



**MANAGEMENT OF
TRANSBOUNDARY WATERS
ON EU EXTERNAL BORDER
IN NORTHERN EUROPE**



**Proceedings of an international workshop
held on 27 May 2003 in Tartu, Estonia**

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INTRODUCTION

The experts in the management of transboundary waters from Estonia, Russia, Norway and Finland met in Tartu on 27 May 2003 to discuss the enhancement of co-operation on transboundary waters. 60 experts participated in the workshop; among the participants were representatives of the Finnish-Norwegian Transboundary Water Commission, the Finnish – Russian and Estonian-Russian Transboundary Water Commission. Representatives of the Ministry of the Environment of the Republic of Estonia, Russian Ministry of Natural Resources, and Northwest Russia Hydrometeorological Service, Peipsi Center for Transboundary Cooperation and other organisations involved in water management in the Lake Peipsi/Chudskoe Basin took part in the seminar.

The activities and results of the currently ongoing joint projects in the Lake Peipsi/Chudskoe Basin – the MANTRA-East (www.mantraeast.org), the EU LIFE Viru-Peipsi CAMP (www.envir.ee/viru.peipsi), the UNDP/GEF (www.peipsi.org/gef) and the EU TACIS projects – were introduced during the seminar, in addition to the Peipsi Report, presented at the Kyoto 3rd World Water Forum in March 2003. Diverse activities connected with management of transboundary waters in the Finnish-Norwegian, Finnish-Norwegian-Russian and Finnish-Russian border areas were presented. The workshop allowed a fruitful exchange of transboundary water cooperation experiences in the Finnish-Norwegian-Russian and Estonian-Russian border areas.

The event was inspired by the interest of the Finnish-Norwegian Transboundary Water Commission in the successful experience in cross-border co-operation on Lake Peipsi. The Finnish-Norwegian Commission, the UNDP/GEF project “Development and Implementation of the Lake Peipsi/Chudskoe Management Program”, the MANTRA East and the EU TACIS projects, jointly supported organisation of the event.

The presentations at the workshop were dealing with ongoing activities and projects of transboundary co-operation in different countries, issues regarding water quality and pollution load, scenarios of environmental protection and integrated economic development. Work of transboundary water commissions, comprising the experts of various fields and representatives of the ministries, and responsible to their respective governments for the management of transboundary lakes or rivers were addressed at the workshop.

ACTIVITIES ON LAKE PEIPSI

Activities of Estonian-Russian Joint Transboundary Water Commission

Mr Ago Jaani, the Secretary of the Estonian-Russian Joint Transboundary Water Commission, Estonian Ministry of the Environment

The Estonian-Russian Joint Transboundary Water Commission was established in 1997. The Commission's main task is to coordinate the activities concerning the implementation of the agreement. The Commission contains working groups on Water Protection, Water Management, Monitoring and Research and Cooperation with Local Authorities, Population, International and Non-governmental Organizations.

In 1994 an intergovernmental Commission on Fishery was created and it worked out fishing rules, because of the fact that Lake Peipsi/Chudskoe being one of the best places for fishing in the world. Last year the total catch of fish was remarkable high (10,000 tons = 40 kg per hectare – which is very rare).

The main points of the Cooperation Program on the Protection and Sustainable use of Estonian-Russian Transboundary Waters for the years 2001-2003 are:



- Continuation of hydrological, hydro-chemical and hydro-biological work in the Narva River watershed, and also on the Lake Peipsi, for the observation and evaluation of the status of water bodies, for the determination of changes in hydrological, hydro-chemical and hydro-biological tendencies (2001-2003);
- Calculation and evaluation of the nutrient status of the lake (2001-2003);
- Organization of joint expeditions on Lake Peipsi, for determining the status of the lake, and for the intercalibration of sample taking and analysis methods (2001);
- Compilation of the consolidated report on the status of the Narva River watershed and transboundary waters (2001-2002);
- Specification of the rules for the utilization of water resources in the Narva Reservoir (2000);
- Elaboration and realization of international projects "Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program" and "Strategy for the reduction and avoidance of the inflow of biogenic elements into Lake Peipsi" (2002-2003);
- Compilation and publication of a hydrometeorological directory on Lake Peipsi (2001-2003) and some others.

Among the results of the work of the Commission were mentioned the inventory program of polluters and establishing the contacts between the experts and the states.

Results of the research on classification of the water ecological state in the Lake Peipsi/Chudskoe

Dr Tiina Nõges, Tartu University, the MANTRA-East project

When the development of classification of the water ecological state system was started, we looked EU Water Framework Directive and it says that we have to define so called ecological quality ratio. It means that we have to compare the real situation with the reference value (the value of indices supposed to be in this lake without any human pressure). When we started to find out these reference conditions for Lake Peipsi, we turned to the conditions, or so called morpho-edaphic index, which enables to calculate the natural loading of phosphorus to the water (for example we can calculate this morpho-edaphic index for our 2 large lakes Peipsi and Võrtsjärv). And from this we can calculate so-called reference concentration of phosphorus in these lakes. It appears for Lake Peipsi between 18 and 23 mkgm per litre and 31 mkgm per litre for Lake Võrtsjärv. It means that even into geographically close shallow lakes according to depth and catchment's characteristics these values can be quite different.

Next step was to classify the lake in oligotrophic/trophic system. Both these lakes went to mesotrophic category. Our next step was to find out value of total phosphorus, which characterizes good status. For the Lake Peipsi we got 35 mkgm per litre phosphorus but present average value is 44. It describes Lake Peipsi presently in moderate situation according to WFD. For the Lake Võrtsjärv the present average is almost the same as in Lake Peipsi but the reference value for Lake Võrtsjärv is higher. With this method Lake Peipsi is in good situation.

Next step was to find out the method to calculate border values between different classes which are prescribed by WFD: high, good, moderate poor, bad. We used method of percentage. We assumed that we have quite long data series (more than 40 years) and the lake has been in good situation, in bad situation and in every step between those and statistically we can define border values from this database. For total phosphorus border values for Lake Peipsi were defined by percentage and they are in quite good accordance to the values which were defined by morpho-edaphic index. The value between high and good status is around 20 mkgm per litre, the value between good and moderate status is around 30 mkgm per litre phosphorus.

Because of a problem of season analysis in all lakes we calculated seasonal values. We translated concentration value to close values to make it intercomparable and the less this is close value, the better is the situation. According to this procedure we also found that total phosphorus concentration shows Lake Peipsi now in moderate status.

Further we have to define criteria values for biological quality elements, which are actually the core of WFD, and these biological elements are phytoplankton, microphites, fishes and zooplankton. We found out the indices, which correlate with total phosphorus concentrations: the months, which are the most informative in this context. We also will consider the question of season analysis like chlorophyll-a concentration is very different in different seasons.

Some results of the assessment of ecological status according to these rules

We found out that the composition of phytoplankton has mainly remained the same in Lake Peipsi but in recent years there are very heavy water blooms and also the concentration of chlorophyll, which reflects that amount of phytoplankton has increased. In mid 90ies it was a good status, but in recent years – moderate.

If we look at phosphorus and nitrogen loadings from Estonian rivers and the concentration of mineral forms of nitrogen and phosphorus in river Velikaya – in mid 90ies these concentrations

were the lowest. We can see that the lake reacts to the loading dynamics, it is its ecological quality. The situation with zooplankton is quite nice and good and the assessment gave us the good score. The ratio between zooplankton and phytoplankton is in moderate status. There have been certain changes with microfites which indicate worsening of the situation but in open water areas the situation is still quite nice, somewhere between good and moderate. The situation with bottom animals is good because there are a lot of sensitive species survived. The only thing that we have to consider is that there are 2 invaders. The strongest invader is *zebra mussel* which is not natural for Lake Peipsi. WFD considers invaders to turn the situation automatically worse but still experts say that the situation of microzoobenthos as whole is good.

It is quite difficult to assess fish community because WFD orders to determine the situation, which has been caused by human impact on the water quality, but the strongest factor which influences fish community is actually fishing. Under the WFD we have used assessing fish community criteria, which we worked out in the frames of the EU project ECOFRAME and we consider this criteria for biomass ratio, total biomass. Comparing with mid 60-s the situation has turned better. At present we can state that the situation with fish community is good but also we have opinions of experts who tell that we have lost sensitive species from the lake and also we can have fish killing during the water blooms, meaning that the state is between good and moderate.

We have used 2 models: one very simple (AQUASIM) and one very sophisticated (FRESCO). Both have their positive and negative features. In SHALMOD model (within FRESCO) we can simulate the biomass of cyanobacteria, so called blue-greens, on the basis of loading some other factors outside of the lake. We see from this model that if we increase the nitrogen loading to the lake, amount of blue-greens decreases. If we increase phosphorus loading – amount of both of the dominating species – blue-greens and diatoms – increases in the lake.

What have been the results of the study concerning the influence of water level and temperature?

In our model we used water balance with changed water level and also water temperature and we found out that in Lake Peipsi water level changes are not very important especially if to compare with much shallower lake Võrtsjärv there are really dry ecosystem. I could say that the most important factor to consider is cyanobacteria bloom. Another factor is N/P ratio: if we can have this nitrogen-phosphorus ratio lower that critical for cyanobacteria, they do not bloom so heavily even if climatic conditions favour these blooms.

Estimation of trends in nitrogen and phosphorus concentrations in Estonian rivers of Lake Peipsi catchment area

Dr Enn Loigu, Tallinn Technical University, the MANTRA-East project

The task of the research team was to estimate long-term changes in water quality due to changes in economy and agriculture. 22 rivers of the Lake Peipsi basin were studied and the problem found was the necessity of elimination of water discharge. After using the modified Mann-Kendall non-parametric test the following results were received: nitrogen concentration in the rivers studied decreased quite rapidly; no clear trends for phosphorus results, except only some rivers where new methods of treatment are introduced. The main task of the program was to fight the high level of phosphorus in the water because of the danger of blue-green algae. N/P ratio in many rivers has decreased.

What is the share between different sources responsible for nutrient load, mainly nitrogen and phosphorus?

As usually main part of the nitrogen comes still from non-point sources. It means from agricultural sources but practically the same amount comes from the background areas (not influenced at all by human activity, only by nature itself). And the same for phosphorus: main part of it comes from point sources as usually but quite a big share belongs to the background areas because our agricultural load is extremely low (6-7 kg per hectare). And according to our experts' opinion it will be increased in future if agriculture will develop up to 15 kg per hectare. Even in the cases when all prevention measures are taken, it means still approximately 15 kg per hectare (or roughly 5 mg) nitrogen concentration in small rivers in agricultural areas. Comparing this nitrogen load with the other countries in Europe, today it is much-much lower (5-7 times lower) in Estonia.

How can the load from the small sources like cottages, village houses be decreased?

In Estonia there are lots of treatment plants in villages but the problem is that they are out of water and usually these small treatment plants have sedimentation ponds or biological ponds after the treatment. Usually they are full of sediments after discharge going out, and phosphorus more often. Estonia does not have good management practice now, but we know these problems and will develop the management system.



The TACIS project

Mikko Jokinen, the EU TACIS Project Team Leader

William Parr, an expert of the EU TACIS project

TACIS Russian Federation action program started in January 2003. The main objective of the project is to improve environmental management capacity of the Russian regional environmental authorities by promoting transboundary cooperation and sustainable conservation of ecosystem. The main partners are Neva-Ladoga Basin Administration and Committee of Natural Resources of Pskov oblast and many others. The budget of the project is around 2,000,000 euro and the implementation time is 2 years. The project is now based in Pskov and there are plans about an office in St.Petersburg.

The basic question of the project is about the ecological state of the Lake Peipsi/Chudskoe at the moment and its' developing. There are two outcomes expected: 1) nutrient reduction strategy and 2) water management plan. It is very important to have the work of both Russian and Estonian side coordinated, the crucial role being played by Joint Commission to which all the proposals are made. One of the special task of the project is development of laboratory and monitoring capacity. Small resource allocations allow implementing 2 small demonstration projects to show how to reduce nutrient load to the Lake Peipsi/Chudskoe. Attempts are taken of involving as much local specialists as possible and public to participate and to be informed about

the question of water management. The approach of the TACIS project is to cooperate very closely with the UNDP/GEF project and other international projects.

The problems in the water management in the Russian side are the organization of water monitoring and the requirements for a quality assurance system for the monitoring. There are quite a range of different laboratories: the Ministry of Natural resources' laboratory, ROSHYDROMET laboratory, the Ministry of Agriculture's laboratories all of which are responsible for different tasks but sometimes they copy each other. The analytical equipment involved in work is very old and needs recalibrating. Estonia, on the other hand, has to catch up the WFD in the biological monitoring requirements. The Joint Commission is involved in helping to move Russia closer towards the Estonian monitoring. The existence of inter-calibration exercises, which the Joint Commission organizes, should be in cooperation with a more complete quality assurance program.

Viru and Peipsi catchment area management plan

Dr Ain Lääne, the EU LIFE Project Manager

The project is financed by EU LIFE environment program (200,000 euro), French Environmental Fund (1,000,000 euro) and Estonian Ministry of Environment and Estonian Environmental Investment Centre (100,000 euro) and many other partners.



Project objectives are defined as following:

- Collect and compile existing data regarding status of water bodies and groundwater;
- Elaboration of geographical information system (GIS);
- Implementation of complementary sampling program;
- Assessment and classification of the status of groundwater, coastal waters, rivers and lakes; Complementing of the national monitoring program;
- Elaboration of the program of measures based on economic analysis to achieve at least good status of water bodies and groundwater and to supply inhabitants with good quality drinking water;
- Strengthening the institutional capacity of Estonian environmental authorities.

One of the important point is inventory and assessment of water bodies. Some procurements were made within the project: Public procurement for assessment of the state of rivers and additional sampling won by Tallinn Technical University, Institute of Environmental Engineering; Public procurement for assessment of fish populations and habitats of rivers won by Wildlife Estonia; Public procurement for assessment of lakes and additional sampling won by Institute of Zoology and Botany, Estonian Agricultural University; Public procurement for assessment of the state of groundwater bodies and additional sampling won by AS Maves. During June 2003 it is planned to organise a training seminar for experts of country environmental departments.

The UNDP/GEF project

Ms Natalia Alexeeva, the UNDP/GEF Project Manager

The project “Development and implementation of the lake Peipsi\Chudskoye basin management program” started in January 2003 and will last three years (36 months). The budget is 1,000,000 US \$ and financing is coming from Global Environmental Facilities (GEF). UNDP Moscow is responsible for the management, supervision and monitoring of the project; Estonian Ministry of the Environment and Russian Ministry of Natural Resources are the main beneficiaries and official partners. Peipsi Center for Transboundary Cooperation is project implementation organization, which is done through two implementation units in Pscov and in Tartu and a project liaison office in St.Petersburg. Project area covers the whole basin of Lake Peipsi/Chudskoe in Estonia and Russia.

The main objective of the project is to prepare, adopt and launch the basin management program for the nutrient load reduction and sustainable development of the region.

Main project outputs are:

- The management program and action plan;
- Strengthened capacity of key regional stakeholders,
- Networking and information exchange;
- Two pilot projects implemented in Estonia coordinated or interrelated with demonstration projects in Russia implemented by the UE TACIS project.

Results of the project will be: 1) The Lake Peipsi/Chudskoe Basin Management Program developed and partially implemented. We do not have enough funds to implement this project to the end, so we will start implementing and look for further financing; 2) National and local institutional capacity strengthened to implement it; 3) Environmental education and public awareness programs conducted in the region.

As a base for Management Program we use European legislation such as EU WFD and Russian Water Code. The program will be accomplished by some other documents such as Nutrient Reduction Plan, as far as eutrophication is one of the main problems for the lake today, and the Public Involvement Plan. The end users of the results of the project are Joint Commission, Estonian and Russian Ministries, Local and regional administration as well as the general public.

During the first year we are dealing with environmental reports and information on the nutrient load and NGO involvement plan. According to UNDP procedures we're also organizing procurement procedures. In the second year we will design the program for Transboundary Water monitoring, joint program for both sides and Nutrient Load Reduction Plan. And the last year Management program will be drafted and adopted and the implementation should be started supported by all public stakeholders.

The EU MANTRA-East project

Dr Per Stalnacke, the EU MANTRA-East Project Coordinator

Project Mantra-East has developed five integrated scenarios with regard to future development of this transboundary region for the next twelve to fifteen years. Each scenario consists of a qualitative story line, which was translated into quantitative changes in the input variables for a geographical information system based nutrient transport model. The modelling approach consists of three main steps: 1) Compiling maps of diffuse emissions (soil surface surplus) and point sources emissions from agricultural statistics and a land cover map; 2) Modelling of long-term hydrological fluxes and residence times in the various hydrological compartments (“slow”, “medium”, and “fast” runoff component); 3) routing the emitted nutrients through the soil/groundwater system and river network in proportion to the long-term hydrological fluxes.

Four possible scenarios for future economic development on the Baltic-Russian border emerge, each defined as a combination of a low or a high score on the axis of the two key factors: I) *Business as Usual*; II) *Target / Fast Development*; III) *Crisis*; IV) *Isolation*. Because it is plausible that development will be unevenly at each side of the border, another scenario is added: V) *Uneven Development*, which is a combination of the *Fast Development* scenario in Estonia / Latvia and *Crisis* in Russia.

In the 5 scenarios of the future regional development given the riverine nutrient loads in the lake will generally decrease but there is a difference between nitrogen and phosphorus. The target/fast development scenario will result in the substantial larger nitrogen loading to the lake and the crisis scenario results in the largest phosphorus load. No of these scenarios predict larger nutrient load than in the communist period. The model results suggest that 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.

Report on public participation in transboundary water management

Ms Margit Säre, Peipsi CTC

The report is dedicated to public participation practices in transboundary water management and the twinning experience between Lake Peipsi/Chudskoe and Lake Ohrid (Macedonia-Albania).

The lakes share the following common problems and characteristics:

- 1) both lakes shared between countries which were quite recently or still going through major economical crisis, political problems and transformation of the whole society;
- 2) both are in periferial parts of the respective states;
- 3) in both water regions the border was established recently, in the beginning of 90ies and thus the transboundary water management between the states is a new issue;
- 4) in both regions public participation in decision making is in its beginning phase;



5) in both regions there are wonderful coasts, rich natural resources.

Peipsi CTC is participating in the Joint Commission's working group – formalized cooperation with NGOs. Environmental research, training for local authorities and NGOs, Peipsi Water Club and environmental education are the activities helping to establish the cooperation between two regions. Cooperative management of transboundary waters after years of economic crisis and political problems depend on a political will of parties and creation of formal mechanisms for cooperation. Regularity in cooperation, personal contacts and cooperation between experts through joint expeditions, etc., helps to build the trust and commitment to cross border cooperation. Partners from Eastern European countries, who share similar history, socio-economic and political situation, can learn a lot from each other.

Internet sources about Lake Peipsi

Ms Piret Uus, Peipsi CTC

The following Internet sources are available to find information about Lake Peipsi and its basin and also about the projects going on in the region:

- www.peipsi.org - Peipsi portal is a regional website to communicate expert and scientific environmental information about Lake Peipsi to local stakeholders and international public. The site is in Estonian, English and Russian;
- www.peipsi.org/gef - the UNDP/GEF project website in English, Estonian and Russian;
- www.mantraeast.org - the EU MANTRA-East project website in English, Estonian and Russian;
- www.exlinea.org - the EU EXLINEA project website in English on border research.

Finnish-Norwegian Transboundary Water Commission

Mr Kari Kinnunen, Director of the Lapland Environment Centre

The task of Finnish - Norwegian Transboundary Water Commission (agreement signed in 1980) is to keep the waters as natural as possible and also to promote the living conditions for all local population.

The Commission has an advisory role - its main tasks are:

- To submit proposals and give an advice;
- To issue statements on matters related to the management of the transboundary waters between Finland and Norway;
- To supervise and monitor the conditions and quality of the transboundary waters;
- To prevent the deterioration of the transboundary waters;
- To monitor construction along the waterways and other activities affecting the state of the transboundary waters.

The area is sparsely populated but there are some big and modern villages in the water basins. It is the homeland of the indigenous people – the Saami. Also the Commission has Saami representatives. The main problems handled by the Commission are waste water pollution and a need for waste water purification; land use planning and house construction on the banks of border rivers; fighting the Atlantic salmon parasite *Gyrodactylus salaris*; and salmon farming in the outlet area of some transboundary rivers.

After more than 20 years of working the achievements are the following: common multiple use plans for the main transboundary rivers (Tenojoki 1990 (will be revised), Nääämöjoki 1992, Paatsjoki 1996 (Finland, Norway, Russia); common water quality monitoring program which has been going on for about 15 years; involving the local municipalities into the work of the Commission. A transboundary agreement should cover whole catchments areas not only the main border rivers or lakes.

The Paatsjoki Project

Ms Ilona Grekelä, Paatsjoki/River Paz project

Ms Bente Christiansen, Finish-Norwegian Transboundary Water Commission Chairman

The Paatsjoki Project (budget: 65% from the European Council and 35% from national financing) implementation begins in July 2003 and ends by the year 2006. The participants of the project include both municipal and state organization of three countries. The purpose of the project is to ensure that the monitoring data covering the state of the environment in the region are reliable, comparable and available to environmental experts across the national borders. Harmonized monitoring data will promote monitoring and research on the recovery capacity of arctic and sub-arctic ecosystems following the modernization of the Pechenganikel complex and, more broadly, research on e.g. the possible impacts of climatic change on the environment. More reliable and comprehensive information are required as a support for decision-making and planning the more effective use of natural resources in the region in accordance with the

principles of sustainable development. The immediate aim of the project is to strengthen cross-border co-operation between the research bodies and environmental authorities in the region, and to produce a jointly implemented long-term environmental monitoring program.

The Paatsjoki project is the "umbrella" program for common management, monitoring and healthing social-economic conditions. The information produced during the project, and the environmental monitoring and assessment system that will be established between three countries as a result of the project, will support and promote the aims of the Arctic Council, the Barents Euro Arctic Council and the Barents Euro Arctic Regional Council with respect to the conservation of the northern environment and the well-being of the inhabitants of the region. In addition, the project will also support the aims of international environmental agreements concerning the reduction of emissions and protection of border waterways, and following up the implementation of international environmental agreements.

The activities planned for the project are the following:

- 1) Evaluation of the existing monitoring data, monitoring stations and measuring points. This information will be used to determine whether there are any regional gaps with respect to the monitoring stations and measuring points, and to supplement the monitoring network in accordance with the needs of the project.
- 2) Arranging a workshop for the participants on the topic "Effect mechanisms of emissions from the non-ferrous metal industry".
- 3) Establishment of the preliminary monitoring network will be followed by the selection of air quality, terrestrial and aquatic ecosystem indicators to be included in the monitoring program, and the drawing up of an agreement concerning the areas of responsibility of the individual participants during the course of the project and about media policy.
- 4) Preparation of a web site for the project; this will outline the aims, activities, participants and the progress of the different stages in the project.

In the year 1959 the three-lateral agreement (Russia-Finland-Norway) about using energetic resources of the river Paz was signed. Since that time there had appeared some problems concerning the quality of waters, fish-farming etc. Has it been discussed in the Finnish and Norway Governments on signing of intergovernmental agreement on the river Paz including all the complex of ecological problems?

For more that 10 years Russia has participated as an observer but we do not have three-lateral agreement. Norway and Russia have a bilateral cooperation and have a Joint Commission dealing with environmental issues to this multi-use plan. The problems we are dealing within the Joint Commission we also discuss in the bilateral commission for environmental cooperation. This way we have good exchange of information.

How local authorities of Norway and Russia will deal with requirements of WFD which has to be implemented in Finland by 2009?

Norway is as a member of ETA and also obligated to implement the Directive in the legislation, Norway has to do exactly the same as EU members. For a non-EU country or a non-ETA country we should create appropriate cooperation. What does it mean in practice – it is open.



Russian-Finnish Transboundary Waters Commission

Mr Evgeni Zybin, Ministry of Natural Resources of the Russian Federation

The history of Russian-Finnish cooperation in the sphere of environmental problems begins in 1922. In 1964 the bilateral agreement about the common natural resources (fish, drifting, energetic resources, environmental protection) was signed, the most polluted places were determined (Seleznevka river, Hitola river, Vuoksa river and Saiminsky canal). Having held 40 official meetings the Commission got the following results: the drifting down the rivers was stopped, the quality of the water became higher, in Lapperaanta and Lesogorsk 2 water treatment facilities were built, 2 agreements concerning the Vuoksa energetic resources were signed, some breeds of fish became roundfish.

Tana River Anti-Pollution Plan

Ms Synnøve Lode, the leader of the Tana-Valley Program

New Anti-pollution plan for the Tana river is extremely important for trade and tourism. Tana river is also a core river for the Atlantic salmon. To get the joint management of the Tana river system the Commission points out its general goal: to maintain the quality of the Tana river system for the future and contribute to sustainable use of the resources in the water system, to the best practices for the local trade and sami/lappish culture. And also there are some in-between goals, such as 1) to make a New Multiple Use Plan for the Tana River system, 2) to arrange the cooperation better between the transboundary municipalities and the local population regarded to the use and management of the Tana river system and 3) to strengthen the local peoples possibility to influence and participate in planning processes attached to the river system.

CONCLUSIONS

Several common themes have emerged from the exchange of experience and knowledge about transboundary water management. The participants found that it is very important in managing transboundary waters to ensure integration of environmental and economic goals within the unique history and cultural context of an individual lake region.

Considered the most historic body of waters in the Northern Europe, participants also stressed that transboundary water organisations should capitalize on people's interest in the cultural heritage of the regions to find a common ground and break down barriers to the cooperation that had come about in more recent history. All of the transboundary lakes and rivers have unique histories and cultural heritage related to the water itself and in many cases this is reflected in the music, art, poetry, legends, architecture and other forms of cultural expression. Different cultural contexts need to be factored in to the design of transboundary water management programs.

The discussion at the workshop addressed specific issues of management of international waters. It was found that some of the common environmental management issues related to water include: (1) impacts to water quality from phosphorus pollution, toxic substances and pathogens; (2) loss of biological diversity; (3) declines in the amount and health of native fisheries; (4) invasion of nonnative, nuisance aquatic plants and animals; and (5) declining lake levels. In the economic sector, some of the most common industrial activities and resource use conflicts include: (1) hydroelectric power generation; (2) water supply for irrigation and drinking water; (3) agriculture and forestry; (4) pulp and paper mills; (5) commercial and recreational fisheries and (6) wastewater disposal.

Importance of research activities was stressed as important to promote forums for exchange of information, promoting transboundary cooperation and developing scenarios of the future development of the transboundary areas. In terms of the content of the transboundary water management research, the workshop discussions showed that a high extent integration of scientific disciplines into a holistic management scheme was achieved (well demonstrated by the presentation of the MANTRA-East project participants) however it was obvious that there is a need also to include into the integration the social-cultural-economic disciplines.

Putting the concepts of integrated water basin management into practice is very challenging, especially when one considers the political and economic situations in some of these lake regions. Regardless of the economic or political situation, workshop participants found that their individual and collective experience is very relevant and that there is a need to learn from this experience and network together. Two important lessons learned include: (1) forming effective cooperation and collaboration among all of the stakeholders in the region is a key; and (2) complex institutions, frameworks and partnerships are needed to transcend jurisdictional barriers to cooperation.

The presentations demonstrated that environmental and general education on all levels in this context is crucial. Interaction with NGOs is compulsory in promoting long term sustainable management of the transboundary waters; involving citizens and stakeholders is one of the most challenging but necessary aspects of effective water basin management.

The joint bodies established by transboundary agreements may vary as to format, structure or functions according the specific circumstances in question. The value of joint bodies comes from providing a forum for working together and for addressing and resolving common problems. The Finnish-Russian Commission, for example, has over the years dealt with a number of difficult issues, some of which have had large-scale environmental and economic impacts. Some plans or

proposals have not been approved and some have taken a long time to resolve, but so far in the end they have been resolved together.

In addition to a proper legal and institutional framework, the work in practice relies on the experts and the operational structure. It is important to have a broad base of expertise and the involvement of all concerned parties participating in the work of the commission. In the Finnish-Russian cooperation e.g. the assistance of the Frontier Guard has been most valuable, in particular regarding the fieldwork that is done in the frontier zone.

The participants expressed their hope that the workshop laid a ground to more specific cooperative projects and exchanges between the organisations working in different transboundary water basins in the Northern Europe.

SEMINAR AGENDA

26 May 2003, Monday

- 11.00 – 16.00** Field trip to Lake Peipsi – departure from Tartu Port. Lunch and excursion to Setu museum
- 19.00 Get together party for the seminar participants at a restaurant KoKoKo (Hotel London)

27 May 2003, Tuesday

- 09.00 – 09.10 Introduction: goals and objectives of the workshop – *Dr Gulnara Roll, Peipsi CTC*
- 09.10 – 11.00 Session 1. Presentation of activities of transboundary water commissions**
 Session chairs: Estonian and Russian Joint Transboundary Water Commission secretaries – *Mr Ago Jaani and Ms Marina Nakonechnikova*
- 09.10 – 09.40 Structure and activities of the Estonian-Russian Joint Commission on Transboundary Waters – *Mr Ago Jaani and Ms Marina Nakonechnikova*
- 09.40 – 10.10 Structure and activities of the Finnish-Norwegian Commission – *Mr Kari Kinnunen and Ms Bente Christiansen*
- 10.10 – 10.40 Presentation of Finnish-Norwegian-Russian cooperation
 Paatsjoki/River Paz – *Ms Bente Christiansen and Ms Ilona Grekelä*
 River Teno/Tana – *Ms Synnøve Lode*
- 10.40 – 11.00 Discussion
- 11.00 – 11.30 Coffee break**
- 11.30 – 13.00 Session 2. Water quality in the lake and its basin**
 Session chairs: Estonian and Russian heads of the water protection working group
Ms Tiit Raia and Ms Alla Sedova
- 11.30 – 11.45 Ecological classification of the lake according to the WFD and ecological modelling of the lake – *Dr Tiina Nõges, Tartu University*
- 11.45 – 12.00 Long-term trends in nutrient levels in rivers in the Lake Peipsi basin – *Dr Enn Loigu, Tallinn Technical University*
- 12.00 – 12.15 Observations on organization of water monitoring in the Lake Peipsi/Chudskoe Basin and need for a monitoring quality assurance system – *Dr Bill Parr, the EU TACIS Project Expert*
- 12.15 – 12.45 Comments and discussion
- 12.45 – 13.45 Lunch at a restaurant KoKoKo, Hotel London**
- 13.45 – 15.00 Session 3. Water management in the Lake Peipsi/Chudskoe Basin**
 Session chairs: Heads of the group on water management – *Mr Harry Liiv and Mr Vladimir Budarin*
- 13.45 – 14.00 Viru - Peipsi Water Management Plan – *Dr Ain Lääne, the EU LIFE Project Manager*
- 14.00 – 14.15 Activities of the EU TACIS project on water management in the Peipsi/Chudskoe Water Basin on Russian side of the Basin – *M. Mikko Jokinen, the EU TACIS Project Team Leader*

- 14.15 – 14.30 Transboundary Water Basin Management Program for Lake Peipsi Basin Water Commission – *Ms Natalia Alexeeva, the UNDP/GEF Project Manager*
- 14.30 – 15.00 Questions and comments, discussion.
- 15.00 Coffee break**
- 15.30 – 17.00 Concluding sessions. Integrated scenarios for the development and environment in the Lake Peipsi/Chudskoe basin and information dissemination about water management measures.** Session chairs: *Mr Harry Liiv and Mr Vladimir Budarin*
- 15.30 – 15.45 Demonstration of a Power Point presentation made at the 3rd World Water Forum in Kyoto – *Ms Margit Säre, Peipsi CTC*
- 15.45 – 16.00 Information dissemination in the Lake Peipsi/Chudskoe Basin – Lake Peipsi Internet portal - *Ms Piret Uus, Peipsi CTC*
- 16.00 – 16.20 Integrated scenarios for the development and environment in the lake basin – *Dr Per Stalnacke, the EU MANTRA-East project*
- 16.20 – 17.00 Discussion and concluding remarks by the session chairs. Adjourn.

Evening Program

- 17.00 – 18.30 Tartu town excursion for Finnish-Norwegian Commission members

Parallel event: *Special Session on Water Monitoring* organized by the Estonian – Russian Transboundary Water Commission Working Group on Monitoring will take place at the conference hall at 17.00 – 18.30.

- 19.00 Seminar dinner at Wilde Restaurant**
- 21.00 Seminar bus departure to Tallinn from hotel London**

PARTICIPANT LIST

Management of Transboundary Waters

26 - 27 May 2003, Tartu

Finland:

Kari Kinnunen, Lapland Regional Environment Centre
Marja-Leena Nenonen, Lapland Regional Environment Centre
Ulla Kaarikivi-Laine, Ministry of the Environment
Vieno Länsman, Utsjoki
Reijo Timperi, Inari
Hannele Nyroos, Ministry of the Environment
Iloa Grekelä, Member of the Water Commission
Olavai Parpala, Member of the Water Commission

Norway:

Bente Christiansen, Office of the Finnmark County Governor
Harald Muladal, Office of the Finnmark County Governor
Kjell Sæther, Municipality of Karasjok
Ingrid Smuk Rolstad, Municipality of Tana
Terese Nyborg, Office of the Finnmark County Governor
Odd Emanuelsen, Member of the Commission
Lode Synnøve, Member of the Commission

Russia:

Vladimir Budarin, Neva-Ladoga Water Basin Administration
Marina Nakonetsnikova, Ministry of Natural Resources
Julia Nefjodova, Committee of Natural Resources of Pskov oblast
Alla Sedova, Neva-Ladoga Water Basin Administration
Aleksandr Dedjajev, Border Guards
Georgy Bolhovitin, Russian consul in Tartu
Svetlana Basova, North-West Department of Hydromet
Evgeny Zybin, Ministry of Natural Resources
Marina Melnik, GOSNIORH
Petr Gorelov, Committee of Natural Resources of Pskov oblast
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