

Soils2Sea: Future governance approaches for reducing excess nutrients at local farm scale - Your voice

Anderslövs Gästgivaregård
Landsvägen 39, 231 70 Anderslöv
Thursday, 20th November 2014

Programme	
Thursday, 20 th November 2014	
4:30 p.m.	Welcome Coffee & Light Dinner
5:00 – 5:15 p.m.	Welcome & quick introductory round <i>Otto von Arnold (Tullstorpsån Ekonomisk förening)</i> <i>Dr. Chantal Donnelly (Swedish Meteorological and Hydrological Institute, SMHI)</i>
5:15 – 5:35 p.m.	Presentation <i>Tullstorpsånprojektet</i> <i>Johnny Carlsson (Projektledning Tullstorpsånprojektet)</i> Discussion
5:35 – 6:00 p.m.	Presentation Soils2Sea Project <i>Ida Morén (The Royal Institute of Technology, KTH)</i> Discussion
6:00 – 6:15 p.m.	Stakeholders in Soils2Sea & background information for Walt Disney Method <i>Dr. Chantal Donnelly (Swedish Meteorological and Hydrological Institute, SMHI)</i>
6:15 – 6:45 p.m.	Break
6:45 – 7:15 p.m.	1st Session: “Outsiders”
7:15 – 7:45 p.m.	2nd Session: “Dreamers”
7:45 – 8:15 p.m.	3rd Session: “Realisers”
8:15 – 8:45 p.m.	4th Session: “Critics”
8:45 – 9:00 p.m.	Wrap-up & closing <i>Dr. Chantal Donnelly (Swedish Meteorological and Hydrological Institute, SMHI)</i>
9:00 p.m.	End of the workshop

Summary of the Workshop.

Introduction



Current levels of nutrient loading pose risks for water quality and ecosystem health in the Baltic Sea. Two projects dealing with this issue, Soils2Sea and the project Tullstorpså, teamed up to organise a joint workshop on November 20th 2014 in Anderslöv, Sweden. Participants at the workshop included local farmers involved in the project Tullstorpsan, actors from the local branch of the Swedish Society for Nature Conservation, the Swedish Agency for Marine and Water Management, the regional county of Skåne, and project members of Soils2Sea.

The European project Soils2Sea, presented by Ida Morén (KTH Royal Institute of Technology), studies the retention of nitrogen and phosphorous between the soils/sewage outlets and the coast, including transport pathways such as overland flow and flows in macropores, subsurface tile drains, shallow and deep

groundwater, rivers, wetlands and lakes. Substantial work within this project is carried out at local case study sites. The case study site in Sweden is the area around Tullstorp Brook, a 30 km long stream located in the south of Sweden. It drains an area of 63 km² into the Baltic Sea, close to the small town of Skateholm.

The locally based project Tullstorpså was presented by Jonny Carlsson. It is an extensive project engaging most of the area's landowners in an economic association. Since the project's start in 2005, many measures have been implemented in the form of wetlands and morphological changes of the riverine system. The project is operated by the landowners, who have created an economic association funded by government subsidies for this purpose. Lately it has been shown that the implemented measures have had an effect and that the ecological status of the water has improved. The project has received recognition both within Sweden and abroad, and the engaged landowners have been happy to share their experiences with other local areas around the Baltic Sea.

This project provides a good example for the Soils2Sea in terms of bottom-up action for decreasing nutrient loads to the Baltic Sea. Planned Soils2Sea activities, including field experiments and modelling, will bring more knowledge about the local conditions that can be used in governance issues.



Disney Method



After the presentation of the two projects, the Disney Method was used to engage participants in a lively discussion. Chantal Donnelly from the Swedish Meteorological and Hydrological Institute (SMHI) moderated this discursive portion of the workshop as a method of gathering ideas and feedback from the local stakeholders.

The Disney Method consists of four consecutive elements. Initially the group thinks as “outsiders” and reviews the facts, data and external viewpoints regarding the issue at hand (in this case: reducing N and P loadings from agricultural land running into the Baltic Sea). Next, the participants imagine themselves as “dreamers” and strive to imagine an ideal solution without any constraints. Thirdly, the participants imagine themselves act as “realisers” – realists with a practical, constructive mindset. Lastly, the group assumes the role of a “critic” who reviews the plan in order to identify problems, obstacles and

risks. These four elements are described in more detail below.

During this first round of discussion, participants were asked to list aspects or problems they would see as an ‘outsider’. The majority of issues that were stated dealt with ecological problems and reasons for these problems. Overall it was stated that Tullstorpsån and the part of the Baltic Sea in the region are not in very good condition. The ideas of this phase gave the group a starting point for further discussion in the next phases of the workshop.

During the second phase of the workshop, the participants were asked to act as ‘dreamers’, and were asked what could be done to resolve the problems that were stated in the first phase. Their ideas were clustered afterwards and discussed separately in the ‘realise’ phase. The participants included issues from the ‘critics’ session already in this phase of the workshop. The four themes identified were:

- *Measures on farms*

In the dreamer section the basic idea of reducing fertiliser was identified. As ‘realisers’ the participants discussed how to implement this idea. One farmer comment was that stopping the use of fertilizers might not solve the problem although this was questioned by the scientists. Questions were raised about whether there is enough knowledge about the pools of nutrients in the soil.

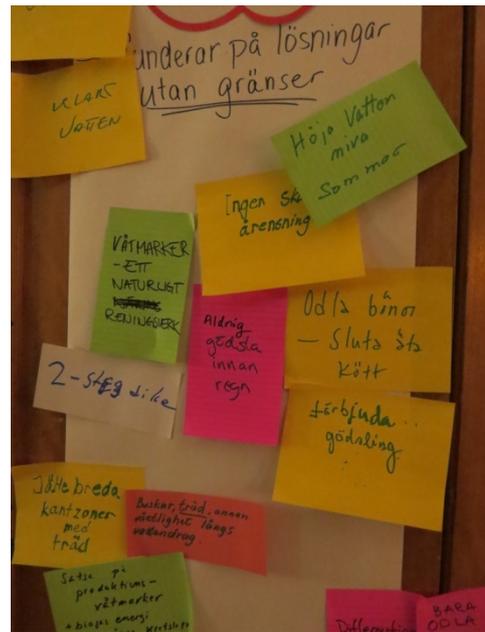
Nutrient use can be optimised by measuring N levels in soil prior to fertilisation and only applying the optimal amount needed by crops. Technical devise simplifying this procedure are available but expensive according to some of the farmers. Excess nutrients can also be taken up by catch crops. For example, it was suggested that soil should never be left bare, and that one should plant ‘between crops’ and after crops to increase uptake of excess nutrients with vegetation. If measures are carried out, it was requested that a good evaluation of these measures should take place. This would make sure that the success of the measures is made visible.

- *Measures in streams*

Another aspect for improving water quality is to focus on measures implemented in or alongside streams. Wide buffer strips, bans on harmful excavating in stream, and appropriate vegetation along the streams were named as possible measures. Riparian vegetation can prevent erosion of particulate phosphorous from river banks, slow down or stop surface runoff from reaching the stream as well as increasing nutrient uptake from the soils in which the vegetation grows. Wetlands are used to increase nutrient residence times and therefore nutrient retention. Creating wetlands on farm fields, both on-stream and adjacent to the stream, is already an undertaken measure. Creating these wetlands is subsidised, but resources are needed to apply for these subsidies.

Activities related to dams were also mentioned in the discussion for the purpose of retaining and recycling nutrients by using reservoir water for irrigation. They contribute to water quality improvement by increasing the transition time and thus retention of nutrients. At the same time, however, certain elements need to be considered as negative side effects can occur. The construction must ensure that migratory fish can pass the dam and dams change the natural seasonal cycle of flows which in turn may affect natural ecosystems adapted to these cycles. Another measure was dams installed on tile drains (regulated draining). This measure has a smaller effect on the stream as measures are placed on farms. When closed, they work by retaining local runoff and keeping the groundwater on farm high, thus increasing transition times in the soil. A disadvantage is that this may make the soil too wet for farming and it also depends on the type of soil.

The possibility of actively re-building streams and their surroundings was also discussed –this has partly been done locally. Reintroducing the natural meanders (twists and turns) of the stream increases transition times and retentions. Another common measure is making a “2- stage water course” which is a broadening of the stream with accompanying plantings along the banks. There was general consensus, however, that the rules for implementing these soil profiles are



complicated and bureaucratic, particularly for the individual farmer. This needs to be managed in a good way. A useful concept is the so-called “Firesouls”, a person who pushes issues forward and involves different stakeholders. The Project Tullstorpså only exists due to the enthusiasm of such a person and this was identified as one important reason for the success of the project.

- *Differentiated regulation*

One goal of the project Soils2Sea is to promote the idea of differentiated regulation of nutrient use. This idea was discussed at the workshop. The outcome of this discussion was that more scientific knowledge and technical solutions are needed. For example, is it possible to install sensors to monitor online N, P and water levels. Some landowners could be more affected than others by differentiated regulation as those with less potential for natural retention on their land may have to fertilise less for lesser crop yields or install more expensive measures. This could then lead to changes in land prices, which would need compensation or with the question of who would pay additional costs, such as subsidies for measures. The idea of a voluntary exchange of land was also discussed. This idea was seen as being rather unpopular, but not impossible. Obstacles could be the expensive and complicated procedures involved, but Denmark's 'land-bank' could serve as a good example and in fact a land swap was made in Tullstorpsån already for one of the wetland installations.



- *Nutrient recycling and reuse*

Finally, optimal nutrient use through recycling was discussed. One way of reducing nutrients that have leached into streams and the sea is to reuse the nutrient rich water in the stream. For example, wetlands can be used for production (production wetlands), growing for example 'cattail' reeds (*Typha latifolia*) which are then used as fuel for biogas energy. Waste products from the biogas production can then be used for fertilisation. Thus the nutrients from the stream are taken up by the reeds and eventually placed on the land again as fertilisation. The use of seaweed from the coast for fertilisation, which grows excessively as a result of the excess nutrients from streams is a similar concept for recycling of nutrients. Existing problems related to this issue must be addressed, however. Seaweed cannot be used as fertilisers today, because it contains other pollutants such as cadmium. Currently the farmers in this region mainly grow crops for biogas, so some of the stakeholders thought that the conflict between food and energy should be addressed by EU regulation.

After the realist stage of the workshop, the ideas were narrowed down to 4 groups of more probable measures for nutrient reduction and a final critique of these was made in the 'critics' stage of the workshop. These were:

1. Catch Crops + 'between' crops.
2. Optimising fertiliser use using the latest technology
3. Measures in and along streams (2 stage water courses and wetlands)
4. Differentiated regulation
5. Recycling of nutrients

Outlook

The very intense and constructive discussion during the Disney Method presented the opportunity for the participants to provide input to the Soils2Sea team on where to best focus in the coming months of the project. It also became evident that the project Tullstorpså can serve as a good example also for other communities. Success factors of Tullstorpså will be analysed and feed into the work of Soils2Sea.

In addition to the workshop in Anderslöv, two Soils2Sea Workshops in Denmark and Poland will also be held, in December 2014. Results of all three workshops will be discussed and evaluated by project team members and used for further research within Soils2Sea. It is also envisioned to complement the workshops with a set of in-depths interviews in 2015. Project results will be presented at a second workshop in 2016.

