Interactive management of transboundary waters on the 
external European Union border

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Abstract The paper addresses issues specific to planning of water protection measures in transboundary water basins located on the external European Union border. The case study of the Lake Peipsi/Chudskoe, a large transboundary lake shared by Estonia and Russia, is used to demonstrate issues of management of transboundary waters on the Eastern European fringe. The author emphasizes the importance of managing transboundary water basins located on the EU external borders interactively, i.e., through regular communication and consultation among water experts, decision-makers and stakeholders involved in managing waters on transboundary, national and subbasin levels, and discusses difficulties in, and opportunities for, the interactive management of transboundary waters on the EU external borders.

Keywords EU accession; EU Water Framework Directive; information and communication strategy; transboundary water basin; water policy implementation

Introduction
The transboundary Lake Peipsi/Chudskoe basin is located on the future European Union border as it is shared by Estonia, a EU accession state, and a non-EU state – Russia. Estonia is planned to enter the EU in May 2004. The ongoing accession of Estonia into the European Union created a new political and economic context for implementation of water policies in this transboundary water basin. The paper discusses challenges in this process and formulates recommendations for management of transboundary waters located on the external European Union border.

The context of managing transboundary waters on the Eastern European fringe
Generally speaking, transboundary water management is faced with the task of successfully solving complicated problems dependent on the specific conditions created by the interaction of two or more political systems (Gooch at al., 2002). Within the EU, these differences in the political systems between the member states are not as dramatic as they are on the external EU borders. EU internal borders serve multiple integration purposes including an intensification of economic networking, enhanced regional participation in policy-making, greater responsiveness to local interests in spatial planning and regional development. The future external border of the EU will inevitably be of a different kind and be formed in an “inter-state” context, between the European Union and Russia or other New Independent States (Council of Europe, 2000). While practices of the transboundary cooperation could be similar for both internal and external borders of the EU, legal frameworks and institutional arrangements for the cooperation can differ considerably and this can influence the transboundary cooperation patterns and dynamics. For example, in areas on the EU external borders, visa-free movement of the local population across the border is often impossible, while visa-free border crossing is a common practice in the region on borders between EU member states. Transboundary cooperation regimes on the EU external borders, besides their specific direct functions – economic development (trade regimes, management of shared resources – energy, forests, oil) or environmental protection (water, biodiversity protection)
have always a function of ensuring security of the EU as well as bordering states both from its western and eastern sides.

Transboundary water basins shared by EU countries and EU accession countries, or otherwise EU accession countries and New Independent States of the former Soviet Union, are usually newly emerging or reconstructed borders, as it is in the case of the Estonian – Russian border, where institutions, including procedures for communication and cooperation are still in transition and where transboundary stakeholder networks are still weak and not yet institutionalised.

Another important feature of transboundary areas on the European external borders is a growing gap in socio-economic development and living standards on different sides of the EU external borders. In the case of Lake Peipsi/Chudskoe, on the Russian side, there is much less local funding, and on the Estonian side international funding is available to support implementation of environmental protection measures and therefore the economic basis of water protection is much poorer on the eastern side of the border. If this gap between the two sides of the border area becomes too wide, it is likely there will be little mutual understanding between the organisations and stakeholders on different sides of the border and as a result trust and cooperation across the border can decrease.

These issues and conditions specific to the transboundary waters located on the EU external borders should be taken into account when developing programs for water management in these transboundary water basins. Transboundary water basins located on the EU external borders should be managed interactively, i.e. through regular communication and consultation among all major stakeholder groups in these basins, as neighbouring countries sharing these water basins have lots of differences between each other in institutions, social and economic development, and are in a process of economic and political transition. As the situation in these border transboundary basins is changing all the time, the water planning and management has to be interactive. In the next section, the experience of preparing a transboundary Lake Peipsi/Chudskoe Basin Management Program is described that demonstrates how these conditions were taken into account in the process of interactively planning water protection measures in the Lake Peipsi/Chudskoe Basin.

Lake Peipsi/Chudskoe – water management issues, legal and administrative framework for the transboundary water management

Lake Peipsi/Chudskoe is the fourth largest lake in Europe with a large drainage basin. The lake basin’s major environmental problems are connected with water eutrophication and reduced fish stocks. Eutrophication due to significant nutrient loads in Lake Peipsi/Chudskoe represents a major threat for the water quality of the lake directly connected to the Baltic Sea by the Narva River. Water eutrophication, which is expected to increase in correlation with the economic recovery of the region, is regarded as being mainly dependent on the development in the agricultural sector (Stålnacke and Roll, 2002). In addition, the potential increase of agricultural production in the future without improvement in agricultural practices can considerably affect the potential of the lake for supporting important Baltic Sea area habitats for wildlife.

Lake Peipsi belongs to the Republic of Estonia and the Russian Federation. By now Estonia has adapted its laws and the administrative system to the requirements of the EU. As a part of this work the Estonian Water Act was revised to harmonize with the EU Water Framework Directive that defines river basins as the basic unit for all water planning and management actions. According to the EU Water Framework Directive requirements, the Estonian part of the Lake Peipsi drainage basin is defined as one river basin (Estonian Ministry of the Environment). In Estonia water management is co-ordinated by the Ministry of the Environment and its county Environmental Protection Departments where
some of these county departments were appointed to coordinate preparation and implementation of water basin management plans on the sub-basin level. On the Estonian side of the lake basin, the Estonian Ministry of the Environment with additional financial support from the EU LIFE Programme, is developing a plan of water protection measures in line with the EU and Estonian national legislation.

The other half of Lake Peipsi/Chudskoe is located in the Russian Federation. The Water Framework Directive (WFD) of the European Union is not mandatory for Russia as the EU WFD is compulsory only for the members of the EU and recommended for accession countries. Nevertheless, it could be used for transboundary water basins located on the territory of the Russian Federation because it is dealing with the questions of joint water management in the case of the EU and other countries’ transboundary waters. In the Russian Federation waters are managed according to the Russian Federation Water Code. The main state agency responsible for these activities is the Ministry of Natural Resources (MNR) of the Russian Federation. The Ministry at different levels is represented by the following bodies: the Ministry itself is working on the federal level, Water Basin Administrations are dealing with water management on the regional (basin) level and the Committees of Natural Resources on the territorial (oblast) level. Along with the Ministry of Natural Resources, the Russian Federation Hydrometeorological Service is involved in the water monitoring as a part of the water management system in Russia. Russian authorities, responsible for the water management, have accepted that principles of the EU Water Framework Directive would be applied also on the Russian side of the Lake Peipsi/Chudskoe basin (Budarin, pers. comm.). The EU TACIS project, with an amount of 2 million EUR, has supported this work on implementation of the EU WFD principles and Russian water legislation and preparation of the water basin management plan for the Russian side of the lake basin.

At the same time preparation of these measures are coordinated across the border in an interactive way through developing an umbrella Lake Peipsi/Chudskoe Basin Management Program for the whole transboundary water basin. The program will address issues of importance for the whole transboundary water basin and will include practical recommendations for Lake Peipsi/Chudskoe nutrient load reduction and prevention, and the sustainable conservation of habitats and ecosystems in the cross-border regional context. The program includes capacity building and regional development components; therefore, preparation of the program addresses not only environmental but also economic and social development challenges in the region. Partners in the project on preparation of the program are the UN Development Programme, the Estonian Ministry of the Environment and the Russian Ministry of Natural Resources. The Global Environmental Facility (GEF) supports preparation of the Program through the UN Development Programme (UNDP); the UNDP/GEF project implementation is organised by an international NGO Peipsi Center for Transboundary Cooperation.

Results of research projects, such as MANTRA-East (see Acknowledgement for more information on the MANTRA-East project), that address issues of water management for the whole transboundary water basin, are used in the process of preparation of the transboundary Lake Peipsi/Chudskoe Basin Management Program.

**Interactive planning in the Lake Peipsi/Chudskoe transboundary water basin**

Coordination of preparation of the Estonian and Russian national plans of water protection measures on the transboundary basin level is organised through the development of detailed joint plans of work between the relevant authorities who coordinate their work within the Estonian – Russian Transboundary Water Commission; this takes place through work of the Commission’s four working groups that include experts from both countries from the government, research organisations, local authorities and NGOs.
Activities of the mentioned international projects are lined up with the working plan of the Transboundary Water Commission. Coordination of work within the projects is organised by the projects’ implementation units by the means of regular consultations between the project managers and establishment of projects’ steering committees that include the same representatives from the Estonian and Russian relevant authorities. A transboundary Lake Peipsi/Chudskoe Basin Communication and Public Involvement Plan is being elaborated jointly by Estonian, Russian and other international experts that will help to ensure timely consultations with multiple stakeholder groups as a part of preparation of the transboundary water basin management program.

Among major transboundary stakeholder networks in the Lake Peipsi/Chudskoe Basin are organisations and persons involved in this region in water transport, tourism, and commercial fisheries; as well as in education and scientific cooperation. However, most of these networks are still quite weak in the region. Slowly but surely the cross-border cooperation between the municipalities is developing in the region as their economic development basis is becoming more stable, and the connection between agencies managing waters in the Lake Peipsi/Chudskoe Basin and the municipalities and their cooperation should be strengthened and organised on a regular basis.

Both aspects in planning of water protection measures in transboundary water basins are important – having a balance between working transboundary and nationally with elaborating water management measures (management of international rivers is very, very political; Grey and Sadoff (2002)) – and providing support to transboundary networks of the local authorities and stakeholders that develop their shared vision in the international basin scale vision of the future in the water basin. Support to the local transboundary networks is important; support of proposed water protection measures from the side of stakeholders at the local level where day-to-day use and protection of water resources is taking place, ensures sustainable use of water resources in the long run.

The experience of preparation of the transboundary Lake Peipsi/Chudskoe water management program demonstrated that in the transboundary context water management projects should have much more focus on communication, information exchange, and developing trust between all the partners – between the relevant authorities, experts and stakeholders; the communication and cooperation across the borders as well as between different levels of governance, including the international water basin, national and local levels. As usually budgets of relevant authorities are limited, it is necessary that tailor-made information dissemination and communication approaches are elaborated and used to deliver relevant and understandable information to the stakeholders’ groups involved in implementation of water policies and to receive their feedback. Besides using funds more efficiently for working with stakeholders and the public, this will facilitate and promote more effective implementation of the water policy.

To prepare the communication and public participation plan for the transboundary Lake Peipsi/Chudskoe Basin, extensive studies aimed to define the stakeholder groups in the region and their interests, and the information channels and formats preferred by these stakeholders were organised within the research MANTRA East project (www.mantraeast.org). This included expert interviews, focus groups, and in-depth personal interviews with experts and local stakeholders in the region. The mentioned studies allowed mapping of major stakeholder groups and their interests in the region; it also demonstrated how differently different stakeholder groups perceive water management issues in the region.

For instance, according to the results of sociological studies conducted in 2001 and 2003 in the lake municipalities (Uus et al., 2001; Kangur, 2003) with participation of representatives of local authorities as well as major local businesses and NGOs, these stakeholders
perceived lack or the malfunctioning of waste-water treatment systems and solid waste management as the main environmental issues in the region. Most of the local governments are missing centralised wastewater treatment systems. A positive movement towards the improvement of the water supply and wastewater treatment systems is that bigger local governments are making the development plans and searching for external funding to develop environmental infrastructure.

Local inhabitants in the lake area according to Andersen (2003) are mostly concerned with the decrease of fish stock, and an increasing pollution of the lake waters that according to the local people stems from the overgrowth of plants or unpurified wastewater from local factories. Another problem mentioned by the local inhabitants was the increased felling of trees in forests.

Also decision-makers, members of the intergovernmental Estonian – Russian Transboundary Water Commission, considered construction of wastewater treatment plants in the lake basin as priority issues for the Commission. The Commission at its annual meeting in December 2002 supported measures aimed at construction and reconstruction of environmental infrastructure for point-source pollution sources, and a decrease of the water consumption by industries, mostly in the northern part of the lake basin (Minutes, 2003).

Researchers in the MANTRA East project elaborated integrated scenarios for the development and environment in the lake Peipsi/Chudskoe Basin for the period of 15–20 years, which formed the basis of their statement on what are the major environmental issues in the lake basin and what should be done to improve the environmental situation.

The scenarios were developed using the story-line methodological approach and using qualitative as well as quantitative information as input into the scenarios. Points of entry of the scenarios’ development are the transboundary aspects and regional development (international cooperation and economical development) and their consequences for nutrient emissions/riverine loads and lake water and ecological quality. Driving force variables included population, wastewater treatment connection rate, the fertiliser use, livestock amount, crop yields, atmospheric deposition and amount of agricultural lands. The following scenarios were elaborated (Gooch, 2003):

1. “Business as usual scenario (BAU)” that includes continuation of present trends where it is expected that the economical situation will remain the same and pollution loads and emissions remain on the level as at the of end of the 1990s.
2. “Target/fast development scenario”. Estonia is described in this scenario by a fast adaptation to the EU and Russia – by domestic fast economic and social development.
3. “Crisis scenario”. According to this scenario, conditions radically deteriorate into “crisis” in both countries.
4. “Isolation scenario” where Estonia has a slow and unwilling adaptation to the EU and Russia is characterised by the isolation from Europe and a growth of nationalist sentiments.
5. The last scenario is a combination of scenarios II and III where Estonia is expected to have fast development and Russia remains in a crisis.

Results of the studies of the environmental state in, and development of the scenarios for, the Lake Peipsi/Chudskoe Basin showed that given the 5 scenarios of the future regional development, the riverine nutrient loads into the lake are expected to generally decrease (Mourad et al., 2003). The target/fast development scenario (II) results in a substantial larger N\text{tot} input to the lake. The Crisis scenario (III) yields the largest P\text{tot} load. No scenario predicts larger nutrient loads than in the communist period. Based on the scenarios development, scientists developed the following assessment of the environmental state in the lake basin and policy recommendations (Mourad et al., 2003):
- Eutrophication due to significant nutrient loads in Lake Peipsi/Chudskoe represents a major threat for the water quality of the lake and the present ecological state of the lake is moderate;
- Change of the amount of arable land is a major factor controlling nutrient loads to Lake Peipsi;
- Although connection to wastewater treatment plants and larger removal efficiencies for these installations can solve hygienic problems locally, strategies for nutrient load reduction should mainly focus on agricultural nutrient runoff, especially in the Russian part of the drainage basin.

It is obvious that the scientific viewpoint differs from those of the local, regional and national stakeholders and decision makers. This comparison of different perceptions of water management issues by different groups in the region also demonstrates a crucial importance of communication aimed at developing a shared vision of the priority environmental issues in the region across different stakeholder groups and on different sides of the border. In the Lake Peipsi Basin, an important process of communication between the experts, decision-makers and local stakeholders should take place. Developing special communication and participation plans for transboundary water basins aimed to communicate expert-based and scientific information to stakeholders, and to promote a three-way political dialogue between decision-makers, experts and local stakeholders is very important.

In the Lake Peipsi/Chudskoe Basin, based on recommendations of the basin communication and participation plan, web-based and non web-based information communication instruments were developed that allowed different stakeholder groups to be more efficiently reached. These information dissemination instruments were very different for different groups. For example, on the very local level, the most effective approaches were local meetings organised in municipalities and articles in the local newspapers; on the regional level other approaches, such as seminars and publications, worked better. The central communication vehicle about the lake and its environmental issues is a regional web portal www.peipsi.org that can reach in the most efficient way a wide range of stakeholders. The portal offers cause-effect related environmental information about the lake transboundary water basin, a systematized collection of texts, reports, links to websites, and allows users to look for their geographical location on the interactive map of the region. The portal was developed using innovative information and communication technologies, such as “semantic web”.

**Conclusions**

In the transboundary water basins located on the EU external borders, where on one side the EU legal and institutional framework is applied and on the other side Russian or other NIS country legislation is in force, there is a need to ensure a dynamic balance between developing water protection measures on a transboundary level and nationally; the planning process should be organised in an interactive way providing communication between teams developing transboundary water management strategies and national water management plans. Considerable differences in the legislation, gaps in the socio-economic development, etc. between different sides of transboundary water basins, do not allow developing a detailed transboundary water basin management plan for the whole water basin only. Preparation of national water management plans on different sides of transboundary basins in combination with umbrella transboundary water management programs focused on water management priorities important for whole transboundary basins, seems to be a good arrangement; and this model of water planning worked well in the River Danube Basin where this approach was implemented within the Danube UNDP/GEF
There is a very big risk of not achieving objectives of the improved water quality in a water basin, if an easier way of developing only national water management plans and in the transboundary water basin without necessary coordination is taken.

As the development of a transboundary water management program starts, it is important to provide support to transboundary networks of the local authorities and stakeholders, specifically in communication within the networks and in developing their shared vision in the international basin scale vision of the future for the whole water basin.

In transboundary water basins, activities on communication and information are much more important than in the national context, as information is exchanged across different legal and institutional frameworks, cultures and languages.

To promote interactive planning of water management measures, innovative tools and instruments for information exchange and communication should be elaborated.

Finally, in the planning process, interaction processes in transboundary water basins should be addressed taking into account policies at various levels and established forms of co-operation practices on different sides of the borders, conditioned by the perceptions of various public and private actors.

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