



How to improve resource effective implementation of WFD in Nordic countries

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Photos by Pinja Kasvio and Milla Mäenpää



1. Outline

This report is based on conference with working group meetings and exchange of knowledge and experiences as part of the implementation of the EU's Water Framework Directive (WFD) in the Nordic countries. This Conference was funded by the Nordic Council of Ministers (NCM), to carry out the project: "How to improve resource effective implementation of WFD in Nordic countries".

The funding was mainly used to finance costs for organizing and covering facilities for the event for participants in Oulu (March 2014).

2. Acronyms and terms

Term	Definition
Basic measure	A basic measure is any Measure that can be categorized under the 22 pieces of legislation or article in the WFD
Characterisation	To identify the location and boundaries of bodies to assess their uses and the degree to which they are at risk of failing to meet the objectives as defined in WFD
Chemical Status	Good chemical status is the chemical status achieved by a body of water in which concentrations of specific pollutants do not exceed the environmental quality standards and condition sets of which is different for surface and groundwater
Coastal Water	Surface water on the landward side of a line, every points of which is at distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transnational waters
EC	European Commission
Ecological Status	An expression of the quality of the structure and functioning of aquatic ecosystems associated with surface waters
GEP	Good ecological potential: is the status of a body of HMWB
GES	Good ecological Status: is the status of a body of surface water
GIG	Geographic Intercalibration group
HMWB	Heavily modified water body. A body of surface water which is a result of physical alterations by human activity is substantially changed in the character
HYMD	Hydromorphology: Hydrological regime - quantity and dynamics of water flow, Morphological conditions (shape) - width & depth variation of a water body, structure and substrate of bed, structure of riparian zone
ICT	Information and Communication Tecnology
IRBD	International River Basin District; water shed crossing one or several borders
Key measure	A Key Measure is any Supplementary Measure that is required by the competent authorities, as the most likely and viable Measure to improve water quality
Measure	An event or series of events used to achieve the object of the WFD
NCM	Nordic Council of Ministers
Objective	These are the environmental objectives outlined in Article 4 of the WFD which are to be realised by implementing POM
POM	Programme of Measures
RBD	River Basin District
RBMB	River Basin Management Plan

River	A body of inland water flowing for the most part on the surface of the land but which may flow underground for part of its course
River basin	The area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta
Sub-basin	The area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes to a particular point in water course (normally a lake or a river confluence)
Supplementary Measure	A Supplementary Measure in any Measure which cannot be classified under the 22 Basic Measures outlined in the WFD
Surface Water	Inland water, except groundwater; transitional waters and coastal waters, except in respect of chemical status for which it also includes territorial waters
Surface water status	The general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status
Water pricing	Economic incentives to ensure recovery of costs for water services in accordance with WFD Art 9
WFD	Water Framework Directive

3. Introduction

3.1 Background

The Water Framework Directive (WFD, 2000/60/EC) introduced new and ambitious objectives to protect and restore aquatic ecosystems as a basis for ensuring the long term sustainable use of water. The WFD requires that Member States and EEA countries like Norway and Iceland establish Programmes of Measures (PoM) to achieve the environmental objectives. Measures aim to reduce the pressures to levels that are compatible with the achievement of good status of all surface and ground waters. The WFD has incorporated the key principles of integrated river basin management into a legally binding instrument that enables integration of economic and ecological perspectives in water management.

WFD has also increased focus on water issues and integrated water management as well as public participation. To get the water management as knowledge based as possible, there is a common need to develop or adapt management tools for e.g. assessment of ecological and chemical status, ICT -solutions (Information Communication Technology) and national guidelines. Depending on issue, some countries are ahead of others. Different approaches, management systems and applied aquatic research and development have made it valuable to have information exchange as much as possible.

Implementation of the WFD has been supported since 2001 by an informal cooperative effort under the Common Implementation Strategy (CIS), led by Water Directors of the Member States and the Commission with the participation of all relevant stakeholders. The CIS has delivered guidance documents and a large number of policy papers and is a valuable platform for the exchange of experience and best practices.

European wide strategies and CIS process provide valuable arenas for sharing good examples. However, the northernmost countries in Europe; Finland, Iceland, Norway and Sweden have for several reasons found it feasible to establish regular workshops for sharing knowledge and experience in the region related to both aquatic environment and administrative systems. This exchange of knowledge has been partly supported by the Nordic Council of Ministers (NCM). Valuable experience exchange have also been with WFD-experts from countries with many similar challenges as the Nordic countries such as Austria, Ireland and Scotland.

More about Nordic cooperation in <http://vannportalen.no/enkel.aspx?m=59821&amid=2956148>.

3.2 Aim of the project

The Nordic countries have many similarities compared to other EU member states. Status of waters is fairly good, water resources are relatively abundant, number of lakes is high and border water Issues are often bilateral and less tricky than in most member states in Central Europe.

The quantitative status of water resources in the Nordic countries is quite good and there are no large scale water scarcity-related problems. Flood-related problems occur in all Nordic countries, and to prevent them naturally also contribute to water quality improvement (so-called win-win measures). Water construction is key pressure in all the Nordic countries and further discussion should include adequate knowledge of water structures and environmental flows in heavily modified rivers.

Many water related issues are transboundary and many Nordic countries share many similarities and mutual challenges that need to be solved in collaboration. Moreover, new themes in River Basin Management Planning include specially the guidelines of the EU's new water strategy (Blueprint), which should be considered in the revision of the river basin management plans. These guidelines include e.g. chemical classification of waters status, environmental (ecological) flows and ecosystem services.

The aim of this project was to support Nordic cooperation and knowledge exchange between experts involved in planning process of 2nd River Basin Management Plans (RBMP). This was seen to include both scientists and the regional planners (administration). It was seen that joining the forces and speaking with common voice would support the cooperation in EU-level and help Nordic view to be taken better into account in new EU guidelines and policy documents.



3.3 Nordic WFD conference 2014

The most efficient method to reach the aims of the project was to arrange a conference for a wider audience of experts followed by intense workshops for smaller groups. In both events the idea was to build a platform for discussion, sharing results and experiences and finding new ways to improve resource effective implementation of WFD. Participants from several Nordic countries were invited and given valuable input for the workshops and share opinions on current key issues concerning WFD implementation.

The Nordic WFD Conference and workshops were held in the City Oulu, in Northern Finland on 19-20th of March 2014. The event brought 65 water managers together to discuss and support the effective implementation of WFD from environment institutes, agencies and municipalities as well as stakeholders from hydropower and agriculture field. The participants arrived to Oulu from Nordic countries (excluding Denmark and Iceland) and also from Austria, Scotland and Ireland. All representative countries share the same water challenges that need to be solved to fulfil the requirements and principles of WFD.

The objective of the event was to discuss on key challenges of 2nd River Basin Management cycle. These include programme of measures (PoM), governance, implementation of EU Water Blueprint, harmonisation of status assessments and best practices of ICT and technical solutions. This way we aimed to enhance resource effective implementation of WFD in Nordic countries. On third day (21st of March) an optional excursion was arranged close to the city center at the Hupisaari Islands, Merikoski fishway and powerplant.

The first day covered a wide range of accurate and important topics concerning WFD implementation key challenges of 2nd River Basin Management cycle. An overview of the current situation of the implementation in Nordic countries was presented. Important approaches and recommendation to WFD implementation were

demonstrated in presentations about social learning, ecosystem service and lessons learned from WFD implementation in Alpine convention. The fruitful discussion and presentations continued in parallel workshops on specific themes concerning measures. Next day the work in workshops continued more intense and results and future steps were presented to other groups in follow-up. The conference generated lively discussions, successful knowledge exchange and enjoyable social exchange during conference, workshops and social events.

Presentations from the event are available on the website of the [Nordic WFD Conference](#).

3.4 Subgroups

Workshop sessions for five themes were organized to discuss on key challenges and how to improve the resource effective implementation of WFD in Nordic countries. One aim was to find what measures could be harmonised.

The five working groups:

- a) Defining chemical status and monitoring
- b) Technical solutions and coherence
- c) Programme of Measures:
 - c1) Harmonising PoM between Nordic countries
 - c2) Implementation of measures in agriculture
 - c3) Implementation of measures in HMWB.

Each working group was provided by key persons and rapporteur to take notes from the session. The workshop key persons were instructed to select group leaders and contact persons within the working group and define structure and issues to be discussed in working group.



Workshop participants

	Working group	Keypersons	Participants
A	Defining chemical status and monitoring	Ann-Sofie Wernersson (Sweden), Jaakko Mannio (Finland), Kristine Hessen (Norway). Rapporteur Mirikka Hadzic.	Pertti Manninen, Ansa Pilke, Jukka Mehtonen, Petri Liljaniemi, Seppo Hellsten, Juhani Gustafsson, Lisa Lundstedt, Malin Kronholm, Mats Wallin, Carola Lindberg, Kristine Hessen and Jenny McCarthy.
B	Technical solutions and coherence	Niklas Holmgren (Sweden), Lasse Järvenpää (Finland), Lars Stalsberg (Norway). Rapporteur Kati Häkkinen.	Vincent Westberg, Måns Denward, Sara B. Zambon and Lars Stalsberg.
C1	Harmonising PoM between Nordic countries	Katarina Vartia (Sweden), Milla Mäenpää (Finland), Line Fjellvær (Norway). Rapporteur Pinja Kasvio.	Hannele Nyroos, Mauri Karonen, Janne Juvonen, Hanna-Mari Pekkarinen Rieppo, Karin Olsson, Larus Kristjanson and Tom Stafford.
C2	Implementation of measures in agriculture	Jonas Svensson (Sweden), Antton Keto (Finland), Tyra Marie Risnes (Norway). Rapporteur Antton Keto.	Jaana Rintala, Christina van Breugel, Elina Liinajarja, Michael Cinneide, Jan Erling Klausen, Finn Erlend Ødegård, Ansofi Collin and Rune Hallgren.
C3	Implementation of measures in Heavily Modified Water Bodies	Halvard Halleraker (Norway) and Johan Kling (Sweden). Rapporteur Teemu Ulvi.	Jukka Tuohino, Teppo Vehanen, Petri Liljaniemi, Markku Maunula, Ingemar Perä, Inger Staubo, Siss-May Edvarsen, Roy M. Langåker, Jukka Jormola, Kati Takala, Minna Torsner, Magne Fauli, Jan Sørensen and Bente Høegh.

4. Common challenges of implementation the Program of Measures

4.1 Introduction

Programme of Measures (PoM) is the key element of WFD implementation. It describes all technical and policy measures what should be implemented to fulfill good ecological and chemical status of waters. From stakeholder perspective it is also the most interested and concrete document, because in addition to measures it contains information what are the costs of the measures and who is responsible of implementation of each measure.

Although Programme of Measures describes clearly the measures several problems in implementation of measures have been identified in different sectors. When lack of implementation is related to those measures, which are directly linked to significant pressures, it also has the most negative impact to improvement of status of waters.

Based on dialogue between Nordic countries before the Conference, implementation of Program of Measures has not progressed in any Nordic country as planned. The main problems are related to the financing of measures and the status of the presented measures. Measures are quite often voluntary to sectorial players and administration is lacking sufficient tools to promote implementation.

The main themes, hydropower and agriculture; were recognised as most important sectors in terms of significant pressures and selected as thematic working group issues. Moreover, financing of measures was discussed because it is related to obstacles of implementation in all sectors.

4.2 Hydropower



WFD requires identification of hydromorphological pressures and status assessment also in hydromorphologically altered water bodies. It is related to hydrological regime – quantity and dynamics of water flow and morphological conditions (shape) – river/channel width & depth variation, structure and substrate of bed, structure of riparian zone. Based on these assessments hydropower is found to be the primary reason why hydromorphology is identified as significant pressure and hydromorphological status is below good status.

According to WFD, sometimes natural water body conditions are substantially changed as a result of physical alterations by human activity, e.g. for hydropower or navigation and therefore WFD recognizes that in some cases the benefits of such uses need to be retained. If certain criteria are fulfilled (Art. 2.9 & 4.3), WFD allows rivers to be defined as Heavily Modified Water Bodies. HMWBs cannot meet good ecological status (GES) by mitigation measures without significant adverse effect upon use, but their WFD environmental objective is good ecological potential (GEP). GEP is defined as good as possible for biological quality elements taken into account water use.

Hydropower is regulated in all countries under water legislation but there are differences on how license obligations are defined and how obligations are possible to be changed if they form a risk to achieve

environmental objectives. This has linked to identification of HMWB's and identification process of good ecological potential.

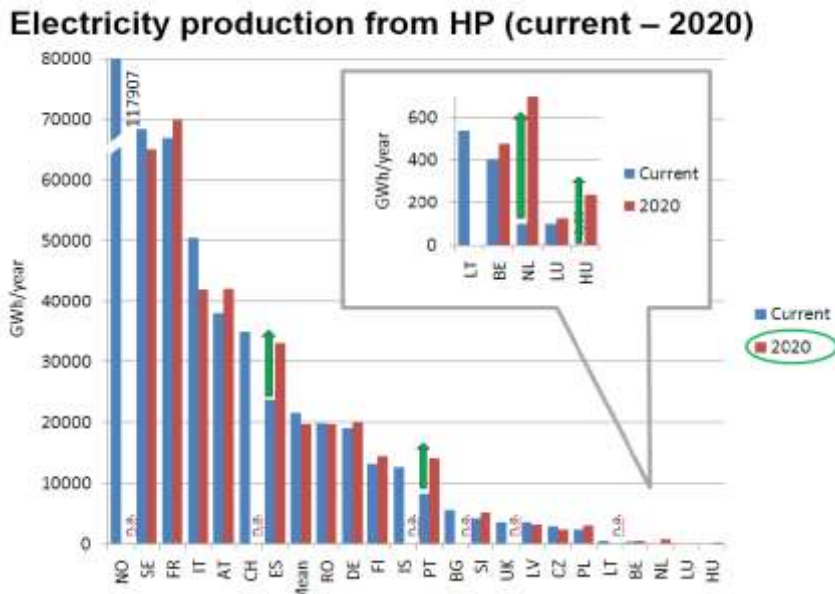


Figure 1. Current and year 2020 electricity production from hydropower in Europe.

4.3 Agriculture

Eutrophication of waters is the biggest problem in in Sweden, Finland and Denmark because of nutrient loading from diffuse sources. Especially agriculture is the main source of nutrients in national level, although there is regional variation. Control of diffuse nutrient loading is difficult for several reasons. Hydrological conditions impact a lot the amount of discharges and release of nutrients. Also, measures are voluntary for farmers and PoM cannot define location of measures in cost effective way. Mitigation measures affect with delay because e.g. nutrient content of fields decrease slowly.



4.4 Financing of the measures

Perhaps the biggest challenge in Nordic countries concerning implementation of PoM is how to secure the financing of the measures in all relevant sectors. It is question of how binding the measures are for each actor and how cost effectiveness of measures, especially between basic and supplementary measures and different sectors can be realized. Even in some cases it could be more effective to target the financial resources to one or only few

sectors to get the maximum impact of existing financing. Nevertheless, the main challenge is that RBMP are not legally binding for single actors and a great deal of supplementary measures is voluntary based.

5. Cross cutting issues

5.1 Introduction

Cross cutting issues were recognized before the Conference as key issues for the future EU water policy in 2nd River Basin Management Plans. These issues are identified in the EU CIS process for 2nd planning cycle and new water strategy for safeguard to Europe's waters. The new water strategy called "Blueprint" outlines actions that concentrate on better implementation of current water legislation, integration of water policy objectives into other policies, and filling the gaps in particular as regards water quantity and efficiency.

5.2 Ecosystem services approach



WFD is based on ecosystem approach. Ecosystem services are benefits provided by ecosystems e.g. fishery, water purification, flood mitigation, biodiversity and recreational services. Ecosystem approach aims to combine environment (like the river basin) with socio-economic system (user/beneficiaries).

The guideline on how to use an "Ecosystem Service Approach" (ESA) to support the implementation of the WFD has been prepared for EU Commission this year. The ESA can support planning of PoM. The guideline gives a systematic framework to assess the benefits of the measures and better optimize the set of measures. It also gives ideas how to visualize the trade-offs. The ways to integrate the ESA into PoM development process can vary between member states. There are also some challenges in ESA approach, as it needs skills and resources to carry out and does not solve conflicting interests.

The ecosystem services can also increase awareness among planners, decision-makers and other stakeholders and support prioritization of the measures and management practices.

The coherent ecosystem approach can be in natural water retention measures (NWRM). In the CIS process, these measures have special attention and there is a discussion paper under preparation concerning NWRM. These measures support both flood risk and river basin management.

All Nordic countries discuss about the evaluation of direct and indirect benefits of the river basin management and better quality of water. It is crucial to emphasize the benefits to get social acceptance and promote the implementation of the plans. Also, the evaluation of disproportionate costs benefit from the ecosystem approach.

5.3 Governance and social learning

Institutional set up for river basin management planning process varies only a little between Nordic countries. When cooperation between Nordic countries goes into more detailed level, it is important to understand institutional and practice differences between countries. As the challenges are more or less the same, there is a possibility to learn from each other.

Governance

As Jan Erling Klausen stated in his presentation, the success of EU environmental policy and implementation of WFD, is highly dependent on the institutional preconditions in Member States and how the Directive is implemented into existing legal and administrative system. The comparison of five countries (Norway, Sweden, Finland, Austria and Scotland) the basic set-up (spatial information, use of hydropower) and the legal system and institutional setup for WFD and sector legislation (water regulation and agriculture) result both similarities and differences. For example, the institutional setup for WFD varies from centralized and administrative boundaries to decentralized and ecosystem-based.

In subgroup discussions, institutional issues and differences in legislation were discussed related to issues at hand. Preparing the program of measures it should be taken into account that Norway has not implemented marine strategy directive or flood risk directive, because the integration of these directives with WFD is not an issue in Norway, as it is in Finland and Sweden. There is a need to further discuss bilaterally between Finland and Sweden.

One example of differences is how licenses based on Water Act, are granted. There can be seen three models how hydropower licenses are granted and reviewed: Independent legal or administrative body: 1) Finland, Sweden, 2) environmental authority: Austria, Scotland (Lebensministerium, SEPA or 3) sectorial authority: Norway (Energy ministry/ Water and Energy Directorate).

Social learning process

Implementation of WFD is a learning process to all stakeholders from experts and administration to entrepreneurs and citizens. Micheál Ó Cinnéide studied the role of social learning in a period of regulatory change, based on the experience of participants (managers and stakeholders) in River Basin/water management in different countries. The key element of social learning is a feedback loop between structures, processes and outcomes. This research provided insights into the design of adaptive and learning-based societies in managing water for 2nd Cycle. Social learning is not just a “top down” or vertical process. It is a collective learning process in equally vital at a horizontal (policy) level where the principles of social learning and practices of interactive governance are embedded in water management and stakeholders are more willing to collaborate. The outcome of the study was that managing water needs more integrated learning.

The public participation to planning and all stakeholder involvement is seen crucial for implementation of planned measures. Increasing the public awareness and making the water protection “everyone’s business” supports the implementation process and acceptability of the plans. Measures to improve water quality needs cooperation and resources from the private sector and citizens

Most of the measures to control diffuse load from agriculture activity and other activities like scattered housing are more or less voluntary (supplementary) measures, or very difficult to supervise. There is a need for more active involvement of stakeholders to motivate the measures.



5.4 Climate change

Improving integrating climate change issues into RBM planning is seen important in EU level coordination. The risks are not biggest in Northern countries, but the revision of climate change of the PoM is seen necessary. Because the adaptive needs are similar in Northern countries, it provides a great opportunity to have a common approach to climate change issues.

Finland has taken the climate change issues into account already in first RBM plans. This idea has been further developed for second cycle. All the measures in measure library have been evaluated against climate change, both from mitigation and adaptive resiliency point of view. Also, the cross-checking of the measures with flood risk management and its objectives is handled in RBMPs for years 2016-2021.

5.5 Groundwater issues

Groundwaters are main drinking water sources in Nordic countries and in recent years the significance of the groundwater for ecosystems is better recognized. Groundwater associated aquatic ecosystems (GWAAE) are surface water bodies or part of surface water bodies (rivers, lakes, transitional WB or coastal WB), which status or potential (ecological or chemical) could be affected significantly by alterations of groundwater level, groundwater flow or pollutant concentrations of groundwater. WG Groundwater is working with this issue.

Monitoring of the groundwaters is recognised as one of the key issues that need more discussion between Nordic countries. Finland and Sweden have a different approach on measures concerning groundwater monitoring. Sweden will not propose any measures to increase monitoring because they see it as an obligation that comes straight from the WFD. Finland sees it as an important measure to raise the awareness of insufficient monitoring and as a channel to get funding.

5.6 Objectives and exemptions

The aim of the WFD is good ecological and chemical status of surface and groundwaters in Europe (Art. 4) by 2015 and the principle of WFD is to prevent any further deterioration of the status. Directive offers some possible exemptions which allow less stringent objectives and extension of the deadline beyond 2015. It also includes possibility to implement new significant sustainable development projects, provided that a set of conditions are fulfilled. (CIS Guidance Document No. 20: Guidance on exemptions to the environmental objectives, 2008).

The intercalibration exercise is a key element in making the general environmental objective operational in a harmonised way throughout the EU.

Meeting the environmental objectives of WFD is extremely difficult in most Member States, and also in Nordic countries. The preliminary second status assessment in Finland and Sweden indicate that objectives for 2015 are still far. Also the uncertainty of the estimation is an issue. The objectives set in first RBM plans were ambitious.

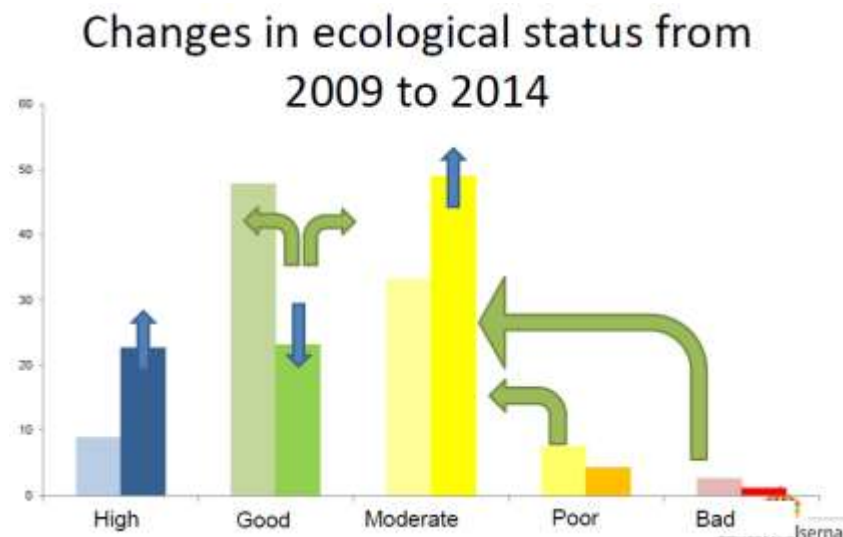


Figure 2. Changes in ecological status in Sweden (Salonsaari, Nordic conference, Oulu 2014)

One of the common issues to be harmonised among Nordic countries is how the exemptions should be used during second planning cycle 2016-2021. For example, the special issue of mercury in fish (from long distance air pollution) is common challenge in Scandinavian countries.

6. Output of the working groups

6.1 Working group A: Defining chemical status and monitoring

WFD focus on chemical status assessment and achieving good chemical status related to a list of priority substances listed in a separate appendix (http://ec.europa.eu/environment/water/water-framework/priority_substances.htm). Directive 2008/105/CE sets the environmental quality standards for 41 substances in the water matrix, but also gives an option to the Member States to derive EQS for sediment and/or biota.

A separate working group handled these issues. The first day focused on presenting the situation of the chemical status and monitoring in Nordic countries and during the second day the group focused on issues to be harmonised and next steps.

Presentations:

There were four presentations held on national status on chemical status and monitoring and challenges by the people listed below.

1. Kristine Hessen, Norwegian Environment Agency, Norway.
2. Jaakko Mannio, SYKE, Finland
3. Ann-Sofie Wernesson, Sweden (Surface waters)
4. Jenny McCarthy, Sweden (ground waters)

Issues to be discussed were inquired from the group and the most popular topics were discussed together. The discussion for finding solutions, common challenges and issues to be harmonised continued on second day.

Common challenges

The group discussed on common challenges and one of them was mercury in biota. Biota EQS have been derived for mercury and its compounds, for hexachlorobenzene and for hexachlorobutadiene in Directive 2008/105/EC and the evaluation is not clear. Also River Basin Specific Pollutants (RBSP) in ecological status assessment and sediments or other alternative environment quality standards were considered as challenges. For the purpose of trend monitoring, sediment, or alternatively suspended solid matter (SPM), and biota are the most suitable matrices for many substances because they integrate, in time and space, the pollution in a specific water body. But they were considered as common challenges. Each country lacks of monitoring data that complicates the classification. Tributaries often have different water and thus also different suspended matter/sediment characteristics from the receiving river or lake. The mixing zone is in downstream of the discharges or the tributary confluence, at a point where complete mixing has been established. Permitting vs. biota/mixed zone were considered as common challenge as well as biotic ligand models BLM, bioavailability, natural background and groundwater. The timetable of revising 2008/105/EC was thought to be a challenge for all.

Issues found to be harmonised

In the context of the above there were many issues that were found to be harmonised within the Nordic Countries. The benthic and pelagic predators (e.g. predatory fish) are also at risk from secondary poisoning so they are used as species to be monitored. The target fish could be changed in Finland and Sweden for perch from 20 cm to 15- 20 cm FI SE (off-shore herring SE). And browntrout was suggested to be used in Norway.

Background levels and alternative EQSs were discussed a lot. It was suggested that background level includes in EQS in Finland (present level is about twice of past (before industry) because of regional background and not includes in EQS in Norway and Sweden. Sweden has problems to calculate natural background and they are sometimes higher than EQS. Also RBSPs River basic specific pollutants were thought to be useful to harmonise.

Recommendations and next steps

It was decided to organize specific Lync meetings after conference about some issues (e.g. mercury in biota, River specific pollutants). There will also be information exchange between countries about other issues (e.g. sediments/ other alternative EQS, risks assessment of ground waters).



6.2. Working group B: Technical solutions and coherence

The main goal in the in the blue print is that the Water Information System Europe (WISE) should be better linked and fully interoperable with national databases to help to build a comprehensive picture of aquatic ecosystems. One group dealt with issues related to technical solutions and coherence, and how they could be better harmonised in Nordic countries. Two presentations were held during the first day of the working group session. The second day included one presentation but was more concentrated on discussion on measures and pressures as well as next steps.

Presentations:

1. Technical solutions and coherence in Sweden - Lessons learned and latest development, Niklas Holmgren, Sweden.
2. Vann-Nett Water Information System for Norway, Lars Stalsberg, Norway.
3. Hertta-system and VEMU2-database, Lasse Järvenpää, SYKE, Finland.

Common challenges

The group discussed on common challenges and stated that things take long time to develop. It is hard to show consequences without real examples. In future tests and demos are needed. Also it needs to be identified what measures will be part of the PoM, because it is necessary to prioritize measures.

Issues found to be harmonised

Measures symbolization – as points based on Key Types of Measures and the Colors of Ecological status were found to be harmonised and exchange RGB colors.



Figure 3. Data sharing between countries is important and RDB colors were found to be harmonised.

Recommendations and next steps

For the reporting it was decided to exchange views from previous meeting in April. Also within working group content of Nordic Measure libraries will be distributed and try to map different categories.

6.3. Working group C1: Harmonising PoM between Nordic countries

The overall purpose of the PoM WG is to share best practices in developing and implementing of PoMs, and correspond how to better address the pressures affecting water status. Specific issues cover nature water retention measures (NWRM), water reuse and leakage reduction and marine strategy.

The group session included two presentations during the first day. Also issues to be discussed were categorized in a table. The second day was the workshop day. Issues to be discussed were inquired and points from 1-3 were given to preferable issues within smaller groups. Most popular topics were evaluated and discussed together and a timetable was done for the implementation



Presentations:

1. Situation of PoM in Ireland, Tom Stafford, Irish Water.
2. Groundwaters: I. Measures and II. Ecosystems, Janne Juvonen, SYKE Finland.

Common challenges

The working group found many common challenges. Specially defining measures without pressures and not yet occurred pressures was thought as a common challenge in all countries. These are unknown pressures that are protecting measures rather than preventing measures. It was though very confusing because it is not possible to register the pressure if it hasn't happened yet. Disproportional issues (cost of measure vs benefits) were thought as a challenge because the value of water is hard to be defined. Also reasoning of exemptions should be more economical before it can be harmonised. Also common guidance documents about the exemptions would be useful. It was discussed that it is not clear when measures are basic and when supplementary. Public presentation was considered as a challenge. It is important to highlight what went well and learn from each other. Then it would also be possible to replicate best practices and circulate success stories. Also difference between key measures/ basic measures and alternative PoM was discussed, how many alternatives should there be and should there be focus on supplementary measures?

Issues found to be harmonised

The main themes to be harmonised were agreed to be: Measures without pressures: common approach for preventive measures management on eg. oil leakage, drinking water contamination, description for reporting and plans and monitoring. The information exchange of best practices regarding reporting. Use of exemptions and reasoning: reaching common understanding of the definitions and methods. This includes especially disproportionate costs: economical definitions and finding common understanding and modelling. Measure library of key measures should be further discussed with technical group. The use and definition and improving common understanding on basic/supplementary measures and interpretation on the directive should be made.

Recommendations and next steps (with technical group)

The group will discuss about measure library and reporting with technical group. Specific issues like measure without pressures and monitoring as a measure should be discussed. The group will make suggestions how to move forward with each chosen issue in reporting. This will include the country/ies that has chosen the issue. Also a decision tree was thought to be created. The group will compare reporting to WFD Reporting Guidance 2016 Version no.: 1.1 and map the key measure with significant pressures. First the list of key measures should be made. Also a list of impacts and pressures is needed because these would ease the harmonisation. The participants from B and C1 and will circulate measure-pressure list and definition of pressures list.

6.4. Working group C2: Implementation of measures in agriculture

Working group on agriculture discussed about common challenges and other key questions and made a comparison between Sweden, Norway and Finland. Three presentations were held on first day about the challenges and measures in agriculture. Working group had before seminar prepared list of questions which was further elaborated and answered during WG session. WG defined common challenges, key measures and key obstacles and discussed about financing of measures, significant pressures, modelling approach, public participation and definition of exemptions.

Presentations:

1. Implementation of measures in agriculture in Finland, Jaana Rintala, Centre for Economic Development, Transport and the Environment for North Ostrobothnia
2. Common challenges concerning agriculture in Norway, Tyra Risner, Environment Agency
3. Implementation of measures in agriculture, Jonas Svensson, Swedish Agency for Marine and Water Management



What are common challenges in all countries concerning agriculture?

- High nutrient load and significant and extensive hydromorphological changes in the body of water (e.g. ditches)
- High internal loading (FI)
- How to implement PoM (voluntary measures)
- Time lag, slow response in nature
- Climate change because increased runoff
- Economy of farmers and the importance of food production

What are the key measures to mitigate agricultural pressures?

- Good knowledge base such as risk maps
- Prevent nutrient leaching and erosion from field
- Water pollution control structures to catch nutrients and suspended sediments
- Training, guidance and social learning (e.g. environmental plans of each farm)
- Environmental river engineering - Nature-like drainage

What are the key obstacles in implementation of measures?

- Difficult to control diffuse loading, lack of effective measures
- Present legislation, SE (ditching companies)
- Slow response in nature
- Problems with agri-environmental subsidy (compensation), less money CAP-period
- Financing is not predictable

How do you finance measures for agriculture?

- Farmers finance partly as higher production costs and/or lower productivity
- Agricultural environmental aid (agri-environmental subsidy) - compensation for farmers (EU+national Agricultural Fund for Rural Development)
- Piloting new innovative measures can apply for project funding

How has cooperation with stakeholder organized in practice?

- Larger stakeholder cooperation group (13, Area of ELY-center)
 - o Smaller group for planning agricultural measures for PoM
 - o River groups (not nationwide)
- Water councils in Norway (100)
- Water councils in Sweden (100), also geographical or thematic subgroups

How do you estimate agricultural pressures?

- FI: national model based on hydrological model
 - o VEMALA for all rivers and lakes national level
 - o VIHMA – impact on crop and cultivation technique
- NO: different models
 - o Model more detailed in agri hot spot areas
 - o Erosion model on national level
 - o Areal differences
- SE: national model based on hydrological model (vattenweb.smhi.se 1999-2011) and also regional models

When agriculture is identified as significant pressure?

- FI: If it alone or with another pressure causes ecological state worse than "good".
 - o Approx. > 20 kg P/km²/year total diffuse loading
- NO: information comes later
- SE: 4 kg P/km²/year from agriculture

How is the gap between the current status (nutrient status) and the environmental goal practically calculated

- FI: Present nutrient loading from the VEMALA-model, loading should reduce in same proportion as concentration in water, needs for decreased loading as kg and %
- SE: Same kind of calculation principle applied, decreased loading as precise kg

- NO: Same kind of calculation principle applied, decreased loading as precise kg

How to take climate change into account?

- FI: VEMALA-model calculate climate scenarios on loading on watershed scale, in VIHMA-model (measures) different kind of winters, try to prioritize measures that take into account harmful effects of climate change like winter time vegetation cover
- SE: increased pressure to ditch more and widen ditches and erosion due to increased runoff, have to support more two stage ditches
- NO: artificial ditches (tubes) for cereals are located in very deep underground, big erosion risk, rehabilitate ditches back to surface

Exemptions in agriculture and how to deal with “unreasonable costs” in relation to this?

- We need agriculture and domestic food production, agriculture is often the only source of livelihood in rural areas
- When all the possible measures to certain extent are not enough exemptions are needed

Issues found to be harmonised

Definition when agriculture is identified as significant pressure.

Recommendations and next steps

Compare principles of discharge models and land use data more detailed.

6.5. Working group C3: Implementation of measures in Heavily Modified Water Bodies



The WFD recognizes that in some cases where water body are substantially altered, e.g. by irrigation, drinking water supply, power generation and navigation the benefits of uses need to be retained. If a series of criteria are fulfilled the water body is defined as “artificial” or “heavily modified”. Working group C3 addressed the issues concerning implementation of measures to reach environmental objectives in heavily modified water bodies.

Three presentations were held on first day about the national guidance for Heavily Modified Water Bodies (HMWB) followed by commentary speeches of the energy sector and discussion on common challenges and harmonization. Focus on second day was on planning and comparing of the mitigation measures. Also examples of the planning approaches from different countries were presented. During the workshop a categorizing table was made where stars were given for the evaluation of measure’s potential positive impacts and their relevancy to water bodies. This work on mitigation measure for hydropower affected water bodies was based on a first EU workshop on GEP/Water storage under the CIS

WG on Ecostat, held in Vienna (Austria) in beginning of March 2014.

Presentations:

National guidance for Heavily Modified Water Bodies (HMWB) :

1. Inger Staubo (Norwegian Water Resources and Energy Directorate NVE),
2. Teemu Ulvi (Finnish Environment Institute SYKE) and

1. Johan Kling (Swedish Agency for Marine and Water Management HaVa).

Commentary speeches were given by Magne Fauli (Energy Norway) and Minna Torsner, (Fortum Power & Heat, Finland)

Common challenges

Despite of heavy hydro-morphological modifications there can also be good or even high status in terms of ecological quality in waterbodies. It was discussed whether all Nordic countries should be involved to the analysis related to hydropower production, because of joint Nordic electricity markets. It was recommended that more focus should be put on conservation and production of natural fish stocks, environmental flow regime based on the demand of fishes, re-establishing fish habitats and their opportunities to migrate up and down over the barriers. Also it was stated that now most of the impacts and mitigation measures in HMWBs are related to flow regime.

Issues found to be harmonised

The measures applied in the implementation of the WFD in heavily modified waterbodies between Nordic countries could be harmonised. Also it was discussed that it is important to harmonise the designation and classification and the planning of measures in HMWBs on Nordic or even on a European level. It was also stated that harmonisation, joint frameworks and thresholds are sometimes important to get things to move forward. During the workshop it was highlighted that there is a need to take the joint European context into account and consider HMWB issues in international level not only on national level

Recommendations and next steps

Identification of habitat related bottlenecks requires a lot of knowledge especially of survival and production and the migration up- and downstream. There is a need and would be beneficial to prepare a joint Nordic mitigation measure library for HMWBs. Already during the workshop a smaller group started to prepare the joint mitigation measure library for heavily modified water bodies. In the library the measures are also prioritized based on their potential positive impacts on ecology. The measures need to be translated into impacts on biological quality elements and biological status in different countries. This work would require more research in HMWBs. . Further Nordic collaboration on these issues should be related to the ongoing harmonisation on GEP for water bodies affected by water storage under CIS WG EGOSTAT, and the Swedish initiative on establishing an expert group on HYMO under CIS.

7. Recommendations for next steps

7.1. Implementation of WFD

Implementation of the Water Framework Directive is running a second cycle where River Basin Management Plans are updated until 2015. Sweden, Norway and Finland have advanced RBMP at the same time. Public consultation on the revised draft plans began at the end of the year 2014 (summer 2014 in Norway). Planning situation in Denmark and Iceland are behind this schedule due to changes in legislation and the political reasons.

Despite the small differences in planning timetables, the most important issue is the



implementation of Program of Measures. Implementation of PoM has not progressed in any Nordic country as planned. The main problems are related to the financing of measures and the status of the presented measures. Measures are quite often voluntary to sectorial players and administration is lacking sufficient tools to promote implementation. This is the key future challenge in all Nordic countries.

7.2. Common challenges and harmonisation

Common Future challenges include safeguarding stability of monitoring networks (water quality and quantity), integrating the need to increase renewable energy, especially hydropower, to environmental targets, management of extreme conditions (water too much or too little), diffuse pollution management and urban floods under changing climate conditions, legislative and administrative "bottlenecks" related to implementation of measures.

It was found that there is already a lot of harmonisation done in Nordic countries related to ecological and chemical status. Also, there is a long-term active cooperation in technical systems (data systems and GIS) and reporting. Examples of issues to be harmonised in future discussions.

- Improving the monitoring of chemical status: target fish, background levels, alternative EQSs and river basic specific pollutants.
- Water quality status does not improve as expected by 2015 (diffuse pollution management doesn't deliver sufficient results). There is a need to continue discussions about use of exemptions and their reasoning (disproportional costs).
- Common Nordic measure library
- Connecting measures, pressures and status
- Assessment of hydrological and morphological pressures
- Criteria for diffuse loading as significant pressure
- Environmental impact assessment and status assessments of hydropower related waters
- Climate change: support research related to ice cover, frost and snow conditions
- Economic assessment of water services.

7.3. Future cooperation platforms

There is need to continue and increase Nordic cooperation in implementation of River Basin Management Planning (WFD) and Flood Risk Management Planning (FD). Now it is also a good era to influence to European water policy with active involvement of Nordic countries because the revision of WFD begin soon and will be finalized in 2019.

Bilateral border river agreements with Sweden, Norway and Finland give possibility to support cooperation concerning border rivers and lakes. To take advantage of future possibilities of Arctic cooperation is also great possibility.

The Nordic cooperation should also be promoted under EU CIS-process in working group (WG) meetings. These meetings leave little time for Nordic discussions and there is continuous need to organize annual Nordic meetings with sub groups, promote shared map services etc.. These meeting with WFD and FD key persons could prepare Nordic stands with EU water relate issues with common Nordic interest. In this way, the Nordic countries may better cope with the numerous WG and other groups under CIS, to promote the to some extent unique challenges the Nordic countries are facing when implementing this directives. This may be a valuable contribution to a more efficient effort for implementation of WFD at the national level.

As a general conclusion from the Oulu meeting, there is a need for further Nordic WFD meetings in alliance with representatives from the Alps (e.g. Austria) and the British Isles (e.g. Ireland, Scotland), for further knowledge sharing and development of common tools and management methods. It was agreed that the next WFD (Nordic) meeting to be in May/June 2015 before finalization of River Basin Management Plans and Program of Measures.



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