

Future governance approaches for reducing excess nutrients at local farm scale – Workshop Summary

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Introduction

Eutrophication is a serious challenge for the Baltic Sea; effects of eutrophication include algal blooms, dead seabeds and reductions in fish stocks (Arheimer et al. 2012). Climate change will most likely increase the effects of eutrophication (Helcom 2007). For this reason, HELCOM commissioned the preparation of the Baltic Sea Action Plan (BSAP), a programme to restore good ecological status of the Baltic Marine Environment which requires substantial further reductions of nutrient loads (N and P) to the Baltic Sea during the coming years (Refsgaard 2014). Agriculture contributes a large extent of the nitrogen input to the Baltic Sea (Helcom 2007).

The identification of agriculture as a main reason for eutrophication issues implies a field of possible actions to tackle the problem. Instruments like the Baltic Sea Action Plan and the EU Water Framework Directive were implemented to help reduce nutrient loads to the Baltic Sea. Achievements of these goals will only be possible through the implementation of fundamental changes in agricultural practices and land use. This will require the introduction of additional new and innovative measures, since the easiest applicable measures have, in most cases, already been utilised. The project Soils2Sea proposes to exploit the fact that the retention (removal by biogeochemical processes or sedimentation) of nutrients in groundwater and surface water systems shows a significant spatial variation, depending on the local hydrogeological and riverine regime.

More accurate predictions of N and P retention locations in a catchment through the estimations of the retention in the different compartments along the flow path could lead to more cost-effective design measures to reduce nutrient loads to the Baltic Sea. Currently, the traditional uniform regulations do not

account for local data and knowledge and are much less cost-effective than spatially differentiated regulations supposedly are. Therefore, it is necessary to utilise all local information and find locally designed and optimised solutions to reduce nutrient leaching. This calls for new, innovative governance regimes with active involvement of key stakeholders.

Intensive stakeholder involvement will be carried out within three local case study sites of the project. At each case study site, located in Denmark, Sweden and Poland, there will be two sets of workshops. The first set of workshops has already taken place in November and December of 2014, the second round is envisioned for 2016.

The workshops serve to test and uncover stakeholder reactions to the idea of spatially-differentiated solutions towards eutrophication. Stakeholders include local farmers, land owners, land managers and their organisations, NGOs, community members and (local) political decision-makers. At these workshops, different policy options will be proposed and discussed, including ones that empower local stakeholders collectively to commit to targets and decide on technical measures to implement.

This paper summarises the results of the first three workshops, the goals of which were:

- to start a mutual exchange between the Soils2Sea Project and other initiatives in the region in order to create synergies.
- to present to the participants what activities will be undertaken in the region within the Project.
- to get feedback from the participants on the Soils2Sea approach (governance instruments).

Despite having the same goals, the format and methods were adjusted accordingly depending on the different backgrounds of each case study. For each workshop, more detailed information can be found at the Soils2Sea Webpage (http://soils2sea.eu/for_stakeholders_uk/index.html).

Workshop Tullstorp, Sweden

Soils2Sea and the Tullstorps Brook project teamed up to organise a joint workshop held in Anderslöv, Sweden on 22 November 2014. The thirteen participants at the workshop included local farmers involved in the Tullstorps Brook project, local representatives of the Swedish Society for Nature Conservation, the Swedish Agency for Marine and Water Management, the regional county of Skåne and Soils2Sea project members. Workshop participants, using the Disney Method, discussed basic ideas and designed central elements of potential policy instruments. It became evident that the Tullstorps Brook project could serve as a good example for other communities. Success factors of the Tullstorps Brook project will be analysed and fed into the work of Soils2Sea.

During the first phase of the Disney Method, the participants were asked to list aspects or problems concerning agriculture and environment in the region. Overall, it was stated that Tullstorps Brook and the regional part of the Baltic Sea 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 on how to address these issues. The ideas were clustered and four different themes were identified:

- *Measures on farms*
- *Measures in streams*
- *Differentiated regulation*

- *Nutrient recycling and reuse*

Within these themes, participants mentioned and discussed different measures during the workshop. The outcome of this discussion was that more scientific knowledge and technical solutions are needed. Issues like changes in land prices, some landowners being more affected than others, or who would pay for additional costs, have to be solved first before such an idea could be implemented.

From these discussions, the participants agreed upon five measures that should be brought forward in order to improve water quality:

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

These measures will serve as a first result for the project on how these could be implemented and be integrated into governance concepts.

Workshop Norsminde, Denmark

The workshop in Denmark was held at Norsminde Kro on 11 December 2014. The workshop was hosted by the Norsminde Fjord Catchment Council, an organisation of local stakeholders within the Norsminde Fjord catchment, with the support of several other local projects. Altogether, twenty one people participated in the workshop, representing farmers, agricultural advisors, NGOs, authorities, politicians and research institutions. The workshop, using the World Café method, provided valuable inputs to the research project. Participants confirmed their interest in participating in a similar event next year.

The group work was organised according to the World Café method with three tables. The key conclusions to the questions from the groups are as follows:

Table 1: Regulation on farm or catchment level

- Regulations linked to individual farmer holdings are easy to implement. However, control monitoring may be difficult for some farms, as water often flows from the fields of one farmer to the fields of another farmer before it is possible to monitor it adequately.
- The advantage of regulations linked to small areas (e.g. 100 ha) compared to large areas (e.g. 1500 ha) is that they are closer to a farmers holding. However, if the regulatory unit happens to include only two farmers and these two farmers are not on good terms, even this may be difficult to manage.
- The advantage of regulations linked to larger areas (e.g. 1500 ha) is that they may facilitate catchment solutions, e.g. where several farmers work together on construction of nitrate-removing wetlands. A disadvantage is that they may incentivise the purchase of land and increasing agricultural holdings.
- It is not realistic for several farmers to make joint commitments to nitrate emissions within a catchment. Farmers cannot police each other and this would likely destroy good relationships.

Table 2: Use of retention maps

- There is a concern that the use of detailed retention maps (ha scale resolution) by the State as a basis for regulation of individual fields may lead to a very rigid and bureaucratic system.
- Use of detailed retention maps on a voluntary basis by individual farmers to plan implementation of an emission-based regulation is perceived very positively. Such use would, however, mainly be utilised to the extent that it benefits individual farmers, while the benefits from considering a catchment perspective would not be achieved.
- The idea of having purely voluntary agreements between farmers in a catchment for the sharing of common commitments to comply with the emission requirements is not very realistic. This would require some kind of regulatory framework. A relevant support in this respect could, for instance, be the facilitation of land exchange as typically done in connection with motorway constructions (e.g. where farmers often exchange land to ensure that all land of an individual farm is located on one side of the motorway).
- Farmers expressed interest in reducing the uncertainties on the retention maps by supplementary local campaign measurements, e.g. measurements in drain pipes. This is particularly interesting in areas where the maps indicate low retention.

Table 3: Trading with emission permits

- Trading of nitrate emission permits between individual farmers is perceived as realistic. One option could be that farmers buy shares in nitrate-reducing wetlands within the catchment and, in this way, obtain the right to a larger nitrate emission from his/her own holding. Alternatively, a farmer could reduce his/her nitrate load by growing a catch crop and sell unused emission permits to another farmer within the catchment.
- Trading of permits between farmers and the State might be used by the State to regulate the total emission from a catchment, by buying up or selling emission permits. There were no clear conclusions on this issue, but some concern was expressed that such a market system might not be an efficient way of ensuring the reduction targets required to achieve WFD goals.
- Nitrate emission permits would typically be registered in the same databases in the Ministry of Food and Agriculture that supports the management of EU's Common Agricultural Policy.
- A total free market for the trading of emission permits may be problematic, as there is a risk that permits may be purchased by relatively few farmers. Consequently, the market for permit trading would not function effectively.
- A separate question is how the emission permits shall initially be distributed. One option may be to associate them with the nitrate retention maps, so that an area with low retention receives a high emission permit. This may be used as part of a compensational package to farmers with holdings in low retention areas.

Workshop Kocinka, Poland

In Poland, the workshop was held in Częstochowa, near the river Kocinka, on 11 December 2014. The workshop was attended by Soils2Sea project partners, environmental agency members of Kłobuck County (powiat kłobucki), fisheries-association representatives, as well as Mykanow community actors, who had

previously participated in an ethnographic study during the POLEKO Exhibition meetings. Among this latter group were farmers and other stakeholders, including the Water Works in Częstochowa. A total of twelve people attended the workshop.

The World Café method was used to get insights from the participants regarding water quality and agriculture in the Kocinka region. Three tables discussed different issues:

- Table 1: Role of agriculture and waste water for water quality
- Table 2: How can different actors contribute to ameliorate the water quality?
- Table 3: How can implementation of regulation be strengthened?

In general, all activities have an impact on water quality, but this depends on the type and size of activity that is undertaken. There were different issues highlighted concerning water quality: local industries (including the food industry), agricultural devices & machines (service and exploitation), transport (local and regional), atmospheric emissions from individual farms/private houses (inappropriate fires/furnaces, burning/combustion of low quality fuels and waste materials) and illegal dumping sites (landfills). All these factors can contribute to a certain degree to water quality. One important aspect is the treatment of waste water at the household level. Households that are not connected to the community sewage system can build household sewage treatment plants (instead of using septic tanks) or use biodegradable material for the septic tanks to improve water quality. Currently, there is a lot of information and options already available for farmers to improve water quality, but many of these opportunities are not yet fully used. One reason may be a lack of awareness on how sewage and/or manure can negatively impact water quality. Another barrier to water quality improvements through the implementation of regulation is financial constraints. Without financial support, good practices are not undertaken. Also, the laws covering water quality are too complicated with too much bureaucracy which discourages farmer interest in legal issues. These views toward bureaucracy contributed to participant's scepticism of new mechanisms like differentiated regulation. Participants feared that new mechanisms could lead to unnecessary bureaucracy, and that farmers would not understand the ideas (e.g. trading nutrients). Instead of trying to implement new measures, there were suggestions to improve existing mechanisms. The constructive working atmosphere of the workshop led to some insights to conduct further work. For example, awareness and education are seen as very important aspects to changing farmers and citizens' attitude and behaviour.

Conclusion

Three challenges are to be kept in mind when developing the governance concepts:

Solution-oriented concepts instead of problem-oriented ones

- Stakeholders at the workshops tended to visualise eutrophication at a higher level, rather than at an individual scale. Although research needs to be conducted to identify the main sources of eutrophication, it should be made clear that the results of this will be used to help inform and select the best available options. To retain a constructive and solution-oriented atmosphere, communication should refrain from personal accusations and negative comments.
- It would, therefore, help to also communicate what other stakeholders, apart from the farming sector, are doing to reduce their emissions share (e.g. waste-water treatment, measures aiming at holiday houses, etc.).

Scepticism towards purely community-based governance concepts

- Stakeholders mentioned that they would not see the benefits of purely community-based governance concepts, due to their dislike of internal policing.
- However, they were to a certain extent open to community-based governance concepts given the involvement of an additional, independent institution or organising element that would have stakeholder trust and that would be responsible for the surveillance of the issue.

Change in mind of what good agricultural practices are

- There is a set of values, norms and aims that make up the perception of what good agricultural practices are. These may vary across countries and may not necessarily reflect the latest knowledge stemming from scientific insights.
- The governance concepts to be elaborated upon should keep this in mind and at best make sure that there is a change in mind towards the latest scientific understanding of what good agricultural practices are.

Results from these workshops will be used to elaborate on different governance and monitoring concepts that acknowledge the relevant aspects of EU directives and, at the same time, are tailored towards decentralised decision-making. These new ideas will be presented and discussed at the second round of workshops in 2016.

Literature references & acknowledgement

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