

**MEETING OF THE PARTIES TO THE
CONVENTION
ON THE PROTECTION AND USE OF
TRANSBOUNDARY
WATERCOURSES AND
INTERNATIONAL LAKES**



Distr.
GENERAL

ECE/MP.WAT/SEM.1/2008/2
10 September 2008

Original: ENGLISH

Seminar on monitoring and assessment of transboundary
waters in the UNECE region

Geneva, 16–17 June 2008

REPORT ON THE SEMINAR

1. The Seminar on monitoring and assessment of transboundary waters in the UNECE region was held on 16 and 17 June 2008 in Geneva. The Seminar was organized under the auspices of the Working Group on Monitoring and Assessment, with the generous support of the Governments of Finland and Germany. The eighth meeting of the Working Group on Monitoring and Assessment (ECE/MP.WAT/WG.2/2007/2) considered the organization of capacity-building activities for monitoring and assessment of transboundary waters through workshops and trainings, in accordance with the mandate given by the fourth meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes at their fourth meeting (20–22 November 2006). Accordingly, it was decided to organize a Seminar on monitoring and assessment of transboundary waters back-to-back with the ninth meeting of the Working Group.

2. The Seminar was attended by experts from Armenia, Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Finland, Georgia, Hungary, Italy, Moldova, Norway, Poland, Romania, Slovakia, Spain, Turkey, United Kingdom, Ukraine and Uzbekistan. Members of the secretariats of the International Sava River Basin Commission, the International Commission for the Protection of the Danube River (ICPDR), and the Ramsar Convention on Wetlands¹, a representative of the UNESCO² Chair/INWEB (International Network of Water-Environment

¹ Convention on Wetlands of International Importance, especially as Waterfowl Habitat.

² United Nations Educational, Scientific and Cultural Organization

Centres for the Balkans), and experts from the International Meuse River Basin Commission, the Scientific Information Centre of the Interstate Coordination Water Commission of Central Asia (SIC-ICWC), the International Groundwater Resources Assessment Centre and the non-governmental organizations (NGOs) Global Water Partnership, Union for Defence the Aral Sea and Amudarya and Ved Ltd.

I. OBJECTIVES

3. The Seminar aimed to provide a forum for: (a) the exchange of experience among European Union (EU) countries on the implementation of monitoring programmes in line with the EU Water Framework Directive³; (b) sharing applicable lessons learned with non-EU countries; and (c) learning about experience, good practices and challenges in non-EU countries and considering possible ways forward.

4. The Seminar addressed several challenging subjects identified by the first *Assessment of Transboundary Rivers, Lakes and Groundwaters*.⁴ It sought to identify priority areas of future work for the Working Group on Monitoring and Assessment.

5. The Seminar was organized in three sessions:

(a) The EU Water Framework Directive and the Convention as a basis for monitoring and assessment in the UNECE region, chaired by Mr. Manuel Varela, Ministry of the Environment, Spain;

(b) Experience with monitoring and assessing groundwaters and surface waters, their components and related ecosystems, chaired by Mr. Peter Roncak, Slovak Hydrometeorological Institute;

(c) Challenges and implementation of monitoring and assessment of transboundary waters – case studies, chaired by Ms. Lea Kauppi, Director of the Finnish Environment Institute and Chairperson of the Working Group on Monitoring and Assessment.

6. All the presentations delivered are available online at: http://www.unece.org/env/water/meetings/monitoring_workshop.htm. The main points raised in the presentations and in the ensuing discussion are summarized below.

³ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

⁴ See <http://www.unece.org/env/water/publications/pub76.htm>.

II. THE EUROPEAN UNION WATER FRAMEWORK DIRECTIVE AND THE CONVENTION AS A BASIS FOR MONITORING AND ASSESSMENT IN THE UNECE REGION

7. Ms. Christina von Schweinichen, Acting Director, Environment, Housing and Land Management Division, UNECE, opened the meeting and introduced the background and objectives of the Seminar, referring especially to the link to the second Assessment of transboundary waters in the UNECE region.

8. Ms. Kauppi presented the main principles and approaches of the *Strategies for monitoring and assessment of transboundary rivers, lakes and groundwaters*⁵: namely the Driving forces–Pressures–State–Impact–Responses (DPSIR) framework, the monitoring cycle and the step-by-step approach. She also presented the first *Assessment of Transboundary Rivers, Lakes and Groundwaters*, in particular its objectives, process of preparation and main findings. The *Assessment* demonstrated the heterogeneity of situations in the UNECE region and at the same time presented some general common conclusions for Western European countries as well as countries with economies in transition.

9. In his presentation on monitoring and assessment under the EU Water Framework Directive and its implications for transboundary waters, Mr. Per Stålnacke, Norwegian Institute for Agricultural and Environmental Research (Bioforsk), argued that the obligations of the Water Framework Directive for transboundary cooperation were too weak and that that could hamper the Directive's overall implementation in the region, as many of the basins in the EU were transboundary. This underlined the role of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). He recalled the obligations for monitoring and assessment of surface water under the Water Framework Directive with respect to different types of monitoring, monitoring frequencies, etc. He argued that while the Water Framework Directive requirements for water quality and biological sampling were very demanding, the minimum recommended frequencies were too low compared to the high variability of parameters between years and during the year. He identified funding of monitoring programmes as a major issue for both EU and non-EU countries. Among the Directive's strengths, the involvement of scientists and scientific information in the monitoring and management of water resources and the coupling of quality and quantity aspects were mentioned. In the ensuing discussion, the importance of funding water protection measures was also raised, as was the need for effective legal and cooperative frameworks, such as ICPDR, for the implementation of the Water Framework Directive at the transboundary level.

10. Mr. John Chilton, British Geological Survey, noted the obligations for monitoring and assessment of transboundary groundwaters according to the EU Water Framework Directive and the Groundwater Directive⁶ and the main difficulties in implementation, in particular: (a) the institutional barriers related to different responsibilities; (b) the need to create a conceptual model of flow and occurrence of the groundwater vis-à-vis State borders; and (c) the delineation

⁵ See <http://www.unece.org/env/water/publications/pub74.htm>.

⁶ Directive 2006/118/EC of the European Parliament and of the council of 12 December 2006 on the protection of groundwater against pollution and deterioration.

of the groundwater. Recommended good practices include prioritization of issues and close links with the groundwater hydrology, but not always existing legislation allowed for flexibility. He stressed that the availability of good guidance documents, such as the ones developed under the Common Implementation Strategy of the Water Framework Directive and the UNECE guidelines, were great assets for the transfer of EU experience to South-Eastern Europe (SEE) and Eastern Europe, Caucasus and Central Asia (EECCA). However, such guidance should be more widely promoted and the difficulties of its implementation, especially in a transboundary context, should not be underestimated. Another opportunity for SEE and EECCA countries was the possibility of avoiding mistakes made by EU countries in their early implementation of the Water Framework Directive. This called for an exchange of not only good experience but also of failures and mistakes, which unfortunately were usually far less publicized and discussed. Other opportunities included the existing good cooperative frameworks such as ICPDR, as well as the importance of groundwater as a source of drinking water which increased the consumers' and thus political attention, and was a great incentive for their protection. The challenges were the lack of specific expertise, the language barrier (both across borders and across stakeholders' groups), differences in the approaches in neighbouring countries, weaknesses of the institutional and cooperative frameworks, poor exchange of data, and the fact that some transboundary groundwaters were not recognized by all the countries sharing aquifers. In the ensuing discussion, the limits to applying the Water Framework Directive outside the EU region, being linked to different institutional and economic conditions, were also mentioned.

11. Mr. Roncak gave a presentation on monitoring and assessment of hazardous substances in surface water bodies. The Water Framework Directive demanded monitoring of hazardous substances in relation to the requirement of good chemical status. Surveillance monitoring principles and environmental quality standards were set out in the Directive. Member States could choose the monitoring frequency as well as include additional relevant chemical substances, depending on the production, storage and use of chemicals on their territory. The presenter stressed that monitoring of chemicals was very expensive, which underlined the need for properly setting up strategy and monitoring programmes (list of chemical substances to be monitored, frequency and number of sampling points). It was noted that only samples of water were analysed, but rarely sediments and biota.

12. Subsequently, participants stressed the importance of surveys and information on potential pollution sources, noting that monitoring and assessment should not only rely on sampling and measurements.

13. The emerging threat of new compounds produced by nanotechnologies was also mentioned, in particular in relation to the difficulties related to their measurement.

14. Participants also observed that the implementation of the Water Framework Directive represented a major challenge due to binding objectives and deadlines and that its applicability outside the EU region had some limits. It was stressed that administrative, political, institutional and technical issues, e.g. the principle of cost recovery complicated the implementation of the Water Framework Directive outside the EU, but also in new EU Member States. Thus adaptation of the Directive was necessary in non-EU countries. In the discussion, participants also underlined that the Directive was very specific and prescriptive in some areas (e.g. hazardous substances to be monitored), while it was considered to be vaguer in others.

15. Mr. Jean-Pierre Descy, Chairman of the Monitoring Working Group of the International Commission for the Protection of the Meuse, University of Namur, Belgium, presented the case of the Meuse River basin as an example of monitoring and assessing transboundary basins in accordance with the Water Framework Directive. He presented the Meuse basin's characteristics and main pressures (e.g. river regulation, industrial activities), the Commission's institutional framework and areas of work, and the results of the roof report. The entry into force of the Water Framework Directive had resulted in the intensification of the monitoring network with sampling points extended to tributaries. After presenting the steps carried out and planned for the preparation of the report to the European Commission on the coordination of the monitoring programme, Mr. Descy also reported on related challenges, e.g. the difficulty to base the assessment on data from one single year as well as the lack of harmonization between riparian States on environmental quality standards. He underlined that a "homogeneous" monitoring network had existed before the Water Framework Directive in the Meuse Commission, which included exchange and storage in a database of monitoring data, with long historical data series that allowed for monitoring changes overtime and close collaboration between riparian countries on sampling, analysis and coordination. The "homogeneous" system had proved to be useful and had allowed good insights into the status of the Meuse. It therefore offered some advantages when compared to the mere coordination of national systems required by the Water Framework Directive.

16. In the final discussion, the importance of effective cooperative arrangements (e.g. joint bodies) for the monitoring and assessment of transboundary waters was underlined. It was therefore suggested to include information on the legal and institutional frameworks for transboundary water cooperation in the second Assessment of transboundary waters in the UNECE region to be prepared by the Working Group on Monitoring and Assessment.

17. Participants also noted that the good quality of transboundary groundwaters was often used as an excuse not to develop cooperation in the area; successful cases – such as Slovakia, which had established cooperation on transboundary groundwaters with its neighbours, even on groundwaters of good quality – should be taken as examples.

III. EXPERIENCE WITH MONITORING AND ASSESSING GROUNDWATERS AND SURFACE WATERS, THEIR COMPONENTS AND RELATED ECOSYSTEMS

18. Ms. Nino Sharashidze, Ministry of Environment Protection and Natural Resources, Georgia, presented the decline of the Georgian monitoring network since the break-up of the former Soviet Union, with a reduction to a tenth of the number of stations and a decrease of capacity to undertake water quality analysis. She noted, however, that in recent years the situation was improving thanks to several international projects as well as to the increase of the national budget for environmental monitoring in 2007. As most of the water resources in Armenia, Azerbaijan and Georgia were transboundary, the presenter recommended the following actions to improve joint monitoring and assessment:

(a) Increasing technical capacity (analytical chemistry and its application in water system, sampling and monitoring, database management and communications) in the riparian countries;

(b) Cooperatively establishing standardized common sampling, analysis and data management techniques for all riparian countries;

(c) Implementing standards for good laboratory practice, quality assurance and quality control;

(d) Establishing and jointly managing a database, a GIS⁷ and other shared information systems accessible to all partners via the Internet;

(e) Establishing an institutional framework (e.g. annual international meetings) for the management of the whole transboundary basin.

19. The adoption in 2006 of the European Neighbourhood Policy Action Plan was regarded as a great opportunity to significantly advance the approximation of Georgian legislation, norms and standards to those of the EU, including the Water Framework Directive. However, there were several challenges to such approximation, including: (a) abolishment of the “polluter-pays” principle from the new draft Georgian *Water Law* (to be enacted in 2008); (b) the simplification of the permitting system, with the abolishment of the permits for water abstraction and wastewater discharge; and (c) institutional challenges, namely abolishment of the State Geological Survey, fragmentation of responsibilities between authorities, governance and financial problems of the water sector, and the current lack of a clear policy and legal framework for monitoring. Several innovations introduced by the draft *Water Law*, however, were considered to be important assets, for instance, the adoption of the river basin approach and the requirement to develop integrated water resources management plans with the involvement of all stakeholders as well as the provisions for monitoring and assessment of surface waters.

20. Mr. Yusup Kamalov, Union for Defence of the Aral Sea and the Amudarya, Uzbekistan, presented the pollution problems related to the return of water from drainage canals in the Amu Darya River. He thus deplored that Uzbek law did not regulate drainage waters. The lack of implementation of the “polluter-pays” principle and of the cost-recovery principle were also mentioned as causes for the poor status of water resources, together with poor irrigation practices and low water efficiency.

21. In the discussion, it was noted that the polluter-pays principle often proved to be difficult to implement due to market pressures to increase production and the lobbying capacity of big polluters. In the end, the consumer ended up by paying for the cost of pollution, which instead of being prevented needed to be removed. The problem was also due to general lack of environmental liability and compensation for damages.

22. Mr. Przemyslaw Gruszecki, Chief Inspectorate of Environmental Inspection, Poland, described the Polish monitoring system, especially in relation to two transboundary rivers: the Odra and the Bug. A major consequence of the EU Water Framework Directive in Poland was the revision and rationalization of the monitoring system, including the reduction of the sampling

⁷ Geographic information system.

points. Recent progress in monitoring and assessment within the International Commission for the Protection of the Odra River against Pollution included a common list of dangerous substances. The cooperation on the Bug had proved more complicated due to the absence of an agreement at the basin level with the establishment of a trilateral commission; however, several projects, including TACIS⁸ projects, had supported progress. In general, the main problems in transboundary water monitoring included institutional differences between riparian countries and fragmentation of competences and responsibilities, differences in national systems of monitoring (which resulted in difficulties in harmonization), language problems and translation difficulties (and sometimes inaccuracy) and different classifications of water bodies (e.g. Szczecin Bay).

23. Mr. Seyran Minasyan, Ministry of Nature Protection, Armenia, presented monitoring changes in hydrological regime and water quality due to impact of tailing dam facilities. He stressed that there was good transboundary cooperation with the Islamic Republic of Iran and joint monitoring of tailing dams. Tailing dam facilities were considered only partly sufficient, as reservoirs could be located as far away as 20 km from factory. Thus, the water often did not go to the reservoirs, but directly into the river. Cooperation on monitoring and assessment with Azerbaijan and Georgia had been disrupted with the end of the USAID⁹ project and the current lack of funds.

Mr. Minasyan stated that monitoring of the Kura River organized under this project was very useful and he expressed the need for follow-up activities. This proposal was strongly supported by Azerbaijan.

24. The presenter highlighted that during the last years Armenian monitoring centres had been reequipped and that funding for monitoring had increased by about 50 per cent. However, in the past few years, water quality had declined in Armenia even at the sources of rivers. Reasons were still being investigated. Future plans included sediment monitoring, biomonitoring, precipitation monitoring, groundwater monitoring and joint monitoring and assessment of the ecological status of surface waters. Mr. Minasyan requested assistance in developing expertise, in accordance with the EU Water Framework Directive, in the following areas: (a) biomonitoring; (b) monitoring of ecological status; (c) harmonization of standards, monitoring parameters and units of measurements; and (d) monitoring of sediments. He stressed that the most effective way would be to organize a training session for Armenian staff conducted by experts in these fields. To this end, he asked countries to consider this request and provide the needed experts. The secretariat requested Mr. Minasyan to prepare a detailed proposal on the issues that should be a subject of this training.

25. Mr. Gavril Gilca, State Hydrometeorological Service, Ministry of Ecology and Natural Resources, Moldova, reported on the Moldovan experience with automatic monitoring stations established under a North Atlantic Treaty Organization project. Problems encountered included the high costs of the monitoring stations and their maintenance; the sensitivity to changes in electric power; the unreliability of telephone lines, which affected the accuracy of data, the frequent need for maintenance; and the difficulties of acquiring spare parts. Moreover, the number of measured determinands was not enough for proper assessment. The experience

⁸ The EU Technical Aid to the Commonwealth of Independent States programme.

⁹ The South Caucasus Water Programme of the United States Agency for International Development (USAID).

proved that the stations used were not appropriate for cold climate and the occurrence of power outages.

26. In the discussion following, it was recognized that automatic stations were primarily useful for early warning to identify an abnormal situation of the water condition, e.g. due to an accident, for which real time information is crucial. However, monitoring of the water status could not rely on automatic stations.

IV. CHALLENGES AND IMPLEMENTATION OF MONITORING AND ASSESSMENT OF TRANSBOUNDARY WATERS - CASE STUDIES

27. Ms. Natalya Siridovich, Ministry of Natural Resources and Environmental Protection of Belarus, presented the organization of monitoring system in Belarus as well as the experience on monitoring and assessment experience under the different bilateral working groups established with neighbouring countries. It was shown that such experience was very varied and was mostly dependent on the history of cooperation with the different countries and on the existence of a sound cooperation framework, such as a bilateral agreement.

28. Ms. Ansa Pilke, Finnish Environment Institute, presented experience and lessons learned from the Trabant project and the ecological assessment of the Vuoksi River. The project focused on methods and tools for transboundary water management using case studies. The project included classification of humic lakes. To establish reference conditions and assess ecological status of the Vuoksi River, samples of benthic macroinvertebrates and phytobentos had been used and had proved to be a promising indicator, also for areas where data was lacking. These methods could be cost-effective when used alone or in combination with physico-chemical analyses. The project also demonstrated that type-specific criteria and reference conditions would be needed for transboundary waters to make the monitoring and assessment well targeted and effective. Among physico-chemical criteria, the importance of nutrients was stressed; hazardous substances and other anthropogenic constituents of water were also considered important. The use of GIS data had also proved useful, especially for transboundary basins with little data available. The project also highlighted difference in classification of water quality in the Russian Federation and in Finland.

29. In the discussion that followed, it was reiterated that whatever the differences in legislation between the riparian countries, monitoring systems should be designed so as to provide the needed information for water management.

30. Ms. Ksenia Kalugina, Ved Ltd., Russian Federation, presented the organization of monitoring of surface water and groundwater in the Russian Federation from the federal to the basin and local levels. Among the shortcomings of the system were:

- (a) The lack of coordination on parameters and timetable of measurements and observations between monitoring actors;
- (b) The use of different assessment methods;

- (c) The absence of an operative coordination scheme for the exchange of information;
- (d) The absence of common software;
- (e) In some regions, the lack of hydromorphological quality monitoring, monitoring of water protection zones and observation of hydrotechnical constructions;
- (f) The lack of a common model for reporting.

31. Cooperation with Ukraine and Belarus on the Dniepr River included preparedness and early warning for floods, joint water sampling, etc. Regular meetings of experts from three countries were discussing various practical issues, e.g. lists of agreed pollutants and parameters. Moreover, joint training on biomonitoring had been organized for Russian and Ukrainian experts. Countries were also exchanging information on hydrochemical and hydrological data periodically. In addition, hydromorphological alterations of river banks had led to the implementation of a number of measures, including forestation and reinforcement and protection of river banks.

32. Mr. Juraj Michalko, State Geological Institute of Dionyz Stur, Slovakia, presented the monitoring and assessment of Hungarian-Slovakian transboundary groundwater bodies through the example of a project funded through INTERREG III A¹⁰. The project, which aimed to establish a uniform geological, hydrogeological and environmental information system, had led to: (a) the preparation of a unify legend for geological maps and the compilation of geological and hydrogeochemical maps; (b) the establishment of a GIS database of hydrogeological and hydrogeochemical information; and (c) the determination and harmonization of background and threshold concentrations. The project recommended measures included:

- (a) Improved protection against nitrate and other nutrient pollution;
- (b) Quantitative assessment, limitation and remediation of pesticide pollution;
- (c) Improved protection of the status of the Aggtelek-Slovak karst areas;
- (d) Development of prevention programmes against industrial and urban point sources pollution;
- (e) Special focus on minorities, such as the Roma population in both States.

¹⁰ INTERREG III, the EU initiative for the ERDF (European Regional Development Fund) for the period 2000-2006, aims to strengthen economic and social cohesion in the European Union by promoting cross-border, transnational and interregional co-operation and balanced development of the European Union territory. The INTERREG IIIa component supports cross-border projects.

33. The last speaker, Mr. Igor Liska of the ICPDR secretariat, presented the Joint Danube Survey 2 with a special focus on the process and the lessons learned. The survey's main objective was to produce a homogeneous set of information on water quality for the whole length of the Danube, including the major tributaries. Other specific objectives included providing a forum for riparian countries for sampling and intercalibration exercises, facilitating specific training needs and improving in-country experience, and promoting public awareness. The survey's success was mostly due to the high skill level of the team involved. Moreover, the survey had benefited from a high level of support from all countries and by a massive media coverage. It had been an excellent example of close and intensive cooperation between all riparian countries. Overall, the survey should be an important tool for preparing the Danube River Basin Management Plan and had confirmed the general trend of improving water quality in the Danube. The survey had led to a common understanding of assessment methodologies, and new methods had proved valuable. Sound science, strong political support, and successful fund-raising and participation of all stakeholders were mentioned among important keys to the survey's success, but also in general to the work carried out under ICPDR.

V. GENERAL CONCLUSIONS

34. In the concluding discussion, it was reiterated that the EU Water Framework Directive and the UNECE Water Convention complement and reinforce each other, and that the monitoring of transboundary waters benefits from their joint implementation.

35. Several speakers stressed the usefulness of the exchange of experience between EU and non-EU countries. The importance of the availability of Russian translations of EU legislation and other documents was also underlined. The expert from the SIC-ICWC recalled that many of these Russian translations were available on the Information Portal for Water and Environmental Issues in Central Asia (<http://www.cawater-info.net/>).

36. Participants also stressed that: (a) better use should be made of the Convention's guidelines and strategies on monitoring and assessment; (b) they should be further promoted in the countries, including at the local level; and (c) focal points as well as members of the Working Group on Monitoring and Assessment were responsible for disseminating them and fostering their practical implementation.

37. Successful experience and models such as the ones documented in the present Seminar were not well enough disseminated and used. Learning from one another's mistakes was considered to be very important and exchanges of experience should genuinely include an exchange of problems encountered and errors committed.

38. Participants stressed that basic approaches such as the monitoring cycle and the analysis of the information needs as a basis for monitoring were still not fully implemented, and too often the collection of information was a goal per se without a clear understanding of the use of such information for water management.

39. Moreover, monitoring was too much focused on collecting information on the status of the resource while it should cover the whole DPSIR framework. Therefore, a combination of

information from different sources was more and more important, in particular information deriving from pollutant registers.

40. It was noted that prominent challenges at the transboundary level were the exchange of data and information and the harmonization of methodologies.

41. Institutional problems also seemed to be more difficult to tackle than purely technical issues. For instance, the difficulties of ensuring integration of groundwater and surface water management were due to the fact that in many countries groundwater was considered to be a mineral resource instead of a water resource, and this created differences in the responsible institutions.

42. Finally, it was concluded that only a step-by-step approach could ensure sustainable and continuous progress in the implementation of the Water Convention and the establishment of effective joint monitoring and assessment systems.
