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**WATER AND SANITATION IN THE UNECE REGION:
ACHIEVEMENTS IN REGULATORY ASPECTS, INSTITUTIONAL
ARRANGEMENTS AND MONITORING SINCE RIO, TRENDS AND CHALLENGES***

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Introduction

1. This review is a contribution from the UNECE region to the United Nations Commission on Sustainable Development, which at its twelfth session will review progress in the implementation of the thematic areas of water, sanitation and human settlements. The various chapters aim to present an analysis of achievements, mainly following chapter 18 of Agenda 21, according to the commitments in the Programme for the Further Implementation of Agenda 21 (A/RES/5-19/2) and the Johannesburg Plan of Implementation.

2. For the purposes of this report, it has been necessary to group some countries together (see table) and draw generalized conclusions. The grouping is basically identical to the grouping used by the European Environment Agency in its recent report "Europe's Environment: the Third Assessment".

* For technical reasons, figures and literature references are contained in ECE/AC.25/2004/5/Add.2.

EXECUTIVE SUMMARY

3. Water shortages, unsafe water and inadequate sanitation are reported on every continent, including Europe. Worldwide, some 2.4 billion people lack access to basic sanitation and 1.2 billion, or one in five, lack safe drinking water.

4. As is the case with other regions in the world, the UNECE region is widely heterogeneous from the economic, social and environmental points of view. However, it displays very specific problems related to both water quantity and water quality:

(a) In Europe, an estimated 120 million people, i.e. one in seven, do not have access to safe drinking water and adequate sanitation, making them vulnerable to water-related diseases, such as cholera, bacillary dysentery, coli infections, viral hepatitis A and typhoid. The prevention, control and reduction of water-related diseases through the implementation of the 1999 Protocol on Water and Health to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) is therefore an important challenge;

(b) 31% of Europe's population lives in countries that experience high water stress, particularly during droughts and periods of low river flow. Overexploitation of drinking-water sources and overuse of surface water for irrigation, particularly in Central Asia, continue to have serious environmental consequences;

(c) A number of European countries abstract at least as much surface water as they generate. Twenty European countries depend on water coming from neighbouring countries: more than 10% of their waters are formed abroad. For five countries, 75% of their resources are formed in upstream countries. Reasonable and equitable use of transboundary waters (and water-sharing between different sectors in the national economy and between countries) is therefore a particular challenge;

(d) Many countries depend on groundwater as their main source of drinking water. This has led to an overuse of shallow groundwater resources and water abstraction from deep aquifers around cities. About 60% of the European cities with more than 100,000 inhabitants (or a total of 140 million people) are now supplied with water from overexploited groundwater resources. Apart from the protection of the sources of drinking-water supply against pollution and overuse, the challenge is in implementing additional specific measures of demand management and rational use of water;

(e) Floods, with severe economic and social impact, threaten many UNECE countries and have become the most common and costly "water-quantity problem" in the Mediterranean region as well as in parts of Western and Central Europe and North America. This is one area where the economically advanced western countries of the region seem to be experiencing increasing problems;

(f) Not all Governments have been successful in combating water wastage. In some large cities in Central and Eastern Europe, almost half the drinking water that leaves the water purification plants is lost in the pipeline system. Some European cities have even reported leakages of 70 to 80%.

(g) Owing to the essential transboundary nature of waters in the UNECE region, water management and sanitation-related issues could become a source of disputes between countries. This requires new policies that are all-embracing and environmentally sound, and that involve the public at large.

5. Transboundary water resources play a significant role in the whole region. The break-up of the Soviet Union and other States has created new borders and new transboundary waters. The region now has several hundreds of transboundary water bodies, including rivers, lakes and groundwaters. Many catchments drain into closed seas or into land-locked lakes and pollution transported by rivers to seas and lakes has a major influence on these ecosystems.

6. UNECE Governments have managed to put in place a unique regional environmental framework to address the most important issues of transboundary cooperation. Five environmental conventions and their protocols address: the protection of transboundary waters; industrial accidents; air pollution control; environmental impact assessment; and public information, participation in decision-making and access to justice. In addition to these legally binding instruments, guidelines and recommendations that address all major issues of chapter 18 of Agenda 21 have been key results of cooperation under the UNECE water programme. Examples include guidelines on the ecosystem approach in water management, water-quality criteria and objectives, monitoring and assessment, groundwater management, water and agriculture, sustainable flood management, public participation in water management, compliance with water agreements and industrial safety.

7. Concerted and joint action of UNECE and the Regional Office for Europe of the World Health Organization (WHO/EURO) to prevent, control and reduce water-related disease resulted in the 1999 Protocol on Water and Health. With this Protocol, cooperation on water management now includes a social component, as water resources management should aim at linking social and economic development to the protection of natural ecosystems. Three more binding instrument, among them the Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters, were adopted at the Ministerial "Environment for Europe" Conference in Kiev in May 2003. All of them will strengthen cooperation on water and sanitation.

8. Cooperation under UNECE auspices is a good example of the modern trends in international law-making on the environment. Any instrument, whether binding or not, is drawn up by Governments together with the representatives of business, NGOs and international or national organizations and institutions. Thus, those who will be involved - in one way or another - in implementation, enforcement and compliance measures already have a role to play when the instrument is being drafted.

9. The 1990s saw a move towards a more integrated approach to water management in the region. Most UNECE countries reviewed their laws during the past decade. As a result, the "polluter-pays" principle and the "user-pays" principle are now firmly embedded in laws, but not yet effectively enforced everywhere, particularly in Eastern Europe, the Caucasus and Central Asia (EECCA). In addition to new national laws, the European Union (EU) water legislation was also reformed. Its Water Framework Directive (WFD) adopted in 2000 expands the scope of water protection to all water bodies that belong to the EU area and sets clear objectives: all waters must enjoy "good status" by 2015.

10. Overall, the adoption of water management legislation has progressed well, in particular in the EU accession countries, which in the mid-1990s started to transpose and implement EU legislation. However, the regulatory reforms are far from complete, especially in EECCA countries, and have resulted in some gaps and contradictions between new laws, decrees and regulations. The same applies to implementation and enforcement. Capacity-building of river basin management institutions, including joint bodies for transboundary waters, and financing of water resources management services are another area of concern.

11. All countries in Western Europe have already achieved the Agenda 21 objective of establishing operational water resources assessment services. However, usable and policy-relevant information on water resources is scarce in most countries despite considerable expenditure over many years and the availability of large amounts of raw data. Some other countries, for instance in Central and Eastern Europe, have revised their water monitoring systems in order to optimize the benefits from monitoring against resources spent.

12. Treatment of waste water from industrial and household sources has improved markedly during the past decades resulting in improved water quality in rivers and lakes and even in seas. In some parts of the Eastern, Central and South-Eastern Europe and EECCA, the proportion of waste water being treated is still low. North America and many European countries have an almost full coverage of improved water supply (house connections) and sanitation (sewers). In Europe, the coverage is higher in urban than rural areas. In EECCA, there are serious problems with the continuity of service delivery, with frequent disruption of supplies seen in some countries. Most Central Asian countries have high coverage of improved water supply and sanitation in urban areas, while water-supply coverage in rural areas is much lower.

13. Drinking-water quality is still a concern throughout the UNECE region, with significant microbiological contamination of drinking-water supplies in EECCA, causing water-related disease. Contamination by salts in Central Europe is another concern. Moreover, more than 10% of European Union citizens are potentially exposed to microbiological and other contaminants that exceed the maximum allowable concentrations. Problems are generally highest near pollution "hot spots" resulting from a range of industrial and other activities. Generally, the situation is of greatest concern in some of the EECCA countries, especially as regards the quality of drinking water in terms of microbiology and toxic substances.

14. As concerns water and agriculture, most countries in Western Europe have embarked on agro-environmental programmes that combine various approaches involving technology, awareness raising, community participation, cost sharing and regulation to reduce inputs of fertilisers and farm chemicals and to minimize leaching of residues to natural waters. Some of these programmes have been quite successful, but they are often cumbersome to administer and difficult to enforce. Progress has also been made as water users were given a greater role in water resources management. In some countries, the responsibility for management or sometimes even ownership of community irrigation systems is being or has been transferred from public bodies to water user associations.

15. Most EU and accession countries have met the targets of Agenda 21 on water and sustainable urban development: (a) all urban residents have access to at least 40 litres of safe water per day and at least 75% are provided with on-site community facilities for sanitation; (b) discharge limits for municipal and industrial effluents are applied; and (c) at least 75% of solid waste generated in urban areas is managed in an environmentally safe way.

16. Although urbanization has increased, the consumption of water has fallen in most countries in Western Europe during the past decade as a result of urban water services that have focused on water savings, increasing metering and the use of economic instruments. In others part of the UNECE region, e.g. South-East Europe, urban water use has continued to increase as more homes are connected to water-supply systems and people adopt a more water-consuming lifestyles. In the accession countries and EECCA countries, urban water use has decreased since 1990 primarily because big industrial water users have been closed down and subsidies for water have gradually been removed.

17. Urban water utilities have installed meters with end-users in most western countries, which has proved effective in reducing water use. Only recently, have meters been introduced in Central and Eastern Europe and EECCA. Unaccounted-for water, which in many cases reflects the efficiency of a water utility, is low in most countries in Western Europe and high in most EECCA and a few Central and Eastern European countries.

18. Compared with other regions in the world, many countries of the UNECE region seem to be well advanced in the introduction of economic instruments such as water fees and fines, water-related taxes, water-related subsidies given through environmental funds and voluntary instruments. Environmental management systems for enterprises have led to reduced industrial water use and emissions and public-private partnerships to improved effectiveness in water services. Also, best available technology (BAT) approaches have been widely introduced and contributed to water-use reductions and water-quality improvements. However, this is still not the case for the EECCA and the Balkan countries.

19. As concerns the economic reforms of the water supply and sanitation sector, one of the key reasons for the continued decline in water services in EECCA is the chronic underfunding of the sector. In particular, water utility revenues are typically insufficient even to cover essential operating and maintenance costs, largely due to extremely low water tariffs.

20. Regarding the social impact of water sector reforms, it is clear that crucial rises in water tariffs will be a challenge for the poorest sections of the population. To ensure social acceptance of water sector reform, it is therefore essential to give sufficient attention to this issue and to take adequate measures to protect the poor.

21. The overall cooperation and coordination in the water sector for the Central and Eastern Europe and EECCA subregions have improved during the past decade. Under the "Environment for Europe" process, the Environmental Action Programme and a specific task force of the Organisation for Economic Co-operation and Development (OECD), which was put in place to support its implementation, have assisted the Central and Eastern European countries in their reform of the water sector. Regional Environmental Centres have facilitated environmental dialogue, networking and regional cooperation with the main aim of bringing the civil society into the transition process.

22. EU and bilateral donors and international financing institutions have implemented massive investment and development assistance programmes during the past decade, covering initially Central and Eastern Europe but later also South-Eastern Europe and EECCA. These investments in the water sector have acted as important catalysts for much larger national domestic financing. Through the 1996-2001 period, external assistance for the environment sector reached 0.1-0.9% of GDP in recipient countries. It has been estimated that the EU

accession countries in Central and Eastern Europe covered 90-95% of the total environmental investments themselves.

23. Public awareness of environmental problems, public pressure to solve them and public participation in decision-making have been essential for the development and implementation of effective environmental policies in Western Europe. These factors have been driving forces in Western Europe, and also in Central and Eastern Europe, where the framework for public participation in environmental decision-making has been improved (notably through adoption of the Aarhus Convention and Declaration). The conditions for public participation in decision-making are still difficult in EECCA countries. Public participation in local decision-making seems to be well established, however, it is not yet common practice at sub-national, national and transboundary levels.

I. MAIN WATER CHARACTERISTICS OF THE REGION

24. The UNECE region is widely heterogeneous from the economic, social and environmental points of view, and displays very specific problems related to both water quantity and water quality.

25. Water resources are unevenly distributed in the region. Some countries abstract at least as much water as they generate (e.g. Belgium, Hungary, Netherlands, Republic of Moldova). There are problems with water availability around the Mediterranean, in the Aral Sea basin in Central Asia and in some parts of the United States. Water resources in many locations are under threat from a range of human activities and over-abstraction of water remains a major concern in the region, in particular in coastal areas and islands.

26. Transboundary water resources play a significant role in the whole region. Twenty countries in Europe depend on water coming from neighbouring countries; they receive more than 10% of their water resources from the other riparian countries, whereas five of them depend on over 75% from inflow from upstream countries (Hungary, Luxembourg, Netherlands, Republic of Moldova, Romania).

27. The break-up of the Soviet Union and other States has created new borders and new transboundary waters. The region now has about 150 major transboundary rivers that form or cross borders between two or more countries, some 25 major transboundary and international lakes and some 100 transboundary aquifers. Many catchments drain into closed seas or into land-locked lakes and pollution transported by rivers to seas and lakes has a major influence on these ecosystems.

28. Water stress and water use by sector also vary greatly within the region. In the UNECE region on average, 42% of total water abstraction is used for agriculture, 40% for industry (almost half of it for energy production) and 18% for urban use. Agriculture accounts for 50-70% of total water abstraction in South-Western Europe, in Eastern Europe, the Caucasus and Central Asia (EECCA) and in some parts of the United States. Cooling for electricity production is the dominant use in Central Europe. Increased urbanization and population growth have resulted in increased urban water use. Total water abstraction has decreased or has been stable over the past decade in most parts of the region. Groundwater use, however, has not decreased much as this source is increasingly used for public water supply.

29. In the UNECE region, major development programmes were based on the use or diversion of water, such as hydropower plants, navigation, drainage and irrigation. This infrastructure development has been and still is very important for economic development. It has, however, also resulted in adverse impact on the environment due to low water levels and has also led to significant economic and environmental damage due to floods.

30. Drinking water and sanitation are still of great concern throughout the region. An estimated 120 million people, i.e. one in seven Europeans, do not have access to safe drinking water and adequate sanitation. Microbiological contamination of drinking-water supplies is significant in EECCA, while contamination by salts is a concern for Central Europe. Water-related diseases, such as cholera, dysentery, coli infections, viral hepatitis A and typhoid, are reported in the region.

31. Treatment of waste water from industrial and household sources has improved markedly during the past decades, resulting in improved water quality in rivers and lakes and even in seas. In some parts of East, Central and South-Eastern Europe and EECCA, the proportion of waste water being treated is still low. Emissions of heavy metals and some hazardous chemicals have been reduced; however, many hazardous chemicals are still emitted into surface waters without any regulation. In many parts of the region, in particular in Western and Central Europe, groundwater is polluted with nitrates and pesticides and drinking water from shallow aquifers does not always fulfil quality criteria.

In general, the region's water-quality has improved during the past decade. However, information on the state of the environment which surfaced after the break-up of the Soviet Union has revealed serious problems related to both water quality and water quantity in Central and Eastern Europe and in particular in EECCA. Improvements were observed in Central and Eastern Europe during the second half of the past decade. The EECCA subregion has experienced set-backs in the water sector, due for instance to the decline in the economy in the 1990s, and faces huge challenges in the current phase of economic recovery.

II. GLOBAL CHALLENGES - REGIONAL RESPONSES

32. International debates on water policies and management have at the global level raised concerns about water quantity and quality trends and their impact on development and poverty reduction.

33. The 1977 United Nations Water Conference raised concern that relatively little attention had been given to water resource measurements and that data had been seriously neglected. The 1992 Dublin Statement on Water and Sustainable Development provided a major contribution to the 1992 United Nations Conference on Environment and Development (Rio Conference). The Dublin guiding principles were taken up in its chapter 18, the freshwater chapter, of Agenda 21. The World Summit on Sustainable Development (WSSD) in 2002 called for action in the water sector and set time-bound targets for water supply, sanitation, integrated water resource management and water efficiency plans.

34. Since the Rio Conference, the Commission on Sustainable Development has given increasing importance to freshwater issues, such as the development of more integrated approaches to water management, actions to protect ecosystems, the needs of the poor, and better governance conditions including means of involving the public more effectively in the decision-making processes.

Most countries in Western, Central and Eastern Europe and CEE countries have prepared national reports on their progress since the Rio Conference. During the second half of the past decade, EECCA countries have also taken a more active role in the global processes on sustainable development.

Within the region, several factors have played an important role in the effort to move towards a more sustainable development in the water sector. Most notable of these is the transition process after the break-up of the Soviet Union and the accession to the European Union (EU) of countries in Central and Eastern Europe. The development of multilateral environmental agreements has also played a significant role in the harmonization of environment and water policies across the region, as well as the "Environment for Europe" process, which has strengthened cooperation to protect and improve the environment and helped to define long-term strategies for the region.

A. Accession process

35. In 2004, 10 Central and East European countries will become members of an enlarged EU and more have applied for EU membership (see table).

36. Environmental management is an area in which EU legislation has been widely developed. For many EU member States 70 to 80% of national laws are directly derived from EU legislation. In particular, the accession process has been a major driving force for legal and institutional reform of the water sector and increasing investments in infrastructure for water supply and waste-water treatment. It is to be expected that substantial EU funds will be channelled to the new members to upgrade their water infrastructure throughout the coming decade.

B. Multilateral environmental agreements

37. The Meeting on the Protection of the Environment (Sofia, 1989), convened under the overall auspices the Conference on Security and Cooperation in Europe, and the preparatory process for the Rio Conference were at the root of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention), which was adopted in 1992 and entered into force in 1996. As of 1 November 2003, 34 countries and the European Community had ratified the Convention, including most of the countries in Central and Eastern Europe and half of the EECCA countries. The Convention deals with the needs identified in chapter 18 of Agenda 21 and further addresses transboundary cooperation, which is highly relevant for the UNECE region. It has helped countries in the region to conclude river basin agreements and establish joint monitoring and assessment programmes; and it has provided a basis for consultations on problematic issues, the exchange of information between riparian countries and public information. The 1997 United Nations Convention on the Law of

the Non-navigational Uses of International Watercourses has had less impact in the region and has, for example, not been signed or ratified by any of the EECCA countries.

Most of the agreements negotiated since the break-up of the Soviet Union, with the creation of new transboundary waters, are modelled on the UNECE Water Convention.

As laid down in its preamble, a specific objective of the EU Water Framework Directive is to contribute to the implementation of EU obligations under international conventions on water protection and management, notably the UNECE Water Convention.

38. Examples of agreements (short titles) that resulted from the UNECE Water Convention and that established joint bodies are the 1992 Agreement between the Russian Federation and Kazakhstan concerning the joint use and protection of transboundary waters; the 1992 Agreement between the Russian Federation and Ukraine concerning the joint use and protection of transboundary waters; the 1994 Convention on Cooperation for the Protection and Sustainable Use of the Danube River, and the 1997 Agreement between Estonia and the Russian Federation on the protection and rational use of transboundary waters. The 1992 Agreement between Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan on cooperation regarding the joint management of the use and protection of water resources of inter-state sources is another example under which a joint body – the Inter-State Commission for Water Coordination for Central Asia - was established.

39. The Rio Conference was also at the root of the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).

Box 1: The Aarhus Convention - a success story

The Convention is a detailed elaboration of principle 10 of the Rio Declaration. The Convention is a new kind of environmental agreement. It links environmental rights and human rights and establishes that sustainable development can only take place through the involvement of all stakeholders. It also addresses government accountability, transparency and responsiveness for all key issues in water governance. The Aarhus Convention was adopted in 1998 and entered into force in 2001 and progress in ratification is rapid (26 Parties as of 1 November). The Convention has had a significant impact on the involvement of the public and improvement of governance in Central and Eastern Europe and EECCA where 20 countries had already ratified it by 1 November 2003.

Source: /26/

38. In a joint effort by UNECE member States, UNECE and the Regional Office for Europe of the World Health Organization (WHO/EURO), the Protocol on Water and Health to the UNECE Water Convention was adopted in London in 1999 and is expected to enter into force by 2004. The Protocol, for which UNECE and WHO/EURO jointly carry out the secretariat functions, addresses the important link between water and public health, and promotes sustainable water supply and management in cities and rural areas. It also addresses the rehabilitation of defective infrastructure, means of minimizing impacts of human activities on

human health and the aquatic environment and instruments for capacity-building and pilot programmes. The Protocol is even open for ratification by countries that are not Parties to the parent Convention.

41. Another area for which policy harmonization has been essential is the transboundary effect of industrial accidents. The UNECE Convention on the Transboundary Effects of Industrial Accidents was adopted in 1992 and entered into force in 2000. The importance of the prevention of, preparedness for, and responses to industrial accidents was illustrated by the industrial accident in Baia Mare (Romania, January 2000), which had a major impact on downstream countries. The lessons learned include that: (a) accidental water pollution can have far-reaching downstream effects; (b) safety measures should be introduced at hazardous installations; and (c) available civil liability instruments not specific enough to cover such types of accidents (see box 2).

42. By the beginning of 1990, there were national environmental impact assessment (EIA) procedures in many UNECE countries. However, procedures were not universal or consistent, and could not manage environmental impacts of a transboundary character. In 1991, the UNECE Convention on Environmental Impact Assessment in a Transboundary Context (EIA Convention) was adopted. It came into force in 1997. The Convention has contributed significantly to the harmonization of EIA at national and international levels.

Box 2: New legally binding instruments

At the fifth Ministerial Conference “Environment for Europe”, in Kiev in May 2003, three new Protocols to the above UNECE Conventions, inspired by the latest international developments, were adopted.

The EIA Convention applies not only at the project level but also to policies, plans and programmes. To strengthen the impact of the Convention at the strategic policy level, its Protocol on Strategic Environmental Assessment was signed by 35 countries and the European Community. It will further support the integration of environmental and health considerations into strategic decision-making.

One of the important issues connected with transboundary pollution is liability. In Kiev, 22 countries signed the new Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the UNECE Convention on the Transboundary Effects of Industrial Accidents. As of 1 November 2003, the Protocol has 23 Signatories.

Thirty-six countries and the European Community signed the new Protocol on Pollutant Release and Transfer Registers to the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).

Source: /7/

C. Other cooperation programmes in the UNECE region

43. The Rio Conference called for regional cooperation as a means of effectively transferring knowledge and harmonizing policies. In the UNECE-led “Environment for Europe” process, the framework has been formed for the development of many significant strategies and cooperative arrangements for harmonization. Region-wide environmental information has been collected and reported in European state-of-the-environment reports. The third assessment has recently been published and also includes EECCA countries.

44. The Environmental Performance Review Programmes, carried out by the Organisation for Economic Co-operation and Development (OECD) for its member countries and by UNECE for countries in transition, have been established to assess a country’s effort to reduce pollution, manage its natural resources, integrate environmental concerns into sector policies and harmonize policies. With these tools at hand, the environment ministers have been able to develop targeted action programmes to assist countries in transition to deal with key environmental problems, reduce water problems, harmonize policies and foster public participation and the involvement of non-governmental organizations (NGOs).

45. Interdisciplinary processes, linking such closely related sectors as environment, health, transport, forestry and agriculture, have also been developed in the region.

46. In 1999, a cooperative regional approach was adopted through the Regional Reconstruction Programme for South-Eastern Europe (REReP). This Programme prioritizes: (a) institutional development and policy development; (b) environmental society building; (c) emergency assistance for combating war damage; (d) reinforcement of existing cooperative mechanisms and development of regional cross-border projects; and (e) support to local and national environmental projects. A special Task Force with representatives of South-Eastern European countries, donors, international organizations and NGOs facilitates its implementation.

The implementation of the Rio and Rio+5 declarations and action plans has shown that not all issues require “legally binding” responses from Governments. Most Governments have initiated national planning procedures, such as National Environmental Action Plans and National Environmental Health Action Plans, to frame and support implementation. Furthermore, Governments have developed management tools that support implementation, such as guidelines for monitoring, water-quality objectives, indicator systems to support public information and policy decisions. In this process, the guidelines developed under the UNECE Water Convention and the WHO guidelines have played an important role.

47. At the WSSD the EU together with the EECCA countries launched a partnership to implement the water aspects of the Johannesburg Plan of Implementation, i.e. the 2015 targets on water supply and sanitation and the 2005 target on integrated water resources management and water efficiency plans. This partnership was adopted in Kiev, at the fifth Ministerial Conference, as an important tool in meeting the WSSD targets as well as those of the EECCA Environmental Strategy, also adopted in Kiev. It will be a major challenge for the western countries to assist the EECCA countries in implementing this Strategy. The Central and East European countries can also assist, for example, by transferring their experience from their transition to a market economy and accession to EU. Finally, the EECCA countries themselves will have a major task

to put in place the necessary policy and institutional reform and securing the necessary national funds to maintain, operate and invest in water infrastructure.

III. PROGRESS AND CHALLENGES IN REGULATORY ASPECTS, INSTITUTIONAL ARRANGEMENTS AND MONITORING

46. By 2002, the UNECE region had already implemented or was working at 11 important areas of chapter 18 of Agenda 21.

A. Legal and regulatory aspects

To meet growing concerns primarily about water quality, most UNECE countries have reviewed their laws during the past decade. As a result the “polluter-pays” principle and “user-pays” principle are now embedded in laws in almost all countries in the region.

Significant progress has been made in terms of legislation and institutional development for integrated water management. Most countries revised their water laws and made considerable investments in infrastructure. In some UNECE countries with strong municipal governments, water supply and sanitation problems have been tackled effectively at the local level.

49. In the United States, the main vehicles for reform of water sector laws and regulations have been the Clean Water Act (CWA) and the Water Pollution Prevention and Control Act of 1993. In Canada, the Water Act and the Federal Water Policy of 1987 are the main frameworks for water and sanitation. Both countries put much emphasis on water conservation and have developed guidelines to municipalities, households and industries on water efficiency and water savings. Over the past decade CWA programmes have shifted from a programme-by-programme, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach, equal emphasis is placed on protecting healthy waters and restoring impaired ones.

50. In Europe, the EU water legislation is being reformed. The EU and the accession countries are adapting national and subnational water laws to the EU Water Framework Directive (WFD) adopted in 2000. The WFD expands the scope of water protection to all waters (rivers, lakes, coastal and groundwater) and sets clear objectives: waters in the European Union must enjoy “good status” by 2015 and water use must be sustainable throughout the EU. It requires the establishment of a river basin district structure within which demanding environmental objectives will be set, including ecological targets for surface waters. Even some EECCA countries, particularly those on the fringe of an enlarged EU area, put great emphasis on adopting and adhering to the WFD requirements. The Directive requires cross-border cooperation between countries - a practice that has been applied for many years, for example in the Rhine river basin. Moreover, it requires participation of all stakeholders, including NGOs and local communities, in water management.

51. The Directive puts much emphasis on the water needs of the ecosystems and on the fact that the needs of the environment are to be balanced with those of the people who depend on it. The WFD requires that water, both national and cross-border, should be managed at the scale of the river basin. This will be a new challenge to those EU member States that previously used

administrative borders, and not river basins, as a basis for water management. The Directive's provisions are complex and far-reaching, and a common strategy for EU countries to implement it in their national legislation has been drawn up covering the period 2003 to 2015.

52. The drafting of new water laws and accompanying legislation has formed part of the overall reform process in all Central and East European and EECCA countries. The legal reforms in many cases built upon recent constitutional provisions, which laid down the right to a safe and healthy environment. The environmental and natural resource laws were among the first to introduce provisions supporting participatory democracy and principles of market economy as well as the sharing of responsibilities among national, subnational and local government.

53. Overall, the adoption of water management legislation has progressed well, in particular in the EU accession countries, which in the mid-1990s started to transpose and implement of EU legislation. Transposition of the body of EU laws required amendments to most existing legislation and the adoption of several new laws as well as ensuring administrative and other structures for implementation and enforcement. The accession countries are also required to ratify all international conventions to which EU is a Party.

54. For the 10 countries that are going to accede to the EU by May 2004, 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.

55. All EECCA countries have revised or updated their water legislation and regulatory instruments during the past decade. Armenia, Azerbaijan, Belarus and Ukraine have prepared new water codes/laws on the management, use and conservation of water resources. Georgia, Kyrgyzstan, the Republic of Moldova and the Russian Federation have already adopted such new water laws/codes. This legislation has made important improvements in line with recent international developments. However, the regulatory reforms are far from complete and have resulted in some gaps and contradictions between new laws, decrees, codes and regulations. Many former Soviet Union regulation documents are also still in force. Consequently, it is not always clear which regulations apply in a specific case.

56. The UNECE region has gradually introduced new regulatory instruments during the 1990s. Emission standards have been tightened. This has alleviated some of the pressure on the environment, in particular with regard to certain water pollutants. Many countries in Western Europe have strengthened the linkages between individual policy instruments, introduced new ones and created integrated management programmes (see box 3 on policy packages).

Box 3: Packages of policy instruments

In Western Europe, there has been an increasing interest in developing coherent mixes of policy tools that exploit synergies for achieving policy objectives cost effectively and avoid policy conflicts:

- *Regulatory (command-and-control) instruments* including standards, permits, monitoring, self-monitoring and sanctions for existing pollution sources combined with *environmental impact assessment* for new sources;

- *Economic instruments* (market-based incentives) that increase the cost of harmful behaviour and reduce the cost of behaviour that benefits the environment. Instruments in use include pollution charges/fees, product charges, water resource taxes and government subsidies like grants;
- *Liability rules* including polluters' responsibility for cleaning up or compensating for environmental damage;
- *Voluntary approaches* are increasingly used by industries. Examples are environmental management systems, like the EU Eco-management and Auditing Scheme (EMAS) or the International Standardization Organization's (ISO) 14000 series;
- *Information-based instruments* like information dissemination, polluters' inventories, eco-labelling of products as well as education and training.

Source: /22/

57. A recent OECD report concludes that the environmental effectiveness of voluntary approaches is often questionable, and their economic efficiency is generally low. While administrative and transaction costs vary greatly among voluntary approaches, it is clear that if too few resources are spent on their preparation, negotiation and enforcement, their environmental impacts are likely to be modest. Combining a voluntary approach with a tax or a tradable permit system can trigger quite significant additional administrative costs, and the environmental integrity of the other instruments can be weakened.

58. In Western Europe, there is a high demand for data on water and the environment. State-of-the-environment reports and national and subnational indicator reports are widely used by the public and by decision makers. Information on national water quality and quantity are progressively made available on the Internet, and a number of service providers publish water-quality data and data on their performance.

59. In EECCA, the demand for and access to information are still very low. The implementation process of the Aarhus Convention has improved this, by, among other things, establishing a number of environmental information centres in EECCA countries.

60. It will be a challenge for the EECCA countries to implement the newly adopted legislation. In many EECCA countries the national economies and public budgets are declining and the urban water supply and water infrastructures are on the point of collapse and urgently need investments.

The recently adopted (May 2003) Environmental Strategy for EECCA focuses on the challenges for EECCA, and the Environmental Action Programme (EAP) Task Force has established a working programme to develop effective policy packages to assist implementation. United Nations bodies and other regional institutions will support the implementation of this Strategy.

The recent Partnership and Cooperation Agreements between the EU and the EECCA countries, the Stabilisation and Association Process between the EU and five countries in South-East Europe that are not yet applicant countries, and associated assistance programmes are likely to further support the reform and the harmonization or convergence of legislation across the European part of the UNECE region.

61. In Western Europe and some Central and East European countries, significant progress has been made to put in place the legislation and institutions required for integrated water management. However, practice is not always in accordance with the spirit of the adopted legislation. In some countries, in particular the EU accession countries, the institutional capacity at subnational level (both in terms of expertise and revenue-raising capability) may be insufficient to adequately implement of integrated water management policies.

B. Institutional arrangements including joint bodies ^{1/}

62. Institutional arrangements for water management vary widely within the region. Generally, countries have established a national body, which is responsible for developing policies and strategies for coordination and national planning regarding water resources. These organizations also often have an information-gathering and information-dissemination role and may act to regulate and monitor the performance of lower-tier organization.

63. In most countries, except a few in Central Asia, water is managed at the subnational (e.g. provinces) rather than at the national level, while water service provision is usually managed at the local level. Being normally closer to both the resource and the service users, this subnational government level administers such issues as the allocation of water and waste-water permits, charging for water, enforcement of standard or permit conditions, monitoring and assessment of water resources, adjudication of conflicts and broad land-use planning issues.

64. As regards transboundary cooperation on water management, UNECE in 1995 recorded 139 treaties, agreements, conventions, protocols and other legal arrangements in Europe and North America. Joint bodies with the participation of two or more countries have been established for many of them. A recent UNECE report on "Transboundary water cooperation in the newly independent States" listed 10 important river basins that are not yet covered by agreements in the EECCA region and 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 some sub-basins of the Danube river 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.

In 1999, a survey among UNECE countries showed that joint bodies established under bilateral or multilateral agreements were still not implementing all relevant provisions set out in the UNECE Water Convention. All joint bodies are implementing the monitoring programme as stipulated by the Convention, however, only 25% had a joint programme for the reduction of transboundary impact, and only 20% functioned as a forum for the exchange of information on existing and planned water use and related installations likely to cause transboundary impact. The challenge for the joint bodies will be to expand their activities, including establishing concerted action programmes, warning and alarm procedures, promoting the exchange of information on the best available technology, and participating in environmental impact assessments.

65. River basin management organizations have been set up for many national and transboundary basins in the UNECE region. The EU Water Framework Directive and the UNECE Water Convention will further promote this development.

66. The river basin rather than administrative boundaries is or will thus be the basis for water management in the coming years, both in EU countries and in the Central and East European countries that are acceding to the EU. The same is true of at least half the EECCA countries.

C. Monitoring and water resources assessment

67. Agenda 21 warned that the lack of data was seriously impairing the capacities of countries to make informed decisions concerning environment and development, and it recommended that all countries should carry out feasibility studies for the establishment of water resources assessment services and that they should have these fully operational in the longer term.

68. In Western Europe, all countries have already achieved this objective. However, this does not mean that all countries have adequate information on which to base water resources assessments and policy formulation. Usable and policy-relevant information, particularly on groundwater quality, is scarce in most countries, despite considerable expenditure over many years and the availability of large amounts of data. Poor data quality caused by inadequate quality control is one factor; another is the difficulty of establishing quantitative cause-effect relationships.

69. The existing monitoring systems were primarily designed to answer questions about the mobilization of new water resources and are still insufficiently aimed at providing information about resources that can be freed through better demand management (e.g. efficiency of water use, quality of effluents). Hence, considerable work is still being done in several countries in Western Europe to develop water resource information systems capable of providing reliable, timely and policy-relevant information.

70. In many EECCA countries and in South-East Europe, hydrometric and water-quality monitoring networks are deficient. The former Soviet Union had a relatively well-established water-monitoring network, but after its break-up and the independence of the EECCA countries, this infrastructure started to degrade with the deterioration of the States' economies. The same

applies to the former Yugoslavia and the ethnic conflicts in the Balkans. This is largely attributable to a lack of public funds for maintaining and operating existing networks.

71. Another problem is the “data-rich but information-poor” syndrome. Many countries with planned economies used to collect and store huge amounts of water-monitoring data, but did not translate the data into useful, policy-relevant information. This practice, which was not cost-effective, has partly been stopped over the past decade as a result of declining budgets and stronger incentives to spend human and financial resources optimally on water monitoring. The Czech Republic, Hungary, Poland, Romania and Slovakia have revised their water-monitoring systems and more countries are following suit. The Guidelines on monitoring and assessment of transboundary rivers, lakes and groundwaters, developed under the UNECE Water Convention, proved to be of particular value for these countries as well as countries in the EECCA region, particularly Azerbaijan, Belarus, Georgia, Kazakhstan, the Russian Federation and Ukraine.

72. There is still a general lack of environmental monitoring and comparable data and information on water quality and quantity in many EECCA countries. National surface-water monitoring systems are not coherent, as neither the data reporting systems nor the methodologies are harmonized.

73. The UNECE Working Group on Environmental Monitoring as well as working groups established under the UNECE Water Convention have found that, in producing environmental indicators and indicators for the water sector the EECCA countries encounter substantial problems involving:

- The quality of available information;
- The incomplete coverage of observations;
- The fact that national methodologies for observation, measurement and collection of primary information are not in keeping with international standards and requirements, hampering the comparability of information between countries and their participation in the pan-European process of sharing environmental information;
- Restricted time series of data;
- The absence of comparable data.

74. The environmental indicators currently used in EECCA describe essentially only the state of the environment and the pressures on it, with very little emphasis on evaluation. Much remains to be done to report on the state of waters, following the entire DPSIR (driving forces, pressure, state, impact and response) concept.

75. Despite some progress in monitoring water quality and quantity, country reports show the need for further improvement. For example, the UNECE Working Group on Environmental Monitoring has recommended, inter alia, the following to the EECCA countries:

- Harmonize definitions, classifications and monitoring protocols with international standards, starting with those established under applicable international environmental agreements;

- Where the original monitoring networks have been substantially degraded, restore them by focusing monitoring activities initially on a limited number of major pollutants and major pollution sources using the inventory of pollution sources as a basis. Aim at establishing a minimal network of stationary sampling sites to monitor discharges from these sources into air and water bodies;
- Ensure the continuity in the monitoring of “traditional” parameters to assess long-term environmental trends.

76. One example of international cooperation on water monitoring is the Global Environment Monitoring System (GEMS/Water) under the United Nations Environment Programme (UNEP). Almost all the countries in Western Europe participate in it, whereas only three countries (Hungary, Lithuania and Poland) from the Central and Eastern Europe participate. The Russian Federation is the only EECCA country that participates.

According to the national assessment reports regarding the implementation of Agenda 21, prepared by countries for the WSSD, two thirds of the UNECE countries had made progress or implemented the measures on freshwater quality monitoring laid down in Agenda 21. The compliance ratio shows no significant differences across subregions of the UNECE.

NOTES:

1/ A joint body means any bilateral or multilateral commission or other appropriate institutional arrangements for cooperation between the Riparian Parties.

Table. Grouping of countries for the purposes of this report /9/.

Group	Subgroup	Countries
Western Europe		Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom
	EU countries	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
Central and Eastern Europe		Albania, Bosnia and Herzegovina, Bulgaria, Czech Republic, Croatia, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia, the former Yugoslav Republic of Macedonia, Turkey
	EU accession countries	Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Turkey
	Balkan countries	Albania, Bosnia and Herzegovina, Croatia, Serbia and Montenegro, the former Yugoslav Republic of Macedonia
Mediterranean		Albania, Bosnia and Herzegovina, Croatia, Cyprus, France, Greece, Israel, Italy, Malta, Monaco, Portugal, Serbia and Montenegro, Slovenia, Spain, Turkey
Eastern Europe, the Caucasus and Central Asia (EECCA)		Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan
	Caucasus	Armenia, Azerbaijan, Georgia
	Central Asia	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
North America		Canada, United States