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

Working Group on Monitoring and Assessment

Eighth meeting
Helsinki, Finland, 25–27 June 2007
Item 4 of the provisional agenda

**ASSESSMENT OF THE STATUS OF TRANSBOUNDARY WATERS
IN THE UNECE REGION¹**

**STATUS OF TRANSBOUNDARY RIVERS, LAKES AND
GROUNDWATERS IN THE UNECE REGION
(Purpose of the assessment and policy, status and management responses)**

Submitted by the Chairperson of the Working Group on
Monitoring and Assessment*

¹ At their fourth meeting (Bonn, Germany, 20–22 November 2006), the Parties to the Convention mandated its Working Group on Monitoring and Assessment with the assessment of transboundary rivers, lakes and groundwaters in the UNECE region. For details, please refer to documents ECE/MP.WAT/WG.2/2007/1 and ECE/MP.WAT/WG.2/2007/3.

* The present document was submitted late due to resources constraints in the secretariat and late submission by some countries.

Introduction

1. At their fourth meeting (Bonn, Germany, 20–22 November 2006), the Parties to the Convention on the Protection and Use of Transboundary Watercourses and Lakes (Water Convention) mandated its Working Group on Monitoring and Assessment with the assessment of transboundary rivers, lakes and groundwaters in the UNECE region. This document informs participants of the eight meeting of the Working Group about the interim results² of the assessment of the status of transboundary waters in the UNECE region, which is a specific contribution of the Meeting of the Parties to the sixth Ministerial Conference “Environment for Europe” (Belgrade, 10-12 October 2007).

2. The present document provides information that will become part of the forthcoming publication (for the preliminary content, see the annex).

3. The Working Group may wish to:

(a) Note with appreciation that the assessment undertaken helps to focus activities under the Water Convention to the priority needs of transboundary water management, particularly in countries with economies in transition;

(b) Welcome the preparation of the assessment of the status of transboundary waters as a new reference document for water-related action under the “Environment for Europe” process, which supplements and specifies State-of-the-Environment reports by the European Environment Agency and the Organisation for Economic Co-operation and Development (OECD) under the process;

(c) Further note that the assessment undertaken helps developing policy packages on integrated water resources management under the European Union (EU) Water Initiative’s Component for countries in Eastern Europe, Caucasus and Central Asia (EECCA);

(d) Express its gratitude to the lead country, Finland, and to the other countries and international organizations which have supported the work on the assessment and have also provided funding;

(e) Invite the Bureau of the Meeting of the Parties to the Convention, Finland as lead country, and the secretariat to present the findings of the assessment at the Belgrade Ministerial Conference, both as a category II document³ and as a full publication;

(f) Propose to the Meeting of the Parties to the Convention that it undertake the second assessment of the status of transboundary waters for submission to the seventh Ministerial Conference. This second assessment should further develop the findings regarding pollution prevention, control and reduction, including costs involved. The surface-water assessment should put more emphasis on water-quantity issues and highlight measures to counteract hydromorphological alterations in river basins. The lake assessment should provide

² The assessment is subject to further work by the secretariat, based on the outcome of the Working Group’s meeting.

³ The present document serves as basis for this category II document.

more insight into pressure factors, the status of lakes and management responses. The assessment of transboundary groundwaters should be extended to cover, as far as possible, groundwater bodies in the entire region.

(g) Also propose to the Meeting of the Parties to the Convention that it develop the assessment report, step by step, into a Regional Water Development Report to provide the regional dimension of integrated water resources management within the United Nations agencies' World Water Assessment Programme and the forthcoming World Water Development Reports.

I. PURPOSE OF THE ASSESSMENT

A. Requirements of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes

4. Under the 1992 UNECE Water Convention, the Parties shall take all appropriate measures to prevent, control and reduce the pollution of waters causing or likely to cause transboundary impact. They shall also ensure that transboundary waters are used with the aims of ecologically sound and rational water management, the conservation of water resources and environmental protection. Moreover, the Parties are obliged to ensure that transboundary waters are used in a reasonable and equitable way, and to ensure the conservation and, where necessary, restoration of ecosystems.

5. Riparian Parties (Parties bordering the same transboundary waters) have specific obligations. For example, they shall establish and implement joint programmes for monitoring the conditions of transboundary waters, including floods and ice drifts. Moreover, these riparian Parties shall, at regular intervals, carry out joint or coordinated assessments of the conditions of transboundary waters and the effectiveness of measures taken to prevent, control and reduce transboundary impact. The results of these assessments shall be made available to the public.

6. Following these obligations, the assessment of the status of transboundary waters highlights the achievements and challenges that countries still face in operating adequate monitoring systems, examining existing pressure factors on these water bodies, and providing information on trends in their ecological and chemical status. The assessment also sheds light on the effectiveness of the measures taken and provides the grounds for further measures to prevent, control and reduce transboundary impact.

The assessment report serves as a point of reference for action by the Parties to the Convention and other partners in international cooperation to improve the status of transboundary waters and to agree on joint measures related to integrated water resources management.

B. General approach

7. Under the auspices of the Meeting to the Parties to the Convention, the assessment has been carried out under the overall leadership of the Government of Finland.⁴

8. The Finnish Environment Institute undertook the assessment of transboundary rivers and lakes based on specific inputs by countries, international river commissions (Danube, Elbe, Meuse, Moselle, Oder, Rhine, Saar and Scheldt), and international lake commissions (Lake Constance and Lake Geneva). The United Nations Environmental Programme (UNEP) particularly assisted in the production of river basin maps.

9. The assessment of transboundary groundwaters was a joint activity of the British Geological Survey, the Slovak Hydrometeorological Institute and the United Nations Educational, Scientific and Cultural Organization (UNESCO) with its International Groundwater Resources Assessment Centre (IGRAC). Inputs were also made by the International Network of Water-Environment Centers for the Balkans (INWEB) for groundwater assessment in Balkan countries; by the United Nations Development Programme (UNDP) and the United States Agency for International Development (USAID) for groundwater assessments in Caucasus; and by the Organization for Security and Cooperation in Europe (OSCE) for groundwater assessments in Caucasus and Central Asia.

10. More than 150 experts on rivers, lakes and groundwaters have been involved in the assessment, either by providing information, participating in workshops, or peer-reviewing pre-assessments.

11. The assessment is based on:

(a) Information on the status of transboundary waters submitted individually or jointly by countries as well as joint bodies (e.g. International River and Lake Commissions) in response to specifically designed datasheets;

(b) Reviews undertaken by the secretariat on “Water and sanitation in the UNECE region: achievements in regulatory aspects, institutional arrangements and monitoring since Rio, trends and challenges”;⁵

(c) Environmental Performance Reviews undertaken by UNECE for countries in EECCA⁶ and other countries in transition;

⁴ The provision of human and financial resources by Finland, other countries and international organizations will be acknowledged in the relevant parts of the assessment publication.

⁵ Prepared for the first Regional Implementation Forum on Sustainable Development (Geneva, 15-16 January 2004) as document ECE/AC.25/2004/5 and Add.1 and Add.2. See

http://www.unece.org/env/SustainableDevelopment/1Session/sd_forum.jan2004.htm

⁶ Countries in Eastern Europe, Caucasus and Central Asia (EECCA) are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

- (d) Reports on the “Analysis of river basin characteristics, impacts of human activities and economic analyses required under the Water Framework Directive (2000/60/EC)”, prepared by EU countries and the international commissions for the Danube, Elbe, Meuse, Rhine, Oder and Scheldt;
- (e) The United Nations World Water Development Report (WWDR), a joint report by the 23 United Nations agencies concerned with freshwater, published in 2003; and the relevant chapters of the 2006 edition of WWDR;
- (f) Reviews undertaken by the UNEP Global International Waters Assessment (UNEP/GIWA) and the Division of Early Warning and Assessment/Office for Europe (UNEP/DEWA-Europe);
- (g) Assessments undertaken by UNESCO, other international organizations, and national and international institutions under the International Shared Aquifer Resource Management (ISARM) programme, a global initiative for identification, assessment and sound management of transboundary aquifers;
- (h) Reports by the Regional Environmental Centres, and national reports submitted by countries to seminars and workshops under the Convention.

12. At their fourth meeting in November 2006, the Parties to the Convention undertook a major review of the pre-assessments of rivers and lakes in the EECCA region.⁷ At that meeting, the Parties also decided to extend the assessment to all transboundary rivers having a basin size of more than 1,000 km², including transboundary rivers in Western Europe⁸ as well as Central and Eastern Europe.⁹ Moreover, the Parties decided to cover transboundary groundwaters in Balkan countries and countries in Caucasus and Central Asia.

13. The present assessment of transboundary waters covers some 170 transboundary rivers, some 30 transboundary lakes and some 70 transboundary groundwater bodies in the region. It analyses the achievements under the Water Convention to prevent, control and reduce transboundary impact and provides a set of priority tasks for all countries in the region to comply with the provisions of the Water Convention and other applicable legislation, particularly the Water Framework Directive (2000/60/EC).

14. The status assessment is the first ever produced in-depth report on transboundary rivers and lakes in the entire UNECE region (with the exception of Northern America and Israel) and of transboundary groundwaters in Balkan countries and the countries in Caucasus and Central Asia.

⁷ See documents http://www.unece.org/env/water/meetings/documents_MoPWC.htm#FourthMoP

⁸ Countries in Western Europe are: Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland and United Kingdom.

⁹ Countries in Central and Eastern Europe are: Albania, Bosnia and Herzegovina, Bulgaria, Czech Republic, Croatia, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, The former Yugoslav Republic of Macedonia and Turkey.

15. Special attention was given to countries with economies in transition as they still face the biggest challenge to reduce transboundary impact.

C. Focus areas - Transboundary surface waters

16. The assessment of transboundary surface waters (rivers and lakes) includes:

- (a) Transboundary surface waters in the Caspian Sea basin;
- (b) Transboundary surface waters in the Aral Sea basin;
- (c) Transboundary surface waters in Central Asia discharging to desert sinks;
- (d) Transboundary surface waters in the Arctic Sea basin (including the Barents Sea);
- (e) Transboundary surface waters in the basin of the Pacific Ocean;
- (f) Transboundary surface waters in the Black Sea basin;
- (g) Transboundary surface waters in the Mediterranean Sea basin;
- (h) Transboundary surface waters in the Baltic Sea basin; and
- (i) Transboundary surface waters in the basin of the Atlantic Ocean (including the North Sea).

17. Altogether, 110 first-order transboundary rivers which directly discharge to the above final recipients and some 60 transboundary tributaries to these rivers are included in the assessment, provided their size exceeds 1,000 km². The assessment also covers some 30 transboundary lakes.¹⁰

18. Wherever possible, the assessment highlights for each river (and lake) basin:

- (a) General features of the basin including its hydrological regime;
- (b) Pressure factors in the basin;
- (c) Status of water bodies (e.g. ambient water-quality data, water-quality classifications);
- (d) Transboundary impact; and
- (e) Trends, future developments and management measures envisaged.

¹⁰ At the time of writing, the lake assessment was not yet completed.

19. In analysing pressures, the impact of human activities on the chemical status has been dealt with more comprehensively than hydromorphological alterations by human activities and their impact on the status of watercourses. Moreover, water-quality problems have been given preference over water-quantity problems. The reason for such an approach was data availability in countries, both in the east and the west, which required a step-wise approach by focusing on the most critical problems in the present assessment and undertaking more holistic assessments in the future.

20. The assessment also examines the status of transboundary water bodies in countries with economies more comprehensively than transboundary water bodies solely shared by countries with market economies. The reason is data accessibility: whereas a comprehensive volume of information has been gathered from countries in transition, which was never before available to the international community, the situation in market-economy countries is quite different. For the latter countries, comprehensive information is available and easily accessible on the Internet, for example, as part of these countries' analysis under the Water Framework Directive.

D. Focus areas - Transboundary groundwaters¹¹

21. The assessment of transboundary groundwaters includes:

- (a) Transboundary groundwaters in Balkan countries (Black Sea and Mediterranean Sea basins);
- (b) Transboundary waters in the Caucasus (Kura River basin);
- (c) Transboundary waters in Central Asia (Aral Sea basin, southern part of the Caspian Sea basin and river basins in Central Asia with a desert sink).

22. Approximately 50 aquifers in Balkan countries and some 20 aquifers in the Caucasus and Central Asia are included.¹²

23. Where possible, the assessment highlights for each of the transboundary groundwater bodies:

- (a) General characteristics of the transboundary aquifer;
- (b) Uses and functions;
- (c) Groundwater abstraction and use;
- (d) Problems related to groundwater quantity;
- (e) Problems related to groundwater quality;
- (f) Evidence for transboundary effects;

¹¹ This section will be further elaborated, once the groundwater assessment was completed.

¹² At the time of writing, the lake assessment was not yet completed.

- (g) Groundwater management measures for the transboundary aquifer.

II. STATUS OF TRANSBOUNDARY WATERS

A. Status of transboundary rivers and lakes

24. The analysis of transboundary rivers has shown that almost 20% of these rivers in Caucasus and Central Asia are in a “high or good chemical status”. Some of these water bodies, however, show signs of increasing pollution due to the ongoing revival of the manufacturing industries and agricultural production or are potentially threatened by mining and ore processing. The majority of the transboundary rivers included in the assessment fall into the category “water bodies with moderate pollution”.

25. “Polluted water bodies” are transboundary rivers which take up their pollution load in lowland areas due to intensive agriculture, transboundary rivers in the vicinity of large population/industrial centres, transboundary rivers with small water discharges, and transboundary rivers, which take up their pollution load in foothills with intensive industrial (including mining) or agricultural water use. Cadmium, lead, mercury, phenols and oil products, as well as pesticides, are among the most serious pollutants. In order to improve the status of these waters, the assessment report in its Part II¹³ makes specific recommendations; these are summarized in chapter III below.

26. Similarly, a number of transboundary rivers in Western Europe as well as Central and Eastern Europe are in “high and good status”. Most rivers still belong to the category of “moderately polluted” water bodies or have a “fair water quality”; but there are also transboundary rivers or stretches of these rivers which fall under “heavily modified water bodies” and have been assessed as “polluted”. Cadmium, lead, mercury, nickel and its compounds, tributyl-tin, HCB, DDT, lindane and atrazine are among the most serious pollutants. To improve the status of these waters, the assessment report in its Part II¹⁴ makes also specific recommendations for waters shared by countries with market economies; these are also summarized in chapter III below.

27. Geochemical processes have been repeatedly seen as an issue of concern in some river basins in the entire region due to high natural background concentration of heavy metals (mountain areas) or high turbidity (areas with peat extraction).

28. Deforestation, soil erosion and degradation of pastures (particularly in EECCA) are other issues of concern. They will continue to be a problem for the proper functioning of water-related ecosystems and lead to higher risks of natural disasters, unless appropriate response measures are implemented.

29. The rise in air temperatures and air pollution (with subsequent contamination of rainwater) was seen as the major cause of the significant melting of glaciers in Central Asia,

¹³ See the annex to the present document.

¹⁴ See the annex to the present document.

resulting in noteworthy changes of the rivers' hydrological and ecological regimes. Water shortages and the degradation of aquatic ecosystems are likely to continue to adversely affect economic development in countries in transition. With a reduction in precipitation of up to 30% over the last decade, the impact of climate change on water resources availability was particularly obvious in the assessments of rivers draining to the Mediterranean Sea. Thus, climate change adaptation measures in water management and water-dependent activities and services (e.g. agriculture, forestry, water supply, hydropower generation) are needed in the entire UNECE region.

30. Damage by floods became a costly water-quantity problem in the entire region. Too many countries still base flood prevention and mitigation solely on structural measures, such as the construction of dams and dykes and improved operations of dams and reservoirs. Holistic approaches to the prevention and mitigation of floods, applied particularly in basins in Central Europe, should be implemented more widely. These holistic approaches combine non-structural measures (e.g. giving more space to the river) with structural measures. There are also basins that suffer from the consequence of "man-made" floods, an example being basins in Central Asia where high water releases from reservoirs in wintertime for hydropower generation lead to downstream flooding.

31. Eutrophication is the worst phenomenon affecting transboundary lakes. It is increasing constantly except in areas where wastewater treatment has been effectively implemented and small improvements are visible. In nearly all areas, increasing non-point loading from agricultural and forestry areas has spurred incipient eutrophication even in some lakes, which were in good condition.¹⁵

B. Status of transboundary groundwaters

32. *This section is under preparation.*¹⁶

III. POLICY AND MANAGEMENT RESPONSES

33. The assessment has clearly shown that the development and/or implementation of policy and management responses in UNECE countries to improve the chemical and ecological status of transboundary waters depend on the relative importance of the pressures on water resources in these basins.¹⁷ The following table summarizes the relative importance of pressures in countries in transition and countries with market economies, based on the findings of each of the surface and groundwater bodies dealt with in the assessment.

¹⁵ See document ECE/MP.WAT/WG.2/2007/4.

¹⁶ Text to be drawn up by representatives of the core group on groundwaters.

¹⁷ The analysis of pressures, transboundary impact and trends in transboundary surface waters and groundwaters is part of document ECE/MP.WAT/WG.2/2007/4. This document should be read in conjunction with document ECE/MP.WAT/2006/16, issued for the fourth meeting of the Parties.

Relative importance of pressures in transboundary water bodies in ECE countries		
Ranking	Countries in transition	Countries with market economies
1 st rank	Point pressures (municipal sewage treatment; old small, medium-sized and big industrial installations)	Diffuse pressures (agriculture, non-sewered population, urban land use)
2 nd rank	Abstraction pressures – national (irrigated agriculture, industrial water use, water losses in supply systems) Abstraction pressures – international (sharing of waters among riparian countries)	Morphological pressures (hydroelectric dams, reservoirs, channel alterations, agricultural enhancement, flood defences)
3 rd rank	Diffuse pressures (agriculture, non-sewered population, illegal disposal of household wastes, unregulated disposal of municipal and mining wastes, transportation)	Point pressures (urban wastewater treatment plants, storm overflows, sludge treatment plants, IPPC industries and non-IPPC industries)
4 th rank	Other point pressures (new industrial installations, tailing dams, oil pipelines)	Abstraction pressures (public and private water supply and industrial use)
5 th rank	Morphological pressures (hydroelectric dams, reservoirs, channel alterations, agricultural enhancement)	Other diffuse sources (land transport, forestry activities)

34. Given the relative importance of pressures in these countries, a set of priority policy and management measures can be derived; most of them are targeted to countries with economies in transition.

35. As the assessment focused on pressures from point and non-point sources with an impact on the chemical status, these policy and management measures also focus on the improvement of the chemical status, rather than dealing with other response measures, such as responses to hydromorphological alterations. These will be dealt with in future assessment reports.

A. Policy and management responses to improve the status of transboundary waters

Countries in transition

36. Countries in transition suffered over a period of some 15 years a decline in their economies, which came hand in hand with a breakdown of essential systems of water supply and wastewater treatment. These countries can substantially improve the status of their transboundary waters, if *point pressures from municipal sewage treatment plants and wastewater discharges from the existing small, medium-sized and big industries were dealt with as priorities tasks*, followed by a campaign against diffuse pressures, including agriculture and the illegal waste disposal in river basins and in the vicinity of water abstraction points. Newly

established big industrial enterprises seem to cause fewer pressures, as they were equipped with adequate wastewater treatment technologies.

37. As concerns *agriculture* in countries in transition, experience from Western Europe has shown (see below) that the command-and-control approaches provided by Council Directives and national legislation may not be sufficient to achieve good ecological and chemical status of water bodies. Improving pollution control from diffuse sources *requires innovative supplementary measures, such as payments for ecosystem services* (see section below). Best practice and innovative approaches also include agro-environmental programmes that combine technology, awareness-raising, community participation and cost-sharing to reduce inputs of fertilizers and pesticides and to minimize leaching of residues to natural waters.

38. Dealing with *hydromorphological changes*, which may even be bigger than in basins in Western Europe, will also become an issue in the future, although this kind of pressure was rarely referred to in the countries' responses to policy and management measures to improve the status of water bodies. Transfer of experience from Western Europe in coping with this pressure, for example under the Water Framework Directive, is needed.

39. Particular issues are *abstraction pressures and water allocation among riparian countries*. Experience under the present assessment report has shown at least five areas of existing or potential conflicts over water. One area is the conflict between hydropower production and irrigational agriculture, which is particularly obvious in the basins of the Amu Darya and Syr Darya. Another area is the conflict between hydropower production and navigation, which became obvious in rivers shared by Kazakhstan and the Russian Federation, where new (private) operators are now managing reservoirs formerly managed under government responsibility. There is another conflict potential, namely the conflict between water use for industrial activities and water for the maintenance of aquatic ecosystem. This conflict is particularly pronounced in the basin of the Ili River, shared by China and Kazakhstan, and may result in the dying of the Lake Balqash (following the example of the Aral Sea). Finally, disputes continue among countries, particularly over certain rivers in the Caspian Sea basin, and over use quotas for the upstream and downstream users belonging to different States.

40. Thus, *water allocation among riparian countries*, respecting ecological requirements of the water bodies, is not yet sufficiently resolved in some countries in the region. There is a need for exchange of experience in the entire region on good practice of water allocation as such and for striving for win-win solutions to mitigate existing – and avoid future – conflicts over water resources.

Countries with market economies

41. In many countries with market economies huge investments in point source pollution control measure were made over two and more decades. This has led to a substantial decrease of the pollution load from these sources, and hand-in-hand to an increase of the relative importance of the pollution load from non-point sources.

42. *Dealing with diffuse pressures* (agriculture, some still unsewered populations, urban land use) became therefore a priority tasks in these countries, followed by measures to deal with

hydromorphological pressures as well as the remaining point pressures responsible for organic pollution, nutrient pollution, and pollution by hazardous substances.

43. Regarding agriculture, the legal framework has been established in countries with market economies many years ago at all levels (e.g. Council Directives; bilateral and multilateral transboundary water agreements among EU member States; and national law in the EU countries, Norway and Switzerland) and technical guidance to control water pollution by fertilizers and pesticides in agriculture is broadly available. However, the drawing up and implementation of these pieces of legislation will take some time, as there still seems to be a problem with water pollution control from agricultural sources in some EU countries, particularly those located in the drainage basin of the Mediterranean Sea, as well as the new EU countries. As pointed out above, improving pollution control from diffuse sources requires *innovative supplementary measures, such as payments for ecosystem services*. The latter is particularly being promoted by the Meeting of the Parties to the Water Convention, which recently issued guidelines for implementation.¹⁸

44. A particular challenge area to be addressed by proper response measures is the control and *reduction of pollution by new substances*, produced by the chemical industry, including new pharmaceuticals that may adversely affect wastewater treatment processes.

45. In some other countries with market economies, *untreated or insufficiently treated industrial wastewater* is still of concern and breakdowns of municipal wastewater treatment systems are the reasons for significant discharges of polluted waters into the rivers. The legal framework exists with the relevant Council Directives, and compliance with these directives is needed to achieve a good status of water bodies. In some new EU countries, inappropriate wastewater treatment is also a problematic pressure factor, and the national sewerage collection and wastewater treatment plans are targeted to fulfil the requirements of the relevant Council Directives by 2010 and 2015, respectively.¹⁹

46. In the assessment of water resources in such river basins as the Danube, Elbe, Rhine, Meuse and Scheldt, pressures from hydromorphological alterations turned out to be one of the most prominent areas of concern. The analysis has also showed that hydromorphological alterations have a significant impact on other rivers in the region, including those in countries with market economies. This fact was largely unknown at the beginning of the work on the assessment of the status of transboundary rivers, where the search for good practice to respond to the challenge of achieving high or good status of water bodies focused on chemical determinands. It seems to be of utmost importance that the Parties to the Convention devote adequate resources to studying good practice in countries with market economies, and to sharing this good practice with countries with economies in transition.

¹⁸ See Recommendations on Payments of Ecosystem Services in Integrated Water Resources Management (ECE/MP.WAT/22).

¹⁹ For the 12 countries that acceded to the EU in 2004 and 2007, respectively, the EU has accepted non-compliance only with those directives that entail massive investments in infrastructure, which for the water sector means the Drinking Water Directive and the Urban Wastewater Treatment Directive. Transition periods of 5 to 10 years have been granted to the accession countries before they have to comply with these directives.

Common issues for all countries in the region

47. There are at least three issues that are common to both countries with economies in transition and countries with market economies.

48. Most critical is the identification and development of *adaptive strategies towards effects of climate change* on water management, including floods and droughts, on different levels of time and scale, and to identify information needs in support of these strategies (see chapter II). Such adaptive strategies should also include the safe operation of water-supply and sanitation facilities in urban and rural areas.

49. Another common issue is *mining and quarrying*. Better management and control is needed in basins in Western Europe, Central and Eastern Europe as well as EECCA, where the mining industry (copper, zinc, lead, coal and uranium mining) is one of the most significant pressure factors, and where a number of storage facilities (including tailing dams for mining and industrial wastes) remain significant (or at least significant potential) pollution sources. In parts of the region, mining of hard coal has also significantly changed groundwater flow. Opencast mining of brown coal, particularly in parts of Central Europe, is also lowering the groundwater level. Thus appropriate measures need to be implemented in many cases to control the adverse impact on water resources quality and quantity. After the termination of mining activities, rehabilitation measures need to be implemented to avoid further adverse impacts on aquatic and terrestrial ecosystems and/or to rehabilitate damaged landscapes and ecosystems.

50. The assessment has also shown that *early warning systems for accidental pollution* still need to be established in some river basins, particularly those in the Mediterranean Sea and Atlantic Ocean basins. For countries in transition, experience gained under the early warning systems for such rivers as the Kura, Neman and Dniester should be broadly used.

B. Strategies on integrated water resources management

51. Experience from the current assessment reveals that strategies on integrated water resources management in transboundary river basins in countries in transition are largely lacking or are only covering the development of the water sector as such. There is also little experience on integrated approaches to the management of surface waters and groundwaters, and strategies are needed that can overcome the still existing fragmentation of management responsibilities for different types of freshwater bodies.

52. The ongoing reform of ministerial environmental departments and water agencies is an opportunity to *overcome deficiencies in strategy development*. This reform should be used as a vehicle for the integration of relevant policies at all levels and sectors pertaining to, inter alia, agriculture and forestry, urban development, water, energy and transport.

C. Transboundary water agreements

53. There are still major river basins without any multilateral and bilateral water agreements, with agreements not adapted to the needs of the UNECE Water Convention and other applicable

legislation such as the Water Framework Directive, or with agreements only concluded among some of the riparian countries.

54. Prominent examples of such river basins located *on the fringe between EU countries and non-EU countries*, include the rivers Daugava, Neman, Bug and a number of transboundary rivers in the Danube basin and the Mediterranean. Prominent examples of river basins located entirely in EECCA countries include the basins of the rivers Kura and Samur in the Caucasus as well as the entire transboundary water system in the Amu Darya and Syr Darya basins. Moreover, most agreements on water management in basins *on the fringe between EECCA countries and such countries as Afghanistan, China, Iran and Mongolia* have been drawn up decades ago and need updating as to integrated water resources management and water distribution.²⁰ As concerns the latter countries, the 2003 amendment to the Water Convention allows United Nations Member States from outside the UNECE region to become Parties to the Convention and to apply the principles, approaches and obligations of the Water Convention.

55. It is of utmost importance to close this gap in the near future. There is a wealth of experience on which countries may build their future water agreements. Examples include experience under the agreement between Finland and the Russian Federation, which has been successfully working for more than 40 years; experience under the more recently concluded agreements on the Sava River (Danube basin) and transboundary rivers in the Ural and Ob basins (Kazakhstan and the Russian Federation); and experience under the draft agreement on the Dniester basin, updating the former 1994 agreement between Moldova and Ukraine (see also section B).

D. Institutional frameworks to improve the status of transboundary waters

56. Functioning institutions and suitable institutional arrangements at the national and local levels are a prerequisite for international cooperation, particularly related to the work of joint bodies, which includes the smooth implementation of their monitoring- and assessment-related tasks as well as the drawing up and implementation of river basin management plans.

57. The establishment of closer cooperation “across the border” between authorities dealing with land-use planning and development will help to overcome conflicting interests in sectoral planning both in the national and transboundary contexts, and will provide accurate and consistent data/information on river basin characteristics.

58. There are many examples where joint bodies have existed for a long period of time or have recently been established.

²⁰ A recent UNECE report on “Transboundary water cooperation in the newly independent States” (Water Series No. 4) listed 10 important river basins that were not yet covered by agreements in the EECCA region as well as between Central and East European and EECCA countries. However, there is progress: an agreement was signed in May 2003 on one of these river basins, the Dnieper river basin, and for two other river basins, negotiations on multilateral agreements are in their final stage. There are also rivers in the Danube basin for which - in addition to the 1994 Convention on Cooperation for the Protection and Sustainable Use of the Danube River - specific bilateral or multilateral sub-basin agreements are still to be drawn up.

59. *In countries in transition*, these include the Joint Kazakhstan-Russian Commission on transboundary waters, and the newly established joint commission, between Kazakhstan and Kyrgyzstan, on the rivers Chu and Talas.
60. The joint Finnish-Russian commission is an example where *countries with market economies and countries in transition* have been working together for a long period of time. The recently established International Sava Commission is another example for cooperation on the fringe between EU countries (Slovenia) and countries in transition (Albania, Croatia, Bosnia and Herzegovina, and Serbia). Joint bodies have also been formally established under bilateral agreements between Albania and Greece, and Greece and The former Yugoslav Republic of Macedonia; however, it may take some more time before these new commissions become fully operational.
61. *Joint bodies in countries with market economies* have also a long record of achievements to prevent control and reduce transboundary impact. Examples include the international commissions on the Rhine, Moselle and Saar, Elbe, Danube, Meuse, Scheldt and Oder, which all provided extensive contributions to the present assessment. Joint bodies have also been established on other transboundary waters in Western Europe; their contribution to the assessment report, however, was rather limited.
62. Experience under the present assessment report has shown that in basins where such joint bodies exist for some time, concise information on the status of the water bodies and on future measures is readily available.
63. In other transboundary basins, the institutional framework is still missing or is inadequately developed. This has often led to contradictory country statements even about relatively simple datasets (e.g. the size of the basin, population figures, land use forms and pressure factors) and conflicting reports about water-quality and water-quantity related data.
64. In these cases, riparian countries may decide to establish, as a first step, specific joint working groups. In these groups, experts from different disciplines should meet regularly to agree upon joint measures on integrated water resources management, including the implementation of monitoring and assessment activities, as well as the related technical, financial and organizational aspects. This has led to positive results, even in the Amur River basin (China and the Russian Federation) and the Tumen River basin (China, Democratic People's Republic of Korea, and the Russian Federation), which in the past have had a high water-related conflict potential among the riparian countries.
65. As a second step, joint bodies, such as river commissions or other arrangements for cooperation should be foreseen, and particular efforts should be made to build and strengthen the capacity of these joint bodies. The setting up of permanent secretariats for joint bodies can be an asset.

Annex

PRELIMINARY TABLE OF CONTENTS

The assessment report is a self-standing publication of some 500 pages, including maps, tables and graphics on each of the water bodies are singled out. It will be structured as follows:

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²¹ To be drawn up after the Working Group meeting.

²² To be drawn up after the Working Group meeting.

²³ To be revised after the Working Group meeting.

²⁴ For the text, see chapter I of the present document.

²⁵ For the text, see document ECE/MP.WAT/16/1, chapter II.

²⁶ For the text, see document ECE/MP.WAT/2006/16 and the update in ECE/MP.WAT/ WG.2/2007/4.

²⁷ Text to be drawn up by representatives of the core group on groundwaters.

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²⁸ See chapter II of the present document.

²⁹ Text to be drawn up by representatives of the core group on groundwaters.

³⁰ For the text, see the present document, chapter III.

³¹ For the text, see documents ECE/MP.WAT/2006/16/Add.1-6 as well as documents ECE/MP.WAT/WG.2/2007/5-ECE/MP.WAT/WG.2/2007/15.

³² Including the Barents Sea.

³³ Including the North Sea.

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³⁴ Text to be drawn up by representatives of the core group on groundwaters.