP.

- Approach: top-down (clear N-reduction targets uniformly for the whole catchment)
- Monitoring: Authorities are responsible for detailed monitoring
- Retention maps: only low resolution maps are used to structure the land use
- Subsidies: Are connected with the requirements set by the authorities

Scenario B

Under the '**flexible management**' scenario, authorities and farmers work together to reduce N emissions through a market-based 'cap and trade' system. This would be initiated by government authorities per catchment, with all farmers obliged to participate. Based on retention maps with relatively high resolution (e.g. 25 ha), permits for N loading are distributed on a field basis. The community of farmers can trade N load allowances amongst themselves. To document compliance each farmer reports with detailed plans for cropping systems and fertilization (as in Scenario A). Non-compliance with individual allowances is sanctioned by forfeit of a deposit that is then passed onto other farmers for carrying out mitigation measures. Government authorities can intervene in the market by buying up or selling permits from the system to reduce or allow increases to N loads. The government performs control monitoring at catchment level to evaluate if the reduction targets to the coastal waters are achieved.

- Approach: market based.
- Monitoring: Authorities only monitor the N load at catchment level. More detailed monitoring could be arranged by farmers.
- Retention maps: Are used by authorities to calculate the exact amount of allowances and their distribution among the catchment.
- Subsidies: Are connected with the precise usage of allowances.

Scenario C

The '**self-governance**' approach describes a low level of State involvement in the management, monitoring and control of N loading. This scenario places a focus on the self-governance of farmers within one catchment. Farmers in the catchment self-organize, (e.g. forming a water council) to decide on measures to reach government-set targets. Detailed retention maps - at 1 ha resolution - have higher uncertainty, but can be used by farmers as a tool for spatially differentiated management of the catchment. A system of self-monitoring is established to check and modify the retention maps and ensure that the target goals are reached (e.g. monitoring at a field or sub-catchment

level). Authorities support the process of self-monitoring by providing financial and technical support and information (e.g. establishing a water council with a technical support, detailed retention maps, monitoring process support). The authorities will monitor only the entire catchment at the outlet. The allocation of EU CAP subsidies is based on reaching the target loads for the entire catchment and their distribution is negotiated between the farmers. If farmers/water council cannot agree on a plan for implementation, the State will impose a central regulation based on Scenario A.

- Approach: self-governance
- Monitoring: Authorities only monitor the N load at catchment level. More detailed monitoring could be arranged by farmers.
- Retention maps: Could be one tool used by farmers to optimize their fertilizer usage.
- Subsidies: Are only given if the reduction target for the whole catchment is reached.

Soils2Sea: Future governance approaches for reducing excess nutrients at local farm scale – Part II

Participants List

15-16 November 2016 | Jordberga Gård, 231 99 Klagstorp, Sweden

Deltagarlistan		
Efternamn	Förnamn	Organisation
Almstrand	Robert	Havs- och vattenmyndigheten
Alwen	Carl-Otto	Tullstorpsåprojektet
Bar-Michalczyk	Dominika	AGH University of Science and Technology, Poland
Bartosova	Alena	SMHI
Bengtsson	Eskil	Swedish Farmer
Ciesielski	Pawel	Polish farmer
Donnelly	Chantal	SMHI
Eriksson	Per	Tullstorpsåprojektet
Hellesque	Christian	Swedish Farm Manager
Kosela	Piotr	Polish farmer
Martinez	Grit	Ecologic Institute, Germany
Morén	Ida	KTH
Olsson	Karin	Länsstyrelsen Skåne
Płuszka	Dariusz	Polish farmer
Riml	Joakim	KTH
Sånesson	Bertil	Swedish farmer
Smela	Krzysztof	Czestochowa County, Poland
Sörensen	Katrine	Tullstorpsåprojektet
Stelljes	Nico	Ecologic Institute, Germany
Szczepanik	Piotr	Polish farmer
Thorén	Ann-Karin	Havs- och vattenmyndigheten
von Arnold	Otto	Tullstorpsåprojektet
von Sperber	Elena	Ecologic Institute, Germany
Wachniew	Przmeyslaw	AGH University of Science and Technology, Poland
Wieluński	Zbigniew	Polish Anglers Association
Wochal	Adam	Mykanów Community, Poland
Wörman	Anders	KTH