Grenseoverskridende nedbørfelt – bortglemt i vannrammedirektivet?

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Sammendrag

Rammedirektivet for vann krever en inndeling i vannregioner (river basin districts) som ivaretar hele nedbørfelt med tilhørende kystsone. EUs medlemsland inkl EØS-land skal sikre at en forvaltningsplan (River Basin Management Plan) utvikles for hver vannregion innenfor landets territorium. For vannregioner som krysser landegrenser skal forvaltningen, i henhold til direktivets artikkel 3 og 13, koordineres av vannregioner og det skal om mulig lages en felles vannforvaltningsplan. Om dette ikke lar seg gjøre skal forvaltningsplanen kun dekke landets egen del av vannregionen. Nå når de aller fleste land er ferdig med inndelingen av vannregioner så viser det seg at et stort antall (oppimot 30%) vil være internasjonale. Arealmessig tilsvarer disse omtrent 65%. De vage formuleringene i direktivteksten for grenseoverskridende vannregioner vil derfor bli en stor utfordring med risiko for at helhetstenkinga blir "vannet ut" og at handlingsprogram, forvaltingsplaner og tiltaksgjennomføring mellom forskjellige land i samme nedbørfelt ikke vil koordineres. Heldigvis vil internasjonale vannregioner neppe kunne bli ett stort problem for Norges implementering av vanndirektivet da kun to av de 14 av SFT's foreslåtte vannregioner vil krysse landegrensen. Trysilelva i Glomma vannregion, som renner til Sverige, blir en internasjonal vannregion. I nord Norge vil vassdragene Tana og Passvik (tilhørende Finnmark vannregion) dog påvirkes da en relativ stor del av nedbørfeltet dekker Russland og Finland. Spesielt utfordrende for Norge vil bli å lage en felles vannforvaltningsplan som også inkluderer de russiske delene.

I artikkelen vises et eksempel fra det nylig avsluttede norsk koordinerte EU-forskningsprosjektet 'MANTRA-East' (www.mantraeast.org) med temaet grenseoverskridende vann. Europas fjerde største innsjø, Peipsi, beliggende mellom Estland og Russland ble brukt som pilotstudie. Prosjektets generelle anbefalinger, for implementering av EUs vanndirektiv i internasjonale vannregioner, er gitt i artikkelen.

Transboundary water management – a particular challenge

Transboundary water management presents a number of challenges to politicians, planners, administrators and scientists, due to the involvement of different political and administrative systems. A substantial amount of research conducted in this field during the last decades has concentrated on water conflicts caused by lack of water, predominantly in the Middle East, Africa, India and America. However, problems just as pressing exist in Europe today, where the difficulties encompass both water quality and water quantity.

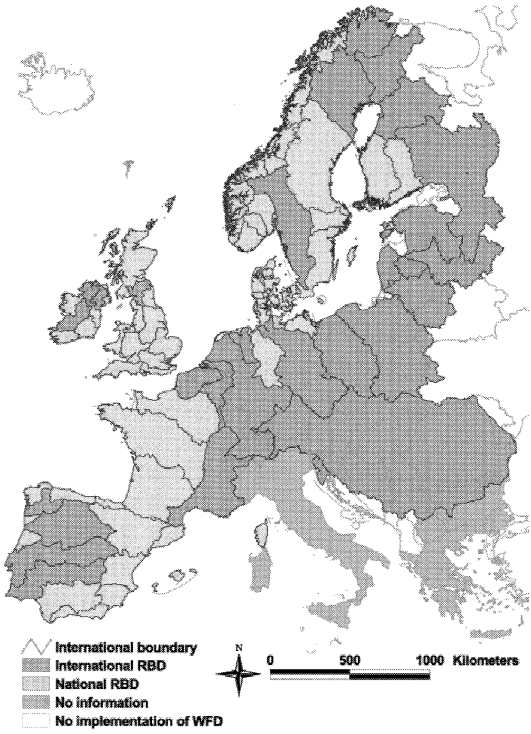
Weak requirements for transboundary river basin districts in the WFD

One of the first steps in the implementation of the Water Framewok Directive (2000/60EC), is to identify river basins, assign them to River Basin Districts (RBDs) and appoint competent authorities to manage the districts (Article 3). If a river basin extends across international boundaries the directive specifically requires it to be designated to an international RBD. The directive further specifies that countries shall ensure cooperation for producing one single RBMP for an international RBD falling within the territories of the EU. However, if not possible, the requirement is to produce a RBMP only for the part of the basin falling within each country's own territory. If the basin extends beyond the territories of the EU, the directive encourages Member States to establish cooperation with non-Member States and, thus, manage the water resource on a basin level (Articles 3 and 13). The guidance document Best Practices in River Basin Management Planning, produced as a part of the Common Implementation Strategy, touches upon international RBDs but does not actually go any further than the directive in specifying how to designate international RBDs.

Many river basin districts will be transboundary

A study by Nilsson et al. (2004) showed that 30% of the prospective RBDs identified under the WFD are international (Fig. 1). Area wise, the international RBDs constitute about 65% of the total area of prospective RBDs. It is thereby quite clear that for fulfilling the intentions of the WFD regarding management according to river basins, this must imply international management. The directive addresses international river basins in, e.g., the designation of RBDs, where it requires international river basins to be assigned to international RBDs. On the other hand, as already stated, the directive is much less strict and more ambiguous in its demands for international RBDs compared to its demands for national districts. Given that such a large proportion of the prospective RBDs covers the territory of more than one country, it might be argued that the "soft" requirements of the WFD regarding international RBDs

may undermine the intentions of the directive of management according to river basins. The directive appears to serve as an incentive for joint management rather than strictly enforcing international management.



Figur 1. Prospective river basin districts. After Nilsson et al. (2004).

Experiences and recommendations from a research project

The issue of integrated water management was elucidated in a just recently finalised EU FP5 research project coordinated by Jordforsk 'Integrated strategies for the management of transboundary waters on the Eastern European fringe' (MANTRA-East; www.mantraeast.org). The MANTRA-East project had three main objectives. The first of these was to evaluate the applicability of the WFD in the future EU border regions. This included an assessment of the state of eutrophication (e.g. ecological status) in lakes and river basins, as well as the development of strategic lake and river basin tools for source apportionment, retention, and time-trends in

nutrient loads. The second objective was to develop methods to improve communication and utilisation of scientific information. The third objective was to develop institutional mechanisms and policy instruments for decision making under conditions of transition and uncertainty. The first objective was primarily the domain of the natural scientists in the project, the second objective was mostly managed by geographers and information specialists, and the third objective was the responsibility of the social scientists and policy analysts. The underlying rationale behind this model was that scientific information produced by the natural scientists was needed in the policy process, as well as knowledge of the policy process (decision-making and implementation) itself. This information needed to be communicated to the actors in the policy process, as well as to stakeholders and end users. The two main case studies in the MANTRA-East project were (i) Lake Peipsi, the largest international lake in Europe shared by one new EU state (Estonia) and one non-EU state (Russia), and the Vistula Lagoon, shared by the new EU-state Poland and Russian Federation.

The major results and recommendations from the MANTRA-East project are summarised below:

- **Need of comparative policy science studies to promote efficient water management planning.** A review of existing transboundary water management structures and practices in transboundary water basins in Europe demonstrated a lack of well developed research and analysis on the implementation of water management policies and plans (Gooch et al., 2002). It was also shown that organisational and institutional aspects of implementing EU water policy (political, research, administration etc) and problems of communication and information exchange between different levels of governance as well as across borders present major difficulties for policy implementation.
- **Address differences in water management competences between countries on the new EU-border.** Investigations during the MANTRA East project illustrated in particular that there is a growing gap in the formal frameworks (different administrative structures, norms and standards), practices, information and levels of funding towards water protection measures on the different sides of the border – an EU member or accession state and a non EU state (Gooch, 2003a). This presents a major challenge for the transnational implementation of EU water policy such as the WFD
- **Stakeholders and the public- the key to successful implementation of water policies?** The study of theoretical models and a review of experiences of stakeholder and public participation in transboundary water management confirmed that involving multiple stakeholder groups in the development and implementation of EU and

national water policies is critically important; however, this is not always feasible for various reasons. Usually in transboundary water basins only few organised stakeholder groups are in some way involved in the planning and implementation of water policies. Many local stakeholders are not sufficiently aware of regional water management issues and therefore are not interested to get involved. Traditionally, a major bottleneck in the implementation of environmental policies is created when experts produce a highly technical body of information that becomes incomprehensible to non-experts. Innovative approaches and technologies to disseminate water management information (e.g., semantic webs, citizen juries) were tested and found to be valuable to be implemented in transboundary water basins in order to increase awareness of local stakeholders in transboundary water issues (Säre and Roll; 2004). One important tool in the Lake Peipsi Basin is a regional Internet portal (www.peipsi.org) that uses knowledge management technological solutions to provide all interested parties with comprehensive information and news on environmental and regional development issues in the lake basin. The Lake Peipsi portal is available in Estonian, English and Russian. It is important to use the mother tongue of local stakeholders for this kind of communication tools.

- **Transboundary Water Commissions ignore stakeholders.** Seven case studies examining various aspects of environmental information use from both theoretical and empirical perspectives for Nemunas River, Bug River, Oder River, Lake Neusiedl, Lake Constance, Elbe River and Spanish – Portugues Rivers were conducted (Nilsson and Langaas, 2003). Results show that transboundary commissions are largely expert/technical commissions. The socio-economic connotation of water management decisions may as a consequence be underestimated. One consequence is the lack of attention of transboundary commissions on the involvement of stakeholders.
- **Socio-economical information is important in the water management decision-making process.** Environmental data is rarely used in the decision-making process unless it shows a direct and clear connection between and impact of the physico-chemical and biological conditions to changes in the economic and social situation in a given transboundary water region (Timmerman et al., 2002). Information for decision making, especially the analysis of the problem, needs to fall within the scope of expectations of the decision makers. For a transboundary water management situation this implies that, to be effective, an existing problem should be described from the viewpoints of the

countries involved. Furthermore, the information should also allow for different solutions in the different countries (Timmerman et al., 2002).

- **Use of environmental and socio-economic information is crucial for transboundary water management.** A very wide spectrum of information is required to support decision-making and to evaluate the effects of water resources management decisions. Within the project, it was found that information production lags behind needs in well-informed developments in the water management. Although integrated water management was introduced more than a decade ago, information about transboundary water basins still focuses mostly on hydrological and ecological components of water bodies and largely ignores the importance of socio-economic data and processes. Among the reasons that hinder production of such improved information are (1) strong boundaries between different disciplines that are not easily overcome; (2) the variety of information needs are underestimated and the knowledge and perception of goals of information dissemination prior to producing the information is insufficient; (3) differences in institutional behavior between representatives of different organizations involved in the cooperation hinder the collaboration between these institutions.
- **Simplistic nutrient modelling tools efficient for pollution prevention strategies.** In transboundary river basins, riverine load modelling and source apportionment is more difficult than in other situations, because the required administrative statistics and GIS (spatial) data are not harmonious for each country. This is especially the case for the Lake Peipsi basin, which can be regarded as data-rich for the Estonian part, and data-poor with respect to the Russian part. In the project, two models (MESAW and Polflow) were applied to assess the source, retention and transport of nutrients (Vassiljev & Stålnacke, 2005; Mourad et al. 2004). Both models were proved to be complementary and useful tools for the assessment of nutrient loads in past, present and future in transboundary drainage basins. With a minimum of large-scale maps and calibration of the model using data from a relatively data-rich part (Estonia), plausible nutrient emission estimations and load simulations can be obtained for an entire basin, including data-poor parts (Russia/Latvia). The modelling of nutrient emissions and loads for future scenarios enables decision makers to identify priorities for water management, and evaluate the effect of various developments (see next bullet point). The same situation concerns Vistula Lagoon basin, which can be regarded data-poor with respect to Russian part and slightly data-richer for the Polish part. In the project, Mike Basin model was applied for

Pasleka River to assess the source and loads of nutrients. These estimates were extrapolated to other rivers discharging to the Vistula Lagoon (Przedrzymirska and Lewandowski, 2004). A comprehensive overview of major results from the Vistula Lagoon case study is given by Bielecka and Lewandowski (2004).

- **Blue-green algae bloom more frequent in lake Peipsi due to lowered N:P ratio.** At present there is a clear decrease in the N:P ratios, at least in the Estonian rivers (Iital et al., 2004; Stålnacke et al., 2004), which most likely is the reason for increased observations of Cyanobacterial blooms in the lake in recent years. More precisely, changed relations in the amounts of N and P in riverine loadings have lead to the situation that N/P ratios, both in rivers and in L. Peipsi lake, has fallen below the critical ratio of 30 (Noges et al., 2003). Besides the N/P ratio, the concentration of phosphorus is an important factor determining cyanobacterial development. At high P levels and low N/P ratios bloom forming blue-greens are favoured due to their ability to fix atmospheric N2 in the conditions of N-limitation.
- **Model results show the importance of decreased phosphorus loadings**. Model calculations show that decreased phosphorus loads will decrease the risk of water blooms in L. Peipsi (Noges et al.; 2004). As the main proportion of phosphorus is coming through the two major rivers Velikaya (Russia) and Emajõgi (Estonia), the main attention should be paid to these two rivers and especially for coordination of actions. Connection to wastewater treatment plants and improved P-removal will give an immediate decrease especially for point sources in close proximity to the lake (e.g. Pskov city in Russia) and solve hygienic problems locally but long-term future strategies for nutrient load reduction should mainly focus on not increasing the agricultural nutrient runoff. Today, agriculture is responsible for the largest portion of the total loading to the lake (Stålnacke et al. 2002; Vassiljev and Stålnacke, 2005; Mourad et al. 2004) even though the losses from agriculture per unit area (e.g. kg/km2), is at a very low international level (Stålnacke et al. 2002: Stålnacke and Roll, 2002). So the future loadings will heavily depend on how the agricultural land will be used in future, e.g. how much of the present set-aside and abandoned land will be used in future and the intensity in the agricultural sector?
- **Lake Peipsi scenario results show the importance of controlling both point and diffuse sources.** In the MANTRA-East project, qualitative scenarios, 'storylines' or 'scripts', were developed (Gooch 2003b) and are presented in the paper by Gooch (2004). The qualitative/explorative scenarios were then translated into quantitative GIS-layers. A

nutrient transport model was then used to calculate the nutrient emissions, as well as transport and retention and the resulting nutrient loads into the lake (Mourad, et al., 2003). These estimated nutrient loads were then used to assess the ecological effect in lake Peipsi (Nõges T. et al., 2003b). The model results from the scenarios suggest that change in the amount of arable land will be the major factor controlling the future nutrient loads to Lake Peipsi. The results also show that the riverine loads of nutrient loads will change surprisingly little even under extreme future changes.

- **The Vistula Lagoon case study confirmed the need for better cooperation and coordination across border.** To overcome future improvement of transboundary cooperation it is necessary to initiate common actions such as common monitoring program, common data base, common tools for hydrological and ecological predictions as well as efficient information dissemination and exchange system (Bielecka & Lewandowski; 2004).

Concluding remarks

In the article, we have argued that transboundary aspects seem to be seriously underestimated in the WFD implementation. Given that many of the RBDs will be transboundary combined with the 'softly' defined requirements in the WFD text concerning the transboundary RBDs (Articles 3 and 13 in WFD) it may be argued that this may undermine the directive's requirement and high ambition of holistic management and administration according to river basins.

We recommend that formal and more legally binding arrangements and procedures should be established between the riparian governments as well as between the governments and the stakeholders. Their responsibilities and procedures of work should be clearly described in the part that concerns implementation of the WFD on those transboundary waters. The political will from the governments of all riparian countries is a prerequisite for a successful start and continuation of any transboundary cooperation. Actions should be taken to promote political commitments of the states to the international cooperation on transboundary waters.

Results from the MANTRA-East project have led to an increased knowledge about various aspects of transboundary water and pollution-related problems. Overall, the activities have clearly demonstrated that the implementation of the Water Framework Directive is faced with a difficult task in transboundary river basin districts especially those located on the new European Union border and beyond.

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