Second International Conference on Sustainable Management of Transboundary Waters in Europe

At the invitation of the Government of Poland, the second international conference on sustainable management of transboundary waters took place in Międzyzdroje (Poland) from 21 to 24 April 2002. The Conference marked the tenth anniversary of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (hereinafter referred to as UNECE Water Convention), which was adopted in Helsinki on 17 March 1992 and entered into force on 6 October 1996.

The Conference brought together some 160 participants from 30 countries with different backgrounds, including decision makers, water managers, engineers, lawyers, economists, biologists, hydrologists and hydro-geologists, and a number of international governmental and non-governmental organizations.

The Conference was organized - under the auspices of the United Nations Economic Commission for Europe (UNECE) and the Meeting of the Parties to the UNECE Water Convention - by the Environment Ministry of Poland, the Environment Ministry of Finland, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany, and the Ministry of Transport, Public Works and Water Management of the Netherlands

Challenges

The process of change in Europe poses new and compelling challenges to regional cooperation in general and to cooperation on the environment and security in particular. There are now 150 major transboundary rivers in Europe that form or cross borders between two or more countries, some 25 major transboundary and international lakes, and some 100 transboundary aquifers.

With their work under the Convention, which has proved to be an outstanding instrument of cooperation on transboundary waters, Governments and representatives of governmental and non-governmental international organizations and institutions have realized that progress in European water policy cannot be achieved in closed circles of administrators or scientific experts, as decision-making is the result of strategic interaction between multiple interdependent actors in different institutional environments. All stakeholders, the public at large and especially non-governmental organizations and local action groups, need to be much more involved in European water policies if progress is to be made.

Cooperation to manage transboundary waters requires an effective institutional structure, such as a river commission, based on an international agreement or other arrangement. It is important that joint bodies should interact closely with each other and with joint bodies established to protect the marine environment.

Europeans are also aware that none of the existing global, regional or subregional environmental conventions or other pieces of supranational legislation can be seen in isolation. Only if close links between them are established and nurtured will there be public support to resolve environmental and water issues.

This new perception has implications for Europe's new water policies:

- One of the major new goals of water management policy is the conservation and, where possible, restoration of aquatic ecosystems to a state of good or even high ecological quality. This requires an integrated approach to transboundary water management;
- The way in which monitoring strategies are designed and assessments are made is a crucial element of conflict prevention in a transboundary context. This requires information and communication to bridge the gap between the actors;
- Achieving the goals of sustainable development requires also significant changes in production and consumption patterns to optimise the use of water resources and minimize waste-water production. This poses challenges to water management and requires a new framework for its modernization.

The Conference's objectives

The Conference examined four major themes: an integrated approach to transboundary water management, information and communication to bridge the gap between actors, challenges to water management and framework for its modernization, and European Union legislation and its link to the Convention.
In doing so, the Conference pursued four major objectives:

- Examine progress made in European water policies, both nationally and in a transboundary context, since the adoption of the Convention in Helsinki in 1992;
- Examine the opportunities for broadening the scope of cooperation on water and health-related issues over the next decade;
- Contribute to the review of the implementation of chapter 18 of Agenda 21 on freshwater resources, including the Rio+10 assessment;
- And finally, as with the first Conference held in 1997 in Mrzeżyno (Poland), provide a forum for the Parties to the Convention to share their experience with other regions in the world.

Achievements

The 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, supported by soft-law recommendations, guidelines and specific action plans, has proved to be a useful tool for institutional cooperation on transboundary waters, and a platform for Parties and non-Parties to share their experience.

The Convention also proved to be a flexible instrument to cover cooperation on evolving issues. After its adoption, the Convention expanded into areas of cooperation that surfaced in the mid-1990s and early 2000s: the prevention, control and reduction of water-related diseases through its Protocol on Water and Health; and civil liability for damage caused by industrial accidents on transboundary waters through its forthcoming legally binding instrument on these issues.

When taking stock and exploring ideas for further developing cooperation, the Conference stressed the importance of the EU Water Framework Directive (WFD) as an important model for implementing the Convention as it further develops and strengthens the Convention in the WFD area of application. Future activities under the Convention and the Protocol on Water and Health should be closely linked to the implementation of this piece of supranational legislation and use the results of its implementation strategy.

The Conference was also instrumental in following up decisions taken by the Parties at their most recent meeting, documented in the Declaration of The Hague, which include cooperation with new partners, particularly the Global Water Partnership, the World Bank and the United Nations Development Programme (UNDP), and the offer of the Parties to share their experience with other regions in the world.

A number of specific conclusions and recommendations were drawn up that could guide the Parties in selecting future priorities. These conclusions and recommendations should not be seen in isolation; they supplement rather than replace the conclusions drawn at the first conference in 1997, and the decisions taken by the Parties at their first and second meetings.

Conference conclusions

Water is a catalyst for cooperation. Key factors for success include a shared vision, sustained political commitment, public support and broad-based partnership. Cooperation on water is a long-term activity requiring realistic objectives, time frames, phased implementation and performance indicators. International agreements provide the basis for long-term commitment, up to the highest political level.

Integration is a multifaceted concept. Water management is gradually extending its scope: it integrates surface water and groundwater, coastal water and the marine environment, on the one hand, and it integrates water, land, legal, social and economic components, on the other. Thus, possible new activities under the Water Convention could focus on establishing links between joint bodies and regional sea commissions; linking integrated river-basin management to coastal-zone management and wetland conservation; and including the social and economic aspects of water management.

The examination of existing structures, models and practices for transboundary water management and analyses of the role of public participation, and the institutional and administrative cultures of organizations engaged in European transboundary water management confirm the approaches and principles of the Convention and its Protocol. A number of potential weaknesses were also identified: lack of comprehensive legal framework, clear demarcation of responsibility between the different authorities, institutional and administrative competence, unequal access to information and lack of funding. These should be taken into account in the further implementation of the Convention and supporting mechanisms, particularly the EU Water Framework Directive. There is also a need for institutional adaptation to the new paradigm of integrated water management.

The implementation of the Convention and the legal, administrative and institutional arrangements within its scope - particularly the compulsory establishment of joint bodies - should be further enhanced and coordinated. These arrangements and the guidelines developed under the Convention, implemented on a case-by-case basis, are basic tools in ongoing pilot projects and programmes in different scenarios. Pilot projects are an emerging core of the Convention work. Their results show that they can also be useful for implementing the EU Water Framework Directive.

Decades of UNECE work have led to both soft-law and hard-law regulations on water, in particular during the past decade. This legislation also exerts its influence beyond the UNECE region and covers not only transboundary aspects but also the domestic, internal dimension of water protection and management. As a result of these water-law developments, governance will undoubtedly be enhanced in the UNECE region.

The Protocol on Water and Health added value by strengthening the domestic dimension and making the Water Convention more stringent. In providing access to safe water, special consideration has to be given to the specifics needs of vulnerable populations and of the socially disadvantaged.

The work of legal and water experts in an intergovernmental working group on civil liability shows the advantages of an interface approach when dealing with issues concerning different UNECE Conventions. As a result of this work, a draft protocol on liability and compensation for damage resulting from the transboundary effects of industrial accidents on transboundary waters will be presented for adoption. This represents an important step forward in the implementation of a crucial provision of both the Water Convention and the Convention on the Transboundary Effects of Industrial Accidents.

The relevance of existing water law to predicted effects of climate change needs to be verified, as climate change will challenge integrated water resources management.

Experience with the implementation of the Convention and of subregional agreements confirms the need to strengthen the institutional aspects of compliance and implementation of the provisions of the Convention at the lowest appropriate level.

Involving the right institutions and people requires an enabling environment, as provided, inter alia, by the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Access to information, capacity for information management and use of information tools can often be improved. Stakeholder analysis needs to be performed in order to approach target groups in a tailor-made way. During this process, a cooperative relationship needs to be maintained with the public authorities at all levels. Public involvement has been demonstrated to result in numerous benefits, including better formulated policies and better public acceptance of government initiatives.

Proper information requires an understanding of various cultural values and increased interaction between policy makers, stakeholders and scientists. In a transboundary context, it is necessary to integrate various types of information and propose practical solutions, understandable to the various stakeholders. Modern water management requires a large knowledge/information base. Monitoring needs to be embedded in a strategic, holistic approach. In addition to monitoring, institutional arrangements for the provision and exchange of socio-economic and health data and information are necessary.

The Convention facilitated the establishment of new, and the improvement of existing international and national networks that bring together people and organizations from different backgrounds. Innovative approaches should be used to promote and encourage network building.

Such innovative arrangements emerge in the UNECE region where the networks are facilitated by specialized research and information centres such as the Convention's International Water Assessment Centre, the European Centre for River Restoration, the WHO European Centre for Environment and Health and the future international groundwater assessment centre of UNESCO that serve as hubs for knowledge on water and water management. These innovative arrangements help to develop the water knowledge base. Innovative approaches should be developed by linking the specialized centres to other research and development activities.

The contribution of the Water Convention to joint programmes, such as the International Shared Aquifer Resources Management (ISARM), shows the merits and synergies achieved through partnerships with other United Nations agencies and other bodies, as well as NGOs. Such cooperation needs to be continued and further encouraged.

Partnerships between Parties to the Convention and international financial institutions can be an important asset for implementing the Convention and its Protocol. For example, the European Bank for Reconstruction and Development (EBRD) is a major financial institution working mainly in Central and South-Eastern Europe on meeting European Union water and waste-water standards. Several financing structures are offered to municipal and local governments. EU accession countries are reminded that the soon-to-be available Structures Funds will provide another mechanism to fulfil their obligations under the Water Convention.

Small and medium-sized enterprises (SMEs) provide important services to reduce water pollution and water use. The sector is also of recognized importance for the provision of safe water and sanitation services to medium and small-scale housing, and is a recognized provider of environmentally sound technologies. SMEs often encounter difficulties in obtaining financing, for example, to introduce non-polluting practices. This is often caused by a lack of understanding of the appropriate financial mechanisms. Advisory services have a role to play in bridging the gap between major financing institutions and SMEs. There are variety of financial instruments that allow commercial lending to support the protection of water resources and their sustainable use by SMEs and NGOs.

Conference recommendations

The Conference made the following recommendations:

- More should be done so that countries that are not yet Parties to the Convention and its Protocol, particularly States of Eastern Europe, the Caucasus and Central Asia as well as the Balkan States, ratify these legal instruments. They face serious problems with the management of their transboundary waters and need to be able to take advantage of achievements of this cooperative work;
- The implementation of the WFD in international river basins at the fringe of an enlarged EU area should be facilitates and a platform for an exchange of experience, approaches and tools with riparian countries in these river basins and in other transboundary catchment areas in the UNECE region should be provided;
- An effort should be made to intensify the provision and dissemination of information and know-how in the right format, to share experience, to offer assistance for cooperation and to create partnerships and mechanisms for capacity-building, including funding;
- Joint work with the bodies established under the other UNECE environmental conventions as well as other United Nations bodies and governmental and non-governmental organizations and institutions active in integrated water management should continue, and partnerships should be set up;
- Specific implementation projects should continue to be designed to address the major difficulties that countries face with the implementation of the Convention, provide guidance on normative approaches, support capacity-building, strengthen institutional frameworks, provide access to sources of finance, and assist in planning and implementing concerted action plans.

The conference's recommendations could form the basis for a long-term strategy for the Parties to the Convention to set new priorities or confirm the ongoing direction of work.

There is nothing like common water to unite people and peoples

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NOTE

The views expressed in the conference contributions are those of the authors and do not necessarily reflect the views of the United Nations Economic Commission for Europe nor the views of the organizations or institutions the authors represented. Language editing was kept to a minimum.

In editing the contributions, the latest developments occurred between the Conference and the publication have been taken into account, as far as possible, and some information has been updated accordingly.

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Cooperation on transboundary waters: a challenge for Europe and other regions in the world

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Introduction

"We must spare no effort to free all of humanity, and above all our children and grandchildren, from the threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs". With this statement, the heads of State and Government in their Millennium Declaration also established an ambitious goal: "to stop the unsustainable exploitation of water resources by developing water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies".

People, industry and agriculture are all competing for the same scarce resource. The supply of clean and safe water has not kept up with the increasing demand for it. Water shortages are reported on every continent. In the 20th century, water use grew at more than twice the rate of population growth. Worldwide, some 2.4 billion people lack access to basic sanitation and 1.2 billion, or one in five, lack safe drinking water. In Europe, an estimated 120 million people, i.e. one in seven of the population, do not have access to safe drinking water and adequate sanitation.

Water problems in the UNECE region

In Europe as a whole, the ever-increasing consumption of water has had a serious impact on the environment. A number of European countries abstract at least as much surface water as they generate. Ten receive almost half their total water resources from neighbouring countries. Five others, with large rivers, receive more than three quarters of their water from river flows from upstream countries.

Eventually, this could be a source of disputes between countries. It is also increasingly urgent to assess the environmental impact of water-related activities so as to safeguard human health, aquatic ecosystems and the quality of transboundary waters.

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 per cent 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. The attempt to counteract groundwater depletion through artificial recharge, for example in Belgium, has raised questions about possible health consequences, as became evident during the two groundwater seminars organized by United Nations Economic Commission for Europe (UNECE) and the Regional Office for Europe of the World Health Organization WHO/EURO last autumn in Hungary.

Not all Governments have been successful in combating water wastage, and here water losses from the distribution system come to mind. In some large cities in Albania and Romania, almost half the drinking water that leaves the water purification plants is wasted in this way. In most countries, an estimated 30 per cent is lost in distribution. Some cities have reported leakages of 70 to 80 per cent. Moreover, about half this wasted water re-enters the sewage system and is promptly treated again. This puts an unnecessary burden on waste-water treatment plants and pushes up their costs.

It is high time that European cities started taking the management of water resources more seriously. They need to use water rationally, improve water-demand management schemes and protect the source of drinking water against pollution and overuse. This requires new policies that are all-embracing and environmentally sound, and that involve the public at large.

Accidents in industrial installations have an adverse impact on terrestrial and aquatic ecosystems and endanger our water supply and our health. During one well-publicized accident, the Aurul mining company of Baia Mare in northern Romania spilled over 100,000 cubic metres of cyanide-polluted water into the Tisza

River system. This wiped out fish stocks and threatened water supplies. Such accidents show the need to cooperate on technologies to prevent accidental transboundary water pollution, and lay down strict safety measures and technical requirements. There is also a need to take part in international early warning and alert systems and networks of institutions responsible for responding to transboundary water pollution. Finally, the sharing of safety technology and technological advances should be made easier.

Major developments

For decades, the UNECE region was not really confronted with water scarcity and water-related diseases. In the mid-1990s, our Governments realized that such problems were in fact also common in Europe, at least in large parts of it. It was the opening of access to information on the environment in countries in transition - for many years a well kept secret - that revealed a new dimension to the environmental problems we are facing in the region. More insight into the whole scale of the problem region-wide has been provided through UNECE Environmental Performance Reviews, a tool that should increasingly be used by the Convention's bodies in their decision-making on assistance projects. Thus, in the 1990s, our perception of water and its value changed considerably.

Still in 1992, the International Conference on Water and Environment, which prepared the water-related part of the Conference on Environment and Development in Rio de Janeiro, concluded in its Principle No. 4 that "water has an economic value in all its competing uses and should be recognized as an economic good".

Europeans now acknowledge that "water has social, economic and environmental values and should therefore be managed so as to realize the most acceptable and sustainable combination of those values" and that "water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such". These are not just policy statements, but, as obligations of the Protocol on Water and Health [1] and the EU Water Framework Directive [2], they bind their Parties and member countries.

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. [3]

Two - the Water Convention and the Industrial Accidents Convention - mark this year the tenth anniversary of their adoption, and this conference will take stock of our achievements and open up a new avenue of cooperation.

Our host country, Poland, together with Finland, Germany and the Netherlands, have been the most visible contributors to the conference. These countries have much experience of water use and water protection. I would sincerely like to thank our hosts for arranging this meeting. I, for one, certainly look forward to the continued solid support of these Governments for UNECE environmental efforts, and the support also from experts from all the other countries in the region.

The convention: a new instrument with a history

Over the years, cooperation on water problems has focused on specific topics: the rational use of water, pollution prevention in industry, prevention of accidental water pollution, and good practice in transboundary water management. Groundwater protection, particularly from agriculture, was also among the issues that have been taken up from the very beginning.

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[1] Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, done in London on 17 June 1999.

[2] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, published in the Official Journal L 327 of 22/12/2000.

[3] These are the *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (Water Convention), the *Convention on the Transboundary Effects of Industrial Accidents* (Industrial Accidents Convention), the *Convention on Long-range Transboundary Air Pollution*, the *Convention on Environmental Impact Assessment in a Transboundary Context* and *the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters* (Aarhus Convention).

The negotiations of the Water Convention were preceded by policy declarations and decisions, most prominently the 1987 UNECE Decision on principles regarding cooperation in the field of transboundary waters, and the outcome of the Conference on Security and Cooperation in Europe (CSCE) Meeting on the Protection of the Environment in Sofia in 1989.

Concerted action to prevent, control and reduce water-related disease resulted from the negotiation and adoption of the Protocol on Water and Health in 1999. Currently another binding instrument is under negotiation, both under the Water and Industrial Accidents Conventions: a protocol on Civil Liability for Damage to Transboundary Waters Caused by Industrial Accidents.

Cooperation under UNECE auspices is a good example of the modern trends in international law-making on the environment. It has two prominent features.

First, there is a close link between the legal instrument and its supporting non-binding instruments, such as policy declarations, codes of conduct, guidelines, and recommendations to Parties.

Second, law-making, law implementation and compliance with the law form a unit.

There is also a "tradition" in our work that 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.

Of course, every legal instrument is the product of its time. If we were to draw up the Convention today, it would look differently.

In the early 1990s, delegations could not agree whether the bilateral and multilateral agreements under the Convention would apply to the entire transboundary catchment area - a provision for cooperation that is now firmly embedded in the Protocol on Water and Health and the EU Water Framework Directive. Thus, the Convention contains a compromise. Some delegations wanted to exclude explicit references to water quantity; and a debate was held on whether the Convention should refer to "public participation" or "public information". Other issues were left open for future consideration. Most surprisingly, the term "international lakes" was not defined.

Thus, after the adoption of the Convention, there was a need for policy guidance on some of its basic provisions: the ecosystem approach, sustainable water management, water pollution from agriculture, hazardous substances that fall under the Convention, licensing waste-water discharges, special measures to protect groundwater. There was also a need for advice on the legal and administrative aspects of implementing it.

Task forces and expert groups, to which many Governments contributed, have carried out this work with the assistance of the secretariat. Their output was highly valued by the Parties and adopted at their first meeting in 1997.

The Parties to the Convention and the drafters of new agreements drew inspiration from these guidance documents. The most prominent examples include the 1994 Danube River Protection Convention and the agreements on the rivers Bug, Meuse, Rhine and Scheldt, on Lake Peipsi as well as on Kazakh-Russian and Russian-Ukrainian transboundary waters. Even basic provisions of the EU Water Framework Directive, adopted in 2000, can be traced back to the 1993 UNECE Guidelines on the ecosystem approach in water management.

Entry into force led to a broadening of the approach

The entry into force of the Convention has led to a remarkable change of perception of joint work, not only the implementation of the Convention's provisions as such, but a further development of the instrument. The Declaration adopted by the Parties at their first meeting was crucial for this development. Parties resolutely confirmed that

"The problems that we are facing are not unique to transboundary waters. They should be seen in the context of integrated water management. Thus, our cooperation on transboundary waters will also help to improve the management of internal waters and ensure consistency in the protection and use of both internal and

transboundary waters. We will apply, as appropriate, the principles of the Convention when drawing up, revising, implementing and enforcing our national laws and regulations on water." [4]

By way of example, I would like to outline the most important features of this new cooperation.

New partners in Europe

Many of you witnessed the process initiated at the first meeting of the Parties in 1997 in Helsinki, the cooperation with new partners.

The drawing-up of the Protocol on Water and Health was a real joint effort, both by the member countries, which brought in the expertise of their environment and health sectors, and by the United Nations family, which brought in the expertise of staff of UNECE, WHO/EURO and of the United Nations Environment Programme (UNEP). We also opened the way for NGOs to participate. Governments that were not Parties to the Convention participated in the negotiation on an equal footing. And for the first time, a protocol to a convention was open for ratification by UNECE member countries that were not Parties to the parent convention. This has led to lively debate in international legal circles. With the expected protocol on civil liability for damage to transboundary waters, this may well become "established practice", at least for UNECE environmental law.

Similarly, the drawing-up of Guidelines on sustainable flood prevention was a joint effort by countries and the UN family - the UNECE, the International Decade for Natural Disaster Reduction, the World Meteorological Organization (WMO) and WHO/EURO.

Another example is the joint UNECE and UNEP project on public participation in water management and on a strategy for compliance with agreements on transboundary waters, which received much attention at the Second World Water Forum and the second meeting of the Parties in March 2000.

New partners and other regions

We shall continue using the experience of other UN bodies in further developing the Convention. But we should not limit ourselves to the traditional partners. We already invited the other regional economic and social commissions and the Global Water Partnership to participate in our activities. It is not just the end product - the Conventions - that they are interested in. It is more the way in which we have developed them, have drawn up supporting documentation, such as the numerous guidelines, and are implementing them. This will also open future cooperation with United Nations Educational, Scientific and Cultural Organization (UNESCO), particularly within its projects on conflict prevention.

Sustainable management of transboundary groundwaters, including monitoring and assessment, is the most recent prominent example of a growing partnership. UNECE, the Economic Commission for Africa (ECA), the Economic and Social Commission for Western Asia (ESCWA), UNESCO and the International Association of Hydro-Geologists are joining forces to render assistance to other regions in the world. And they will inform us during our conference about progress. The Water Convention's guidelines on monitoring and assessment of transboundary waters, drawn up jointly with WMO and WHO, play an important role in this project.

From paper work to assistance

Policy decisions, guidelines and recommendations have been key results of cooperation under UNECE water programme. After the entry into force of the Convention, two new major approaches became crucial for the joint work: testing these products in pilot projects, and assistance to countries.

There are now eight pilot projects on monitoring and assessment of transboundary rivers [5], and pilot projects on transboundary groundwaters and international lakes are in the pipeline.

[4] The Helsinki Declaration as adopted by the Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes at Helsinki (Finland) on 4 July 1997 (ECE/MP.WAT/2).

[5] The pilot projects programme is aimed at demonstrating the application of the 1996 and 2000 UNECE Guidelines on water-quality monitoring and assessment of transboundary rivers and at supporting countries in their implementation in eight river basins (Bug, Morava, Ipoly, Mures, Latorica/Uhz, Tobol, Kura and Severski Donets).

The demand for assistance has led to the establishment of the International Water Assessment Centre (IWAC) in the Netherlands, which draws on the experience of a network of experts from many UNECE countries to assist in the implementation of the Convention.

There is broad support for these activities as the emerging core of the Convention's work. A whole session of the conference will be devoted to evaluating this work, and further developing cooperation, and I would like to listen to this experience rather than further commenting on these projects at this stage.

However, I should draw your attention to a joint programme with the Industrial Accidents Convention. It has led to a series of simulation exercises on water and industrial accidents, the first one in 2001 on the Tisza River in Hungary, which suffered the transboundary consequences of the Baia Mare accident that I mentioned before. In June this year, another simulation exercise will be organized on the border between Poland and the Kaliningrad region of the Russian Federation to increase preparedness to counteract terrorist attacks on installations handling hazardous substances. You will have the opportunity to evaluate the experience together with a representative of the Industrial Accidents Convention later during the conference.

Compliance with decisions

"Compliance with decisions" is still an issue that causes discussion, not only within the Water Convention's bodies, but UNECE-wide. If our work is to be successful, it must initiate or intensify national and international processes to bring about improvements in water resource management, water supply and quality. Such processes need to be monitored to see whether they are achieving the aims of the international instruments so that corrective action can be taken if the results fall short of what was intended.

Progress has already been achieved with the decisions of the second meeting of the Parties to review progress in the implementation of guidelines: those on monitoring and assessment of transboundary waters, and those on sustainable flood prevention. The implementation of recommendations regarding safety measures in industrial installations that may have an impact on transboundary waters will be examined five and ten years after their adoption.

I am confident that with the adoption of guidelines on compliance and enforcement at the forthcoming Conference of Environment Ministers in Kiev in May 2003, the Parties will have sufficient guidance at their disposal to further fine-tune the approaches under the Convention and its Protocol.

Joint bodies

Since the Convention's adoption, considerable progress has been made institutionally by creating new joint bodies and improving collaboration through existing ones.

Usually, we refer to the international commissions for the Danube, the Elbe and the Rhine. But much has also been achieved in other catchment areas.

The joint body for the Finnish-Russian waters, which has existed for nearly 40 years, has also drawn on the Convention's experience. Local authorities are involved in this joint body, and on-site visits of industrial and other installations are organized back-to-back with meetings to provide information, establish contacts among potential partners and exchange reference material. The joint bodies for Lake Peipsi and Lake Ohrid are exemplary for their new way of cooperating on transboundary lakes and involving all the stakeholders. And they were the first to test the Water Convention's draft guidelines on public participation in water management - an experience that they will share with us during our conference.

Social and economic components need more attention

Cooperation on water management has rarely included a social component, and economic issues of water management were not priority topics for cooperation on water in the 1990s.

We should initiate a discussion on the Convention's priorities for the years to come, and assess whether new dimensions, like the above, should be given more prominence.

A central issue is our understanding of integrated water management. To facilitate the discussion, I would like to quote from the Protocol on Water and Health: "Water resources should, as far as possible, be managed in an integrated manner on the basis of catchment areas, **with the aim of linking social and economic development to the protection of natural ecosystems** and of relating water resource management to regulatory measures for other environmental media. Such an integrated approach applies across the whole of a catchment area, whether transboundary or not, including its associated coastal waters, the whole of a groundwater aquifer or the relevant parts of such a catchment area or groundwater aquifer".

With this obligation, the term "integration" firmly includes social and economic components. It also obliges Governments to broaden the scope of action, to take care of potential impact on wetlands, coastal areas and the seas, and to deal with water problems that are not exclusively of a transboundary nature.

Subregional and national water problems

We have to note that UNECE mandate includes 55 countries, not only the current 33 Parties to the Convention. Not all of them have transboundary waters, but they are also entitled to the secretariat's services. And we have to give proper attention to their water problems: water supply in major cities, rural water supply, agricultural water use, and poverty leading to conflicts over water - all of them have both social and economic aspects.

We should also consider giving more emphasis to UNECE sub-regions. Water problems in Central Asia and the Caucasus have not received much attention in recent years, at least not under the Water Convention. At present few of these countries are Parties to the Convention, but let us hope that this situation will soon change. This will require a flexible work plan that can be adapted to their changing circumstances and to their specific problems.

We also have to take into account the EU enlargement process. In the foreseeable future, half of UNECE member countries will be part of the European Union. This requires a new understanding of the Water Convention's role: it is up to the Parties and the Convention's bodies to clearly define where they want to be in 10 or 15 years from now.

All these activities, traditional ones and emerging challenges, demand resources to be tackled effectively. We have been fortunate in the Convention's work to see many Parties and partners contribute generously. This is a good basis to build on. I am also happy to announce that we have been successful in strengthening the secretariat's resources. One new full-time professional will join the Division in a few weeks' time, which will greatly improve our capacity to service the Convention's work.

Conclusions

Much remains to be done in Europe to improve water ecosystems - this much is clear from the recent European Environment Agency's environment report and the Environmental Performance Reviews, which are conducted under UNECE auspices in countries in transition.

Only by assessing the effectiveness of the measures taken to prevent, control and reduce transboundary impact will the Convention's bodies be able to establish priorities for future work to improve the water environment.

However, knowledge on the state of transboundary waters in the whole region is still limited. Therefore, the Parties should now embark on a challenging activity: to furnish proof that their cooperation has led to the prevention, control and reduction of transboundary impact, the overall goal of the Convention, and not only to the strengthening of the institutional basis for cooperation.

There are already good examples in the region, demonstrated by the so-called "Ten rivers report", which will be released today as a result of joint work of the International Water Assessment Centre, major joint bodies, and country representatives.

The Parties should follow up this work and present at their fourth meeting, which will coincide with the tenth anniversary of the entry into force of the Convention in 2006, a comprehensive assessment report that shows a significant reduction in transboundary impact on European waters and the successful work under the Convention.

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The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: the path ahead

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Introduction

In order to be able to look into the future of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) one has to begin with a few reflections on the first decade of the Convention's existence. The 1990s have been a period of quite important developments, in particular from the point of view of water legislation and policy.

Major developments affecting the work under the Convention

Looking back to 1992, when the Water Convention was signed in Helsinki, many changes have surprisingly taken place since that time. The most prominent change has been the rather quick development in most of the countries of Central and Eastern Europe, from the transition period after the break-up of the Soviet Union. Most of these countries are now about to become members of the European Union, which has meant extensive progress in their environmental legislation and administration.

The Convention entered into force on 6 October 1996, with the 16 required ratifications. Now there are 32 countries Parties to the Convention, plus the European Community. We can be satisfied with the fact that nearly all Signatories [1] are now Parties to the Convention. While almost all EU Member States and candidate countries have become Parties, only five newly independent States (NIS) are Parties and this is certainly a major concern for the future. Also the rather slow progress in the ratification of the Protocol on Water and Health raises some concern. On the other hand, we are now looking forward to another Protocol which is currently being negotiated under both the Water Convention and the Convention on the Transboundary Effects of Industrial Accidents (Industrial Accidents Convention). It is our understanding that the negotiations are proceeding well and a legally binding instrument on civil liability for damage to transboundary waters caused by hazardous activities is expected to be ready for adoption and signature at the Kiev Conference in 2003. [2]

A major development from the point of view of the Water Convention has been the Water Framework Directive of the European Union [3], which took nearly a decade to prepare and will surely take another decade or even more time to be implemented. For the Water Convention, this Directive is a welcome reinforcement of the basic principles and approaches of the Convention. And, more important, it gives a new tool for the Convention, in the sense that it provides more concrete and precise objectives.

We all know that the Water Framework Directive will be implemented not only by the present EU Member States but also by the future Member States, the countries that have applied for membership to the European Union. Hence, as such, it will then provide the legislative framework for water protection and management in a major part of the UNECE region. The influence will reach even beyond the future European Union because the Directive requires the Member States to strive for basin-wide coordination of the river basin management plans even in the transboundary context, i.e. where they share international river basins with non-EU countries.

At the 1st meeting of the Parties in Helsinki in 1997, we said in our declaration [4] that we would share our experiences with other regions of the world and called for other organizations to work with us. We can be

[1] Only Bulgaria and the United Kingdom have signed but not ratified the Convention.
[2] Fifth Ministerial Conference "Environment for Europe" which will take place in Kiev, Ukraine, 21-23 May 2003.
[3] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, published in the Official Journal L 327 of 22/12/2000.
[4] Helsinki Declaration, adopted by the Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes at Helsinki (Finland) on 4 July 1997 (ECE/MP.WAT/2).

satisfied with the fact that we have been able to fulfill these promises and that today there is a well established cooperation with many organizations and, at least to some extent, also our experiences have been utilized by others. We now have a new tool for that with the establishment of the International Water Assessment Centre (IWAC) [5]. The International Water Assessment Centre can provide various services for the work under the Convention, and certainly be our window to the world.

Long-term strategy and new orientation of work

With these developments in mind and on the basis of the experiences of the first decade, we are in a situation where it is necessary to look for new orientation of our work under the Convention in the future. In the path ahead, we could concentrate our future efforts on the following three main directions:

- We need to promote the ratification of the Convention and of the Protocol by the remaining NIS and Balkan States which have serious problems with the management of their transboundary waters;
- We must work towards the implementation of the EU Water Framework Directive in the transboundary context taking forward all the new developments while the implementation proceeds;
- We should disseminate information and know-how, share our experiences, offer our assistance for cooperation and create partnerships and mechanisms to solve problems.

This is a very opportune moment to reflect on our future work as we start preparing for the 3rd meeting of the Parties, which will take place in the autumn next year in Spain. For the preparatory process, while preparing the new work programme (2003-2006), it would also be important to start working on a strategy for the Convention in the longer term. The working groups under the Convention should set their targets and plan their activities by defining what are the issues that need to be promoted in the medium and long term. The Meeting of the Parties should discuss these long-term visions and endorse the main lines of action.

Among the strategic issues to consider is the impact of the EU Water Framework Directive on our work as its implementation proceeds. To a large extent the Directive will be the basis for our future work. We must be the bridge between the enlarged European Union and the neighbouring countries with which the Member States share transboundary waters.

We should also analyse the experiences that we have so far and make use of the results of the pilot projects that have been carried out. What are the conclusions from these and how can they help us? What kind of mechanisms can be useful, how can we best promote certain issues? What are the expectations of the countries regarding the work under the Convention?

In our new orientation of work we should adopt a step-by-step approach. This can mean different things in different contexts. It can mean that we choose to work at different levels in some countries. It can mean that in some cases we should first concentrate on the biggest problems, take care of few basic tasks and leave aside more complex tasks, for the time being.

In our long-term strategy we should also seek for cooperation with our main partners. We should make full use of the possibilities of IWAC to provide services for the work on different activities under the Convention. We should aim at structuring our work so that we take full use of synergies from existing efforts. As part of our new strategic approach we should also consider our present working structures and methods to see if there is need for improved efficiency.

Promoting the ratification of the Water Convention and of the Protocol on Water and Health

We are aware that there are severe problems with water scarcity and pollution in many of the NIS and some other countries with economies in transition. Furthermore, inadequate drinking water supplies and poor sanitation facilities are a threat to human health. Conflicting interests and disagreements over the use of water between riparian States may even pose threats to regional security. Transboundary cooperation is weak because of lack of legal frameworks to prevent, control and reduce transboundary impact. We know that there are no agreements so far between all riparian States of NIS and the Balkans for such transboundary rivers as Debeda, Dniestr, Dnieper, Gandari, Psou, Sava, Terek and Trebisnjica.

[5] International Water Assessment Centre (IWAC) web site: http://www.iwac-riza.org/.

We are fortunate to have, in most likelihood, support for our efforts from high political level. In the Environment for Europe process, the pan-European cooperation of the Environment Ministers, the emphasis of attention and action is to shift towards the NIS and the Balkan States. They have identified water problems as their main priority and there is a proposal to take action with regard to water and security at the Kiev Ministerial Conference in May 2003. One of the concrete proposals is to urge countries that have not ratified the Water Convention and its Protocol, to do so as soon as possible.

These are still plans and they may, of course, change. However, I feel rather confident that the water issues will be on the Kiev agenda. So, we can expect that there will be proposals for concrete action, which we need to take into account in planning our own work. Indeed we also need to pay attention to the outcome of the World Summit on Sustainable Development in Johannesburg regarding water issues.

This part of our future work will be a real challenge and requires innovative strategic thinking from all of us. We need to create new methods of working with these countries and search for collaboration from others working towards the same goals. We need to analyse why many efforts have failed. What are the underlying reasons for not having reached agreements or resolved conflicts? Which are the biggest problems and obstacles and how could they be overcome?

As far as the Protocol on Water and Health is concerned, the scale of the problems is larger as it encompasses all waters. Yet, in the end, what we will do under the Convention, especially towards the aims of the Water Framework Directive, will be done for the benefit of the Protocol as well. The work for the Protocol will strengthen the health aspects of proper water management, which should be our main concern at any rate.

Promoting the implementation of the EU Water Framework Directive throughout the region

This activity will also be challenging, but more straightforward, because here we proceed with the developments within the EU. The Directive, although very comprehensive and even complex, gives a roadmap and clear instructions to follow. Our task will be to follow the roadmap and take it into account in our own work programmes. The implementation of the Directive has a long time span which gives one more reason for us to have a long-term strategy.

In the first phase, we should concentrate on disseminating information on the general approaches and requirements of the Directive and transmitting the results from the working groups under the Common Implementation Strategy. This can be done through a series of workshops and seminars, which will provide feedback on what are the issues that the countries see as important work under the Convention. A first attempt in this direction will be the workshop to be held in Slovakia in June this year, which is meant for the candidate countries and their neighbouring countries.

The second phase would then contain more targeted work items related to e.g. preparing new guidelines for monitoring, assisting on issues related to preparing the programmes of measures and river basin management plans. There will certainly be many issues where countries will feel the need to work together. The future pilot programmes will naturally be working in line with the requirements of the EU Water Framework Directive. In fact, the new guidelines on monitoring and assessment of international lakes already adopted this approach.

I also see a major role and challenging task for IWAC in the work to promote the implementation of the Water Framework Directive in the transboundary context. Through its interactive website, IWAC can be a proactive tool for the Convention's activities. IWAC can take stock of developments and disseminate this information to targeted groups. It can take in comments, suggestions, problems encountered by countries, questions regarding specific issues, etc. IWAC has also a role in organizing training and promoting other capacity building activities. All this requires a close cooperation and interaction with the working structures under the Convention and our main partners.

To make it absolutely clear, our work under the Convention should in no way duplicate the efforts done in the EU framework or elsewhere. We must and we shall find our own role in the huge amount of work ahead of all of us.

Working in cooperation with others

An important part of our work is to make full use of the existing and potential partnerships that will not only benefit our work, but will also, in return, be valuable to our partners. In addition to our main partner WHO/EURO, we have already established close working relationships with e.g. UNEP/ROE and UNESCO. We attach quite a lot of importance to working together with the Global Environment Facility (GEF), the World Bank and the Global Water Partnership. Obviously, working together with the European Commission and the European Environment Agency (EEA) is a top priority. Joint work with other Conventions is becoming more and more important. We have already good cooperation with the Industrial Accidents Convention, with which we even have joint working groups. This cooperation will undoubtedly become even closer in the future when we share work under the Protocol on Civil Liability. The list can be continued and indeed it should be, as we welcome any new partners.

Towards sustainable water management

Acknowledging that our task in the future will not be an easy one, we can, however, be reasonably optimistic. It is obvious that we have to work very hard and make an extra effort to define our strategy and the necessary changes in preparing our new agenda. On the positive side we can see a lot of support from international processes, cooperative efforts and partnerships. Water is now recognized as a key resource for sustainable development. The European Union has responded well to this challenge, and we should all be very pleased with the Water Framework Directive. It is a sensible and sound programme to work with and will surely lead to good results. We can now look forward to another decade of intensive work and focus on extending this work to those parts of the region where major problems still exist. Working together with our partners and joining forces to intensify efforts will lead to good results.

The Protocol on Water and Health – Europe's first legally binding instrument to combat water-related diseases

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Introduction

The European region is characterized by the essentially transboundary nature of its water resources. There are some 150 major transboundary rivers that form or cross borders between two or more countries. Some 25 major transboundary and international lakes are subject to international cooperation, and more than 50 transboundary aquifers have already been identified in Europe.

It is therefore not surprising that Europe has been a leading region in the development of international instruments for the management of international water resources including the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). Amongst efforts at a basin level should be mentioned the Convention for the Protection of the Rhine, one of the oldest operational programmes for the management of a river basin, which was update in 1999, and the 1994 Convention on Cooperation for the Protection and Sustainable Use of the Danube River. Similar attempts are under way in other major international rivers such as the Dnieper and the Don, while more to the east steps towards pollution control on a river-wide basin have also been attempted in the Volga basin.

While these political developments took place, consumption of water increased throughout the region, leading to uncertainty regarding the balance between supply and demand of the water resources, and their quality.

In the early 1990s, attention was again being drawn to the importance of microbiological quality of water. At the same time, new and emerging threats to health related to water quality were identified and became better understood.

Problems related to the microbiological quality of the water, even accidental epidemics, occurred throughout the region, even in countries with good supply structures. This lead to the realization that infrastructures for the detection of water-related diseases were capable of detecting major events, but water quality was still open to significant improvements.

It was recognized that microbiological pollution was frequent in smaller distribution systems, and in supply systems suffering from interruptions.

Improvements were deemed possible in a number of areas. In case of emergency, advice would be required related to different options in the management of the resource, and studies would be needed that would facilitate short-term decision-making. Public awareness programmes should inform the public on water protection measures, and should create a favourable climate for individual and collective measures.

Such considerations led to the strengthening of the Water Convention through the formulation of a specific Protocol on Water and Health, which was adopted on the occasion of the 3rd Ministerial Conference on Environment and Health (London, 1999).

It would however be wrong to assume that these events were basically taking place in isolation. The formulation of the Water Convention, and indeed of the Protocol, was in fact, part of a growing global awareness of the role of water-related diseases as a main obstacle in achieving sustainable development. The first part of this contribution will therefore be aimed at placing the Water Convention and its Protocol in the overall context of international initiatives related to water and health.

The Protocol is a wide-ranging document, covering freshwater, groundwater, estuaries, coastal waters, bathing waters, supply of drinking water, and waste waters. The importance of the different provisions is likely to change in accordance with the geographical location and the level of socio-economic development of the signatory party. The characteristics of the WHO/EURO region and their importance for the selective implementation of certain provisions of the Protocol will be explored in the second part of this contribution.

Finally, information will be provided on the work of WHO supporting the further implementation of the Protocol.

International context

International Conference on Water and the Environment (Dublin, January 1992)

The Dublin Conference is recognized as a milestone in the development of international cooperation in water management, as its *Guiding Principles,* adopted in January 1992, recognize that concerted action is needed to reverse the present trends of overconsumption, pollution, and rising threats from drought and floods. The Conference Report sets out recommendations for action at local, national and international levels, based on four guiding principles which became the milestones for nearly all future actions.

Dublin Guiding Principles

Principle No. 1 – Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment

Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

Principle No. 2 – Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels

The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

Principle No. 3 – Women play a central part in the provision, management and safeguarding of water

This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

Principle No. 4 – Water has an economic value in all its competing uses and should be recognized as an economic good

Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

United Nations Conference on Environment and Development (Rio de Janeiro, June 1992)

The UN Conference on Environment and Development (UNCED) led to the formulation of Agenda 21, the Rio Declaration on Environment and Development, and the Statement of Principles for the Sustainable Management of Forests. These documents were adopted by more than 178 Governments.

Of particular importance is Chapter 18 of Agenda 21 on the Protection of the Quality and Supply of Freshwater Resources: Application of Integrated Approaches to the Development, Management, and Use of Water Resources.

This Chapter addresses:

- Integrated water resources development and management;
- Water resources assessment;
- Protection of water resources, water quality, and aquatic ecosystems;
- Drinking water supply and sanitation;
- Water supply and urban development;
- Water for sustainable food production and rural development;

In each section, the relationship between health and water is recognized, and countries are encouraged to take specific action to face recognized threats.

Water and health relationship in Chapter 18 of Agenda 21

A. Integrated water resources development and management
   18.9: Integrated water resources management, including the integration of land- and water-related aspects, should be carried out at the level of the catchment basin or sub-basin. Four principal objectives should be pursued, as follows:
      a. To promote a dynamic, iterative, and multisectoral approach to water resources management, […] that integrates technological, socio-economic, environmental, and **human health** considerations.

C. Protection of water resources, water quality and aquatic ecosystems
   18.35: Ecological and human **health** effects are the measurable results of [destructive environmental development], although the means to monitor them are inadequate or non-existent in many countries.
   18.38: Three objectives will have to be pursued concurrently to integrate water-quality elements into water resource management:
      a. **Public health protection,** a task requiring not only the provision of safe drinking water but also the control of disease vectors in the aquatic environment.

D. Drinking-water supply and sanitation
   18.47: Safe water supplies and environmental sanitation are **vital** for protecting the environment, improving **health** and alleviating **poverty**.
   18.50: All **States** […] could implement the following activities:
      a. Environment and Health:
         vi. Control of water-associated diseases.
      c. National and community management
         v. **Promotion** of primary **health** and environmental care at the local level.

E. Water and sustainable urban development
   18.56: […] Rapid urban population growth and industrialization are putting severe strains on the water resources […] of many cities. Special attention needs to be given to the growing effects of urbanization on water demand […] Better management of urban water resources, including the elimination of unsustainable consumption patterns, can make a substantial contribution to the alleviation of **poverty** and the improvement of the **health** and quality of life of the urban and the rural **poor**.

United Nations Millennium Declaration

The UN General Assembly at its 55th Session adopted a resolution, commonly known as the United Nations Millennium Declaration. This declaration contains a number of key elements of high relevance to the sustainable management of water resources and the fight against water-related diseases, and sets clear development goals to be reached in the near and medium future.

UN Millennium Declaration

III. Development and poverty eradication

19. We resolve to halve, by the year 2015, the proportion of the world's people whose income is less than one dollar a day, and the proportion of people who suffer from hunger, and, by the same date, to halve the proportion of people who are unable to reach or to afford safe drinking water.

IV. Protecting our common environment

23. We resolve […] to adopt in all our environmental actions a new ethic of conservation and stewardship and, as first steps, we resolve: to stop the unsustainable exploitation of water resources by developing water management strategies at regional, national, and local levels, which promote both equitable access and adequate supplies.

Efforts to identify the best way to reach these goals have started nearly immediately after the adoption of the Millennium Declaration.

The UN recognized that water use grew at more than twice the rate of population during the 20th century. In 2000, 1.2 billion people or 20% of the world population lacked access to safe water. If present trends in water consumption continue, almost 2.5 billion people will be subject to water shortages by 2050. Identified strategies for moving ahead include:

- Conducting global assessments of priority aquatic ecosystems with a view to developing appropriate policy responses;
- Developing policies, guidelines, and management tools for environmentally sustainable integrated water management;
- Helping developing countries and countries with economies in transition to use environmentally sound technologies to address urban and freshwater environmental problems;
- Ensuring a comprehensive review of Chapter 18 of Agenda 21 at the World Summit on Sustainable Development;
- Ensuring that such measures as the "polluter pays" principle and the pricing of water, which were raised at the 2nd World Water Forum (The Hague, 2000) are further examined.

The Hague Ministerial Declaration

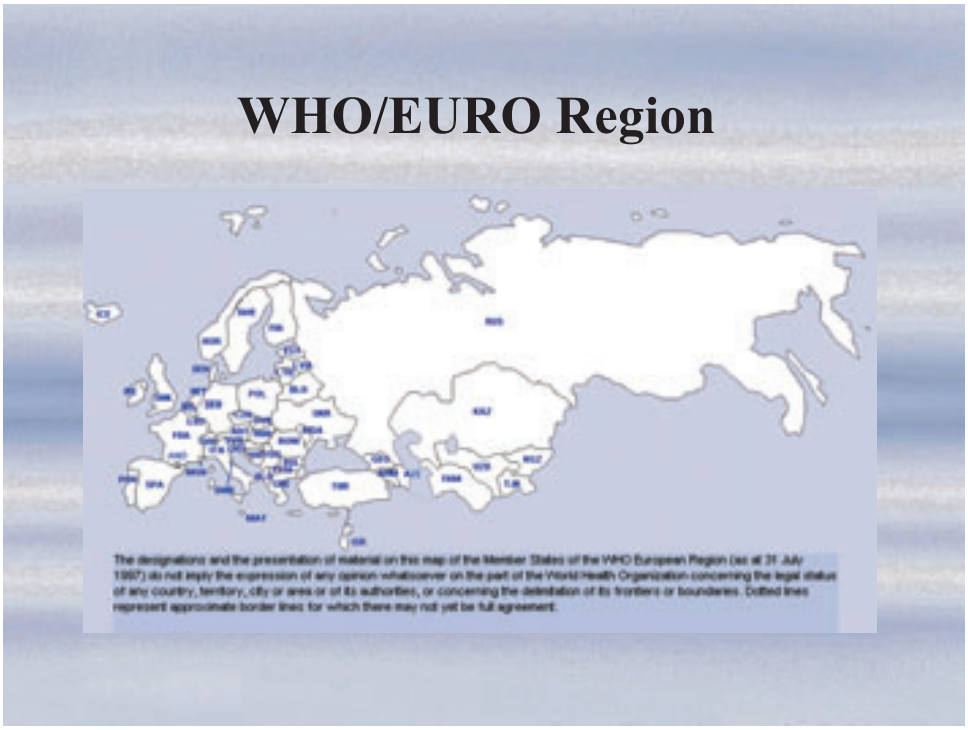
6: [On valuing water]: *to manage water in a way that reflects its economic, social, environmental, and cultural values for all its uses, and to move towards pricing water services to reflect the costs of heir provisions. This approach should account for the need for equity and the basic needs of the poor and the vulnerable.*

Conclusions

The Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes is clearly well anchored in a global move towards a more integrated sustainable management of water resources, particularly in view of reducing hindrances to sustainable development and improving human health. During the development of the international consensus in this area, emphasis has been placed on items considered of priority importance. Examples hereof are urban areas, vulnerable groups including poor, improved management of the resources, and fight against water-related diseases. The following section will examine in greater detail the relevance of these global priorities to the situation in the WHO/EURO region.

Protocol characteristics in a geographical context

The WHO European Region embraces some 870 million people, living in an area that stretches from Greenland in the north-west to the Southern Mediterranean, and to the eastern coasts of the Russian Federation. The Organization is therefore faced with problems characteristic of the industrial societies in the western part of the region, as well as with the typical challenges of countries in, or emerging from, economic transition in the eastern part of the region.



The considerable geographical and socio-economic variability of the region causes some provisions of the Protocol to be relevant throughout the region, while others are more relevant to specific subregions. It is therefore appropriate to review briefly some characteristics of the WHO/EURO region.

Characteristics of the region

Socio-economic and human development

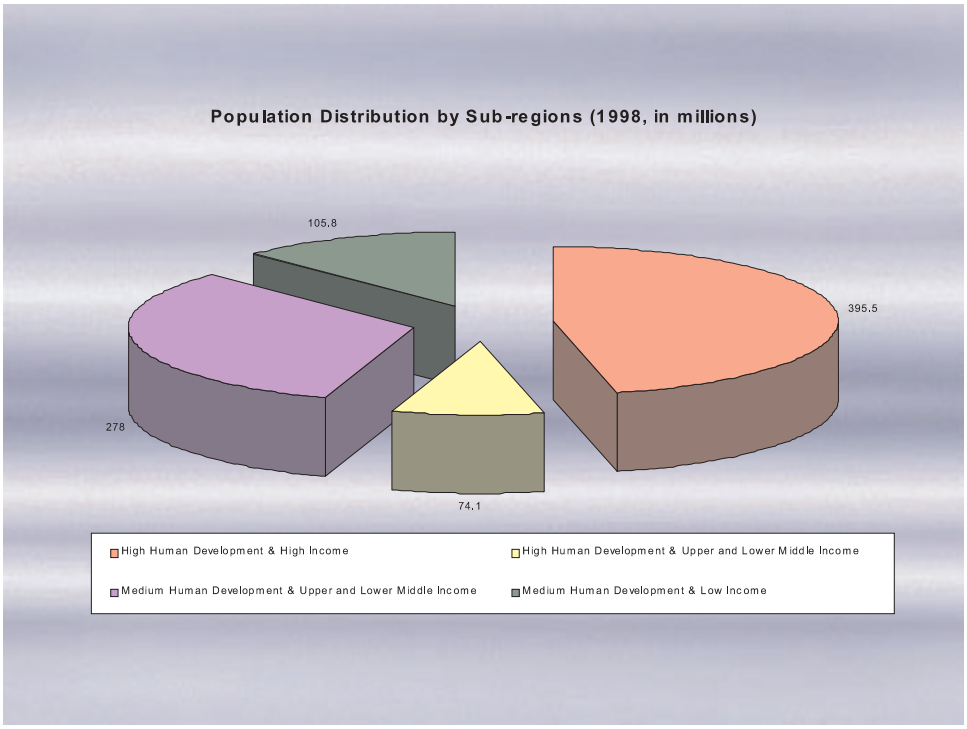
Two commonly used development parameters can be applied to characterize the WHO/EURO region: the Human Development Index (HDI) and the Gross National Product (GNP) per capita.

The Human Development Index measures the overall achievements in a country in three basic areas of human development: longevity, knowledge, and standard of living. It is measured by life expectance, educational attainment (adult literacy and combined primary, secondary, and tertiary enrolment), and adjusted income per capita in purchasing power parity (PPP) in USD. The HDI is a summary, not a comprehensive measure of human development. Nevertheless, the classification of countries in High Human Development (HHD), meaning a HDI of 0.800 or higher, and Medium Human Development (MHD), meaning a HDI between 0.800 and 0.500, will prove useful in the assessment of the region.

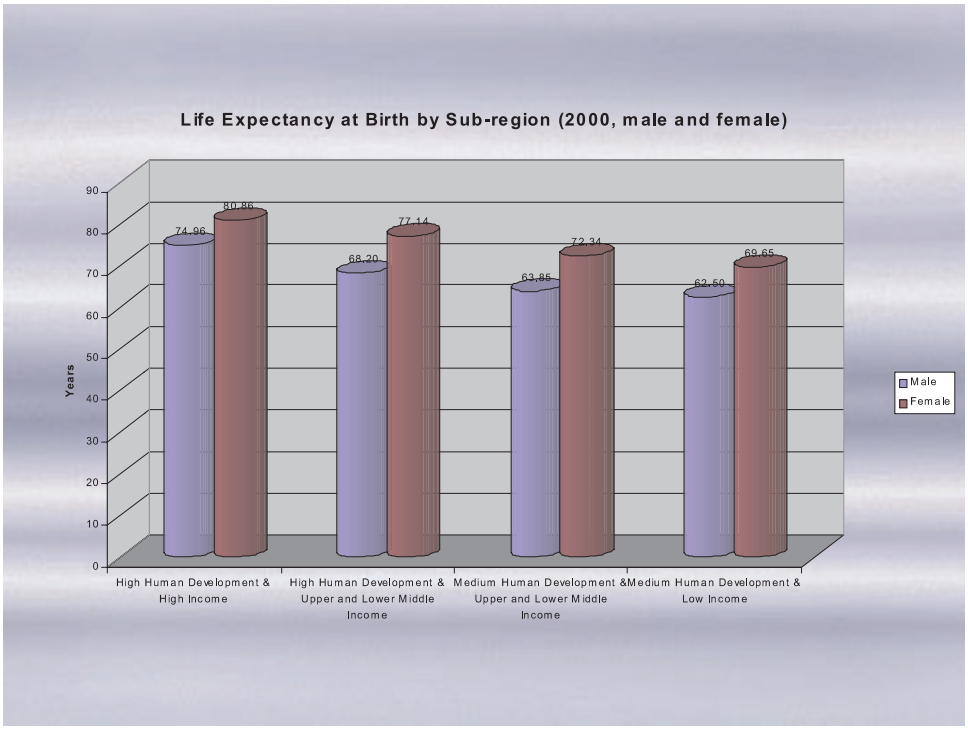
Concurrently, an income classification employing GNP per capita allows a classification of the countries in the region in four categories: High Income Countries (HIC) with a GNP per capita of 9,266 USD and more; Upper Middle Income countries (UMI) with a GNP per capita of 2,996 – 9,265 USD; Lower Middle Income (LMI) countries with a GNP per capita of 756 – 2,995 USD; and Lower Income Countries (LIC) with a GNP per capita of 755 USD or less.

The following figure shows the distribution of the population in the WHO/EURO region by levels of human and socio-economic development – it clearly shows that the majority of the population lives in countries

with high human development and high income, followed by medium human development and medium income countries.

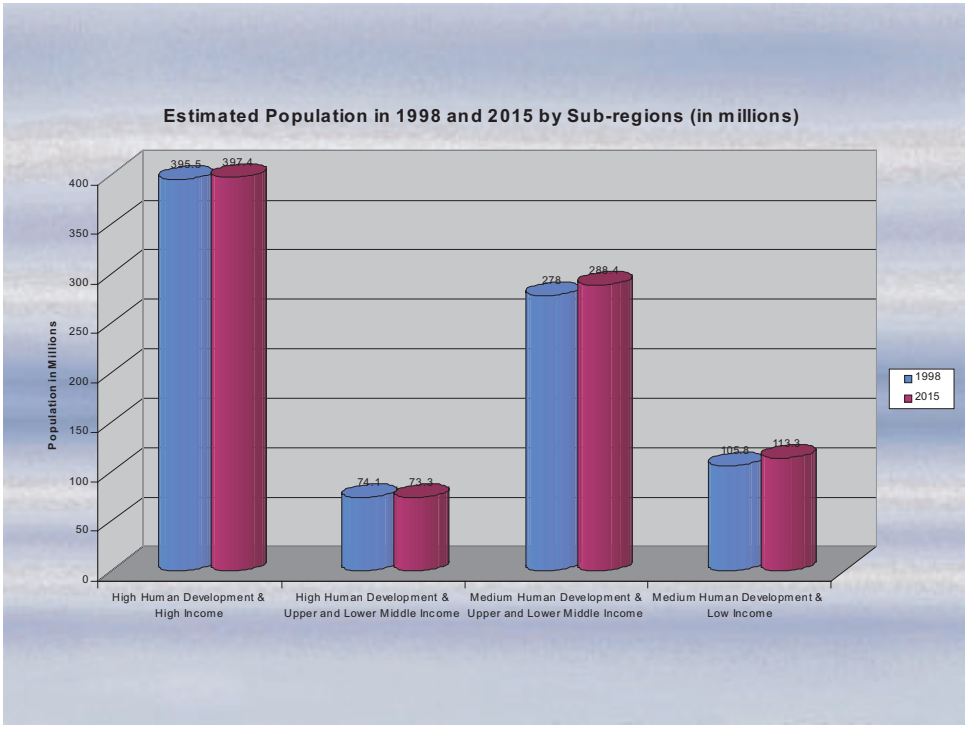


Another, equally important indicator, is the life expectancy at birth in the different subregions – information collected on a regular basis by WHO shows that there is a very wide difference in the region, with especially a gap in female life expectancy of nearly 20 years depending on the level of socio-economic development of the subregion concerned.

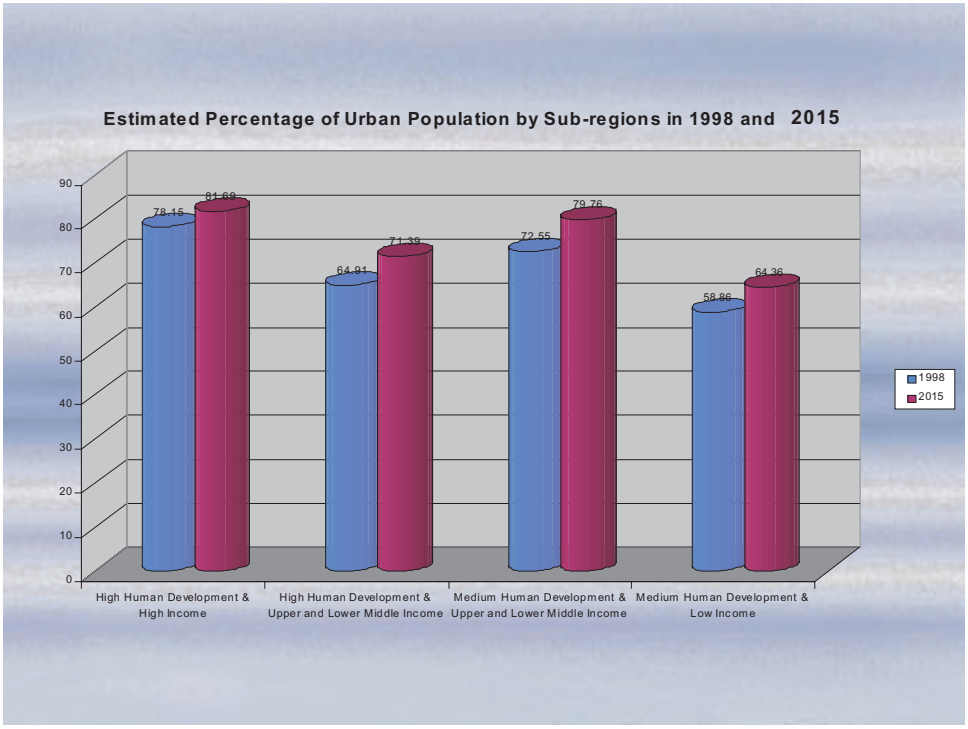


Population trends

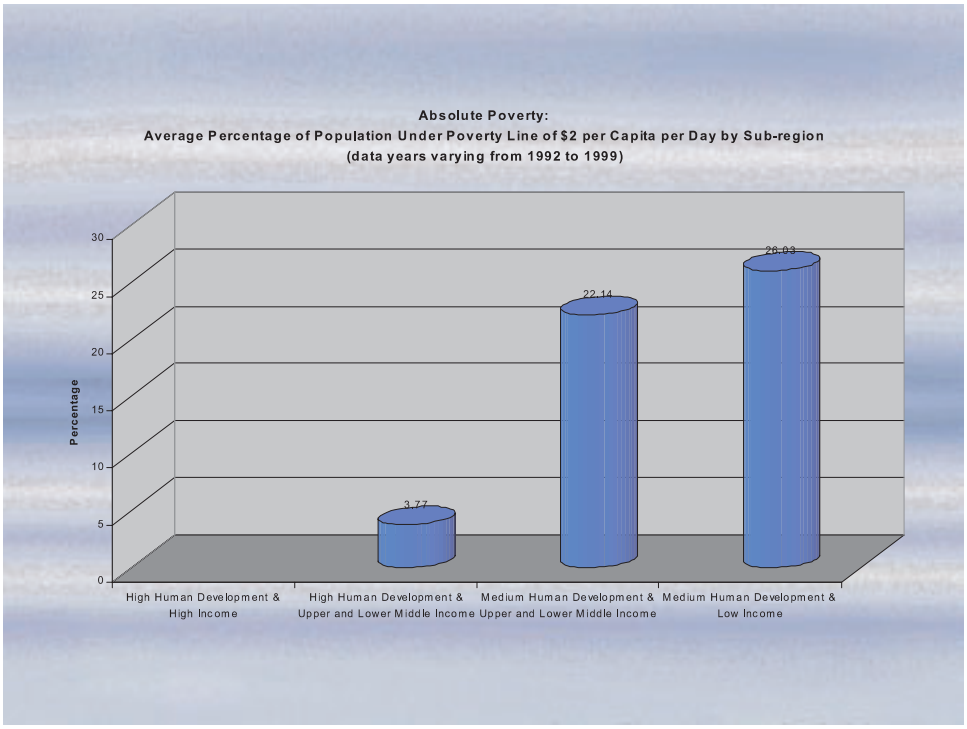
An assessment of population and expected population growth in the subregions identified above shows that relatively little population growth is expected and that some subregions have actually gone through a decrease in population.



Equally important is the observation that the region is highly urbanized, and that this process is expected to continue in the foreseeable future



Poverty remains a major concern, as shown by the following analysis of absolute poverty, meaning the average percentage of population under the poverty line of 2 USD per capita per day.



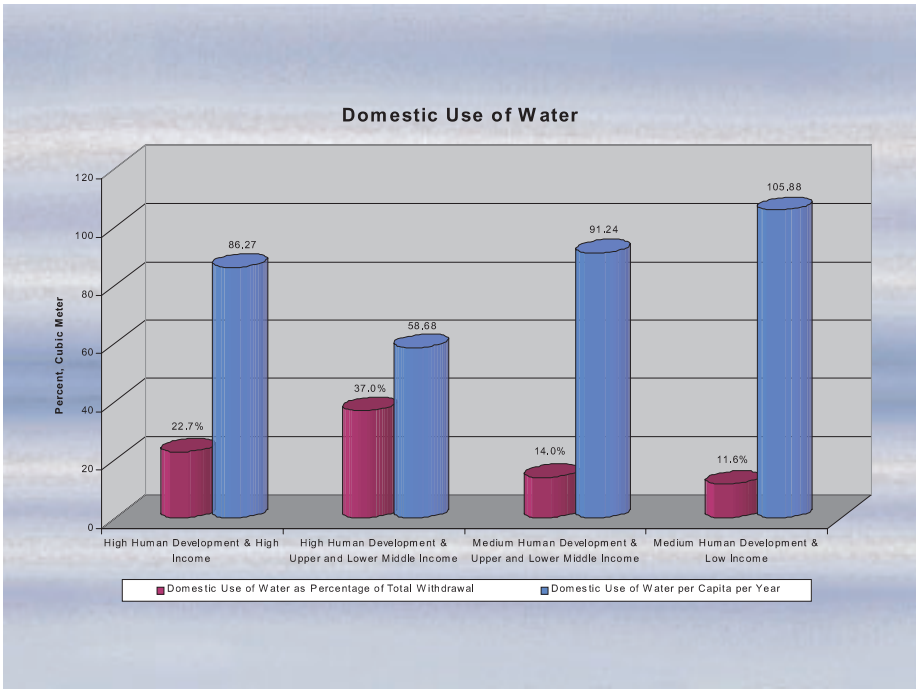
Poverty is a concept not automatically associated with Europe. A few data from our region will further illustrate that this often forgotten problem is unfortunately a painful reality:

- In 1998, approximately 24 million people (2% of the region's population) were living in absolute poverty;
- In 18 countries of Central and Eastern Europe and the newly independent States, more than 165 million people were living on less than 4 USD per day in the mid-1990s; in 8 countries the proportion of people living within these limited resources was 50% of higher;
- In OECD Member countries, relative poverty is a significant reality, for instance, 11% of people were living in relative poverty in the United Kingdom in 1995 and 13% in Italy in 1999.

As far as exposure to environmental risk factors is concerned, poor people are more likely to live in an unhealthy environment, without adequate shelter, access to drinking water or adequate sanitation. Limited access to improved water sources is still a problem. It has been estimated that 12% of the population of WHO/EURO, mainly in the eastern countries, do not have access to safe drinking water, and that a greater proportion is not served by adequate sewage facilities. In some countries, less than 60% of people have access to safe drinking water.

Resource use

In the context of the Protocol, it is also important to give attention to the efficiency with which the resource is being used. The following figure shows that countries at a lower level of development allocate less of the abstracted resource to domestic use, but that nevertheless their consumption per capita far exceeds that of their more developed counterparts.



Water-related diseases

In 1997, WHO/EURO asked 51 European Member States for information on recording and reporting on water-borne diseases during the 11-year period from 1986 to 1996. Completed questionnaires reached WHO/EURO from 26 countries, revealing a total of 277 reported outbreaks with 54,782 cases.

However, in studying these cases, investigators felt that in the cases of gastrointestinal illness reported through existing surveillance systems, caution is required in a number of areas:

- Data gathered through the surveillance systems for water-related disease outbreaks probably do not reflect the true incidence, because not all water-related disease outbreaks may be recognized, investigated, or reported;
- The availability and use of laboratory services and the expertise of those responsible for, and resources allocated to, surveillance activities may vary amongst countries;
- Recognition of water-related disease outbreaks depends on several other characteristics, such as the severity of the disease, the relative size of the outbreak, and the type of the water system;
- Finally, the ratio of cases from water-related disease outbreaks to "sporadic" cases of water-borne disease is unknown and most likely varies amongst countries.

Other concerns relate to the data provided themselves. Quality was found to vary considerably, because of differences in reporting, case definitions used (or lack thereof), and the structure and quality of existing surveillance systems. As a result, data are not comparable amongst reporting countries. More complete and accurate data are needed for a meaningful estimate of the true magnitude of water-borne diseases in Europe, including cases of water-related diseases not immediately linked to outbreaks.

Conclusion

The analysis of the socio-economic development of the WHO/EURO region, the prevalence of significant pockets of poverty in the region, problems of inefficiency in resource use and difficulties in the development of a reliable evidence base on which to take further action, all indicate that conditions in the WHO/EURO region are not dissimilar from those experienced in other regions of the world. The relevance of the Protocol on Water and Health is therefore not only that it responds to a clear need by the Member States of the WHO/EURO region but, in linking legal instruments to scientific methodologies, it also has the potential to be a test model for other regions in the global effort to manage water resources in a sustainable way, including the provision of safe water.

The last section of this contribution will briefly outline the work done by WHO since the signing of the Protocol in 1999, highlight some of the priority actions taken by the organization to address poverty and health, and chart the way for future action.

WHO role

Activities under the Protocol

WHO Collaborating Centres on Water and Health

WHO Collaborating Centres (CC) form part of an inter-institutional collaborative network set up by WHO in support of its programmes at the country, intercountry, regional, interregional, and global levels as appropriate. A WHO collaborating centre also participates in the strengthening of country resources in terms of information, research and training.

The functions of these centres are manifold:

- They are used, in various fields, for the purpose of standardization of terminology and nomenclature, of diagnostic, therapeutic and prophylactic substances, of technologies, methods and procedures, etc;
- They participate in the synthesis and dissemination of information;
- They provide services to the organization in support of programmes of global interest.

At present, a network of Collaborating Centres supports WHO activities on water and health in the WHO/EURO region:

- The WHO CC for Research on Drinking Water Safety and Treatment in Belgium;
- The WHO CC on Drinking Water Hygiene in Germany;
- The WHO CC on Health Promoting Water Management and Risk Communication also in Germany;
- The WHO CC on Protection of Drinking Water Resources in Hungary;
- The WHO CC on Water Supply and Sanitation in the Netherlands;
- The WHO CC on Groundwater Quality Assessment and Protection in the United Kingdom;
- The WHO CC on the Protection of Water Quality and Human Health in the United Kingdom; and
- The WHO CC on Drinking Water and Water Pollution Control in the United Kingdom.

In addition to providing expert support to the formal meetings under the Convention and the Protocol, WHO CC have also taken the lead in exploring ways and means to strengthen the evidence base for combating water-related diseases as well generally strengthening the surveillance system. [1]

It was agreed that water-related diseases should be divided in two categories:

- Primary importance should be given to cholera, bacillary dysentery, Enterohemorrhagic E. Coli infections, viral hepatitis A, Shigellosis, and typhoid;
- Secondary importance should be given to infections by Campylobacter, Cryptosporidium, Giardia Intestinalis, and Calici virus.

Likewise the importance is recognized of chemical imbalances in drinking water causing potentially severe health impacts. Examples of such parameters are nitrate, iron, arsenic, manganese, fluoride, iodine, strontium, and a variety of pesticides.

WHO is currently exploring how existing monitoring and surveillance programmes, such as the European Health for All Database [2] or the computerized information system on infectious diseases [3] (CISID) could be expanded to address these issues.

[1] The latter is carried out in cooperation with the International Water Assessment Centre (IWAC), established by the Parties to the Water Convention.

[2] The Health for All Database is a database developed by WHO/EURO containing data on about 600 health indicators, including basic demographic and socio-economic indicators; some lifestyle- and environment-related indicators.

[3] The computerized information system on infectious diseases is a database developed by WHO/EURO containing data gathered through surveillance of communicable diseases – such as tuberculosis, HIV/AIDS and sexually transmitted infections, and malaria – and data on immunization coverage in countries and recent outbreaks in Europe.

Poverty and health policy

WHO has taken strong action, and is making a major effort to stress the need to put poverty at the centre of the public health agenda. At the 108th session of the Executive Board in May 2001, WHO proposed a "unified framework for action", to enable many different actors to carry through – in a coherent way – proposals for intensifying action by the health sector amongst poor communities that are being developed by intergovernmental bodies, organizations of the United Nations system, non-governmental organizations, private groups and national and local Governments.

This effort requires a deep, long commitment from the international community and Member States and a willingness to make major changes in health and development strategies. Within this context, and in line with WHO overall corporate strategy, we have started a reflection on the desirability and feasibility of initiating activities in WHO/EURO addressing the issue of poverty and health.

Proposals for future action include:

- Raise awareness in Europe of the centrality of health in the fight against poverty;
- Help countries to make progress towards poverty reduction by improving access to health services, and addressing the most important diseases and determinants linked to poverty;
- Improve the information base and the data available to support policy development and monitoring, with special reference to the most vulnerable population groups;
- Strengthen the commitment of the international community to invest resources in poverty reduction and research.

Conclusions

The creation of proper surveillance systems for water-related disease outbreaks, as well as the standardization of surveillance systems already in place is seen as a top priority. The creation of such systems will allow future studies to collect reliable data about individual outbreaks, which, in turn, will allow an in-depth analysis of causes for such outbreaks to the benefit of managers of water services.

Data on the outbreaks of water-related diseases, together with data on the quality and cost of the supplied water, could be used for cost-benefit analysis of water supplies, and, in particular, to address the problem of providing safe water in an affordable manner even to the socially weaker segments of society.

The way forward

At the time of writing, preparations are well under way for the World Summit on Sustainable Development (South Africa, August 2002), the 2nd meeting of the Working Group on Water and Health (Hungary, October 2002), and the 2nd meeting of the Signatories to the Protocol on Water and Health (Hungary, mid-2003).

The very relevant response given by the Protocol to important problems in the sustainable development of our region, the integration of the work under the Protocol in a global movement towards improved management of water resources and reduction of water-related diseases, and the commitment of countries to ratify the Protocol makes us look forward with confidence to the first meeting of the Parties, scheduled to take place in conjunction with the 4th Ministerial Conference on Environment and Health (Budapest, mid-2004).

UNEP water strategy

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Introduction

This conference, which marks the 10th anniversary of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, builds on an important number of recent international water-related activities such as the Second World Water Forum in the Hague in 2000, the International Conference on Freshwater in Bonn last December, and the preparations for the World Summit on Sustainable Development (WSSD) to be held at the end of August this year, where water figures high on the agenda.

In September 2000, the United Nations Millennium Summit, by resolution A/RES/55/2, declared water to be the central issue of the 21st century and set the ambitious goal to halve the proportion of people who are unable to reach or to afford safe drinking water by the year 2015. Moreover, the year 2003 has been declared the International Year of Freshwater. Hopefully, the result of this important conference will further reinforce the activities to be undertaken to mark the International Year of Freshwater.

The water issue is very close to UNEP preoccupations since UNEP headquarter is located in a developing country, where people are still dying of water-borne diseases. First of all, it should be reminded that water is the source of life. Today, billions throughout the world do not enjoy access to clean drinking water, and this has become one of the most serious problems in many parts of the world. This situation is expected to worsen in the coming years.

Water problems at global and regional levels

Worldwide, water-related problems are increasingly perceived as the most immediate threat to humankind, as reflected by the number of initiatives and conferences attempting to address this issue. And yet the water crisis is deepening: 1.2 billion people today have no access to safe and affordable drinking water.

Ten years ago, at the Rio Conference, the leaders of the world agreed that freshwater was vital for economic development and a fundamental requirement for human survival. They made recommendations in Agenda 21 for a secure, sustainable water future. Ten years later, the world is facing a water crisis. But unlike the energy crisis, the water crisis is life threatening, and the most immediate and serious environmental social and economic problem facing over a billion people of the world today.

At the beginning of the 21st century, one-third of the world people live in countries with moderate to high water stress. If present consumption trends continue, it will be two out of three people that will be likely to be subject to moderate to high levels of water stress in 2025. Worldwide, three million people die every year from diseases such as cholera and dysentery caused by contaminated water.

A new feature of the water crisis since the Rio Summit is the fact that water problems have become increasingly transboundary in scope with the resulting potential for conflicts and security. Long-range transport mechanisms contaminate water bodies, subsidised and over-capitalised fishing fleets cause fish stocks to decline, water-supply problems are becoming a source of international tension while at the national level conflicts are increasing between economic sectors due to conflicting requirements for urban, industrial, rural and agricultural uses. It's therefore necessary to recognise the true dimension of the challenge.

The water crisis is not a developing countries' problem only. Even though water resources vary widely across Europe, water stress exists in many places in Europe, resulting in serious problems of water shortages, flooding, pollution and ecosystem damage, as pointed out in the UNEP/EEA message on water stress a few years ago. [1]

[1] *1997 New Year Message, Water Stress in Europe - can the challenge be met?* European Environment Agency and United Nations Environment Programme, 1997, ISBN 92-9167-025-1.

Some 20 European countries depend on other countries for more than 10 per cent of their water resources, with 5 countries relying on over 75 per cent of their resources coming from abroad via rivers. In Europe, about 140 million people living in large cities are exposed to groundwater over-exploitation. The over-use of water has also contributed to the loss of 50 per cent of Europe's wetlands in recent years, with another 25 per cent threatened by drainage and excessive abstraction. Future water supplies may also be adversely affected by climate change.

A lot remains to be done in the field of research: for example, the health impact of many chemicals in water needs to be fully investigated. Water pricing policies in Europe do not yet reflect the full environmental and economic cost of its supply and use.

The recrudescence of water problems in Central and Eastern Europe has led to the timely preparation and adoption of the Protocol on Water and Health to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Because of its long experience in water management, Europe has a special role to play to pave the way for practical solutions: the EU water legislation and the UNECE Water Convention are steps in the right direction. Many more examples will be given during this conference.

UNEP role and activities

As the global United Nations organization responsible for policy guidance and coordination in the field of the environment, UNEP was asked to facilitate the integration of the environmental aspects of social and economic development into policy discussions on freshwater issues. The sustainable use of water is an essential component of sustainable development. There can be no solutions without an intersectoral approach that recognises the interlinkages between land and water, agriculture and water, technology and water, health and water, climate and water, etc.

It has been shown that sustainable water use is a source of economic benefits - through good health and income generating activities. However, the cost of the unsustainable use of water still needs to be fully investigated, as knowledge is lacking compared to environmental protection costs, which are better known.

Perhaps the most known example of the economic costs of unsustainable water use is the case of the Aral Sea basin where the unsustainable use of water for agricultural irrigation caused the collapse of the previously robust fishing industry, decrease in agricultural production, resulting in serious human health problems. This example points out the close links between land use and sustainable water use and the need to address the water issue in a long-term perspective.

The new UNEP water policy and strategy recognises the cross-sectoral nature of water issues and attempts to develop concrete approaches for the assessment and management of water. In 2001, the UNEP Governing Council endorsed a decision to make water a high priority issue. Three remarkable UNEP activities in support of this strategy could be mentioned.

Firstly, UNEP is working at a better assessment of global water resources. This is done through the Global International Waters Assessment (GIWA), executed by UNEP with the support of the Global Environment Facility (GEF) and other partners. Within this programme, a methodology is being developed for making diagnostic analyses at the regional scale, as well as regional and sub-regional scenarios for the future state of international waters. This activity is fully integrated with the water component of the Global Environment Monitoring System (GEMS/Water), the only global freshwater quality monitoring and assessment programme within the United Nations system.

A second activity is the UNEP Regional Seas Programme which now covers 14 regions worldwide and more than 140 coastal States and territories. In most cases, the programme is implemented through legally binding conventions and action plans under the authority of Contracting Parties. In Europe, the Convention for the Protection of the Mediterranean Sea against Pollution, known as the Barcelona Convention, was adopted as early as 1976 and followed by a number of Protocols. Being action-oriented, these regional agreements have been most effective in engaging Governments in protecting the coastal and marine environment. Of late, UNEP has been facilitating horizontal cooperation, or twinning between the more developed regional seas conventions and those that are less developed.

A third element of UNEP water strategy is the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA). This programme was launched in 1995 in recognition of the fact that 80% of marine pollution originates from land and that 60% of cities of over 2.5 million are coastal cities. The comprehensive multi-sectoral approach of the GPA reflects the desire of Governments to strengthen collaboration on this issue. Outputs will include regional overviews, a global assessment, and an analysis of benefits and opportunities for different stakeholders. The programme has so far focussed on the implementation of a strategic action plan on municipal waste water, the preparation of the first intergovernmental review last year, and the development of a clearing-house mechanism.

UNEP looks for partnerships and support in these activities, which, although global in scope, rely on regional approaches.

Other UNEP activities of relevance to this conference are the recent setting up of a UNEP Collaborating Centre on Water and Environment (UCC-Water) in Denmark, the development and transfer of water technology through the UNEP International Environmental Technology Centre (IETC) located in Japan, and research on the economic dimension of sustainable water use through ecosystem valuation, particularly with regard to transboundary water resources.

Of late, UNEP has also expressed an interest in developing a strategic partnership with the European Union on water management with focus on partnerships between European and African river basins, taking into account the outcome of the twinning agreements launched at the Second World Water Forum in The Hague.

At the regional level, UNEP has furthermore been promoting, with GEF support, a programme for the environmental management of the Caspian Sea area, including the preparation of a framework environmental convention, and legal work in the Black Sea. Through the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), UNEP has taken action for the protection of the sturgeon in the Caspian Sea area. UNEP has also promoted river basin management approaches for the Tisza River and the Volga River.

Conclusion

To conclude, the concern expressed by a number of Governments, at the recent Preparatory Committee for the World Summit on Sustainable Development in New York, about the lack of concrete commitment and action to sustainable development on the part of the international community can be shared. Action is needed to match existing knowledge and tools for environmentally sound management of water.

There is enough understanding to move the water agenda forward in the three directions outlined at the Bonn Conference last year, namely governance, mobilisation of financial resources and capacity building/sharing of knowledge. More than ever, action is needed and it is needed now. UNEP stands ready to play its part in this endeavour.

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Potential Conflict to Co-operation Potential: a challenge to water management

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Background

During the 20th century, the world population has tripled while world demand for water has increased seven-fold. The signs of a looming water crisis are evident. Since water is essential to every aspect of life, this crisis affects everything – from health to human rights, the environment to the economy, poverty to politics, culture and civilization to cooperation and conflict. Just as water defies political boundaries, the crisis is also well beyond the scope of any individual country or sector and cannot be dealt with in isolation. The need for integrated, cooperative solutions is particularly urgent in the 261 river basins which are shared by two or more States. These basins cover nearly half of the world territory and provide home for almost 50% of the world population.

The Hague Ministerial Declaration, signed at the 2nd World Water Forum in March 2000, identified seven key challenges for achieving water security. These challenges provide the context for the UN-wide World Water Assessment Programme (WWAP). One of these challenges "Water sharing" gives the proper context for the "From Potential Conflict to Co-operation Potential: Water for Peace".

UNESCO and Green Cross International are contributing to this international initiative by jointly examining the potential for shared water resources to become a catalyst for regional peace and development through dialogue, cooperation and participative management of river basins. An increasing number of States are experiencing permanent water stress, yet in most cases, mechanisms and institutions to manage conflicts over water resources are either absent or inadequate. Competition over this precious resource could increasingly become a source of tension – and even conflict – between States and water use sectors. But history has often shown that the vital nature of freshwater can also be a powerful incentive for cooperation; it can impel stakeholders to reconcile their diverging views, rather than allow opposing interests to escalate into harmful confrontations, which could jeopardize water supplies, for all parties involved in a dispute.

A team of scientific researchers from the Department of Geosciences at Oregon State University, led by Prof. Aaron T. Wolf has been conducting an interesting work confirming this aspect of the resource as a unifier. They have compiled a systematic database for water conflict/cooperation reported during the last 50 years in the international media. Of the 1,831 events, 507 conflictive, 1,228 cooperative, and 96 neutral or non-significant have been identified. To define the intensity of the events a scale going from -7, the most conflictive (war), through 0 (neutral events), and up to +7, the most cooperative (voluntary merging of countries) were used. The events, measured on this scale revealed the following:

- No events were observed on the extremes;
- Most interactions are cooperative;
- Most interactions are mild;
- Water acts as an irritant;
- Water acts as unifier;
- Overall, the major water-related issues likely to lead towards conflicts are quantity and infrastructure related;
- Nations cooperate over a wide variety of issues.

UNESCO has launched the project *From Potential Conflict to Co-operation Potential* (PC→CP) to assess the available material for the prevention and the resolution of water conflicts, as well as to develop decision-making and conflict prevention tools for the future. The "Water For Peace" project initiated by Green Cross International – developed with the input of civil society in several international basins – aims to enhance the awareness and participation of local authorities and the public in water conflict resolution and integrated management, through facilitating more effective dialogue between all stakeholders.

The joint PC→CP: Water for Peace project will address the obstacles, identify the incentives and promote the means to achieving the integrated, equitable and sustainable management needed to make international watercourses natural thoroughfares for stability and sustainable development across the world. The two components of the joint programme are entirely complementary.

By joining forces and mutually reinforcing each other, UNESCO and Green Cross International expects to reach a wider constituency and forge more effective links between and among Governments and local authorities, the private sector, academics and scientists, and civil society in the search for ways to move from potential conflict to cooperation potential, and to encourage shared water to become an avenue for peace.

Scope of PC→CP

While PC→CP is relevant to all the challenges determined by The Hague Ministerial Conference, it addresses more specifically the challenge of shared water resources primarily from the point of view of Governments and intergovernmental organization. All PC→CP efforts were conceived with the idea that, although shared water resources can be a source of conflict, their joint management should be strengthened and facilitated as a means of cooperation between various water users. Thus PC→CP aims to demonstrate that a situation with undeniable potential for conflict can be transformed into a situation where cooperation potential can emerge. PC→CP's thematic focus is on this very transition – from PC to CP.

The goal of PC→CP, in accordance with the mandate of WWAP, is to render services to the Member States and to foster cooperation between Nations. It is also guided by UNESCO's paramount mandate: to nurture the idea of peace in human minds. In its first phase (2001-2003), PC→CP will give priority to water conflicts, which are international in nature and may cause tension or even open conflict between sovereign States. Water disputes at others levels will only be addressed in so far as they reach international levels.

Target Groups

PC→CP's role is to help water resources management authorities to tip the balance in favor of cooperation potential away from potential conflict.

The priority target groups of PC→CP are therefore institutions and individuals that manage shared water resources.

These include Governments, to which the WWAP is essentially addressed, then donor and funding agencies, which need information on actual or potential water conflicts.

Educators at all levels as well as the professional staff of water management institutions, including current and future decision-makers, need an in-depth knowledge of concepts, techniques and methods to enable them to turn PC into CP. Therefore they also belong to the target group.

Objectives of PC→CP

The purpose of PC→CP is to promote water security through cooperative management of shared water resources.

PC→CP aims to foster cooperation between stakeholders in the management of shared water resources and mitigate the risk that potential conflicts turn into real ones. It will help the parties involved in potential water conflicts to negotiate the way towards cooperation.

PC→CP's overall purpose can be reached through the achievement of these following five operational objectives:

- Defining and surveying conflicts in water resources management;
- Monitoring indicators of potential conflicts (PC) and cooperation potential (CP);
- Developing educational material targeting all respective levels;
- Providing decision-support tools, by indicating how best to transform PC into CP;
- Disseminating results and good practices.

PC→CP activities will be guided by these operational objectives and will develop along three major tracks:

- *A disciplinary track*, which will investigate the professional approaches as well as the scientific background to conflict management, water-related negotiations and cooperation building techniques and methods;
- *A case study track*, which will survey and consider a selection of real-world cases of water conflicts and cooperation, in order to draw lessons on both the root causes of such conflicts as well as the successful cooperation in shared water resources management;
- *An educational track*, which will concentrate on how to develop skills for successful management of shared resources, at all levels – from professionals to decision makers. This track will also focus on public information needs.

Parallel to the main activity along the three tracks, PC→CP will create synergies through:

- Joint efforts with other initiatives that have similar goals and objectives – through their involvement in PC→CP's activities;
- Contacts and cooperation with other organizations and (research) projects and programmes that are thematically related to PC→CP.

Disciplinary track

The four-axes approach

The disciplinary analysis will develop along the following four main axes:

- History and future;
- Law;
- Negotiations, facilitation, mediation;
- Systems analysis techniques.

Outputs

The outputs of the different "disciplinary" axes are expected to be the following:

- Think pieces or essays on the history and future of shared water resources;
- A state of the art report on the role of law and institutions in the transition from PC to CP; and another one on the legal protection of water facilities during time of war;
- A report on the negotiations techniques;
- A report on the role of NGOs and the civil society in negotiations;
- State-of-the-art report on the negotiation process in the international context;
- A report on systems analytical techniques and their role in cooperative water resources management;
- Critical analysis of management models of shared water resources.

Case study track

Purpose and scope of the case studies

The case study track analyses "real-world" cases. Several of these will be presented as special case studies and explored in depth, while a broader spectrum of cases will be presented in a "desk study" – based on available publications and references. The case study track can be viewed as the interdisciplinary approach within PC→CP.

In line with the philosophy of PC→CP, the case studies selected are examples of good practices, and rely on existing and evolving institutional mechanisms which facilitate cooperation, rather than on simple descriptions of "what went wrong". The project's objective is not to achieve a full geographical coverage but to prove as much as possible that the transition from PC to CP is realistic.

At the present stage, the following case studies are envisaged for the 2001-2003 period:

- Rhine River basin,
- Aral Sea basin;
- Incomati River basin;

- Mekong River basin;
- Jordan River basin;
- Danube River basin;
- Columbia River basin;
- The Nile River basin.

Outputs

Next to the series of individual case study reports, the most relevant output of the case study track will be the synthesized lessons learned from the various cases, which should then be reflected in the other PC→CP components, especially in the envisaged further phrases of the project.

Educational track

Interaction with the other tracks

The most valuable contribution to future education in water conflict management will come from the other two tracks of PC→CP: the generic research through the disciplinary track and the empirical material elaborated through the case study track. Therefore, the main educational use of PC→CP outputs will follow after the current phase of the project.

The educational track will develop an interface with the present and future users of PC→CP outputs, generate a vehicle for self-instruction of actual and future decision makers, experts, and trainers. It will produce educational tools and the experience gained will be put at the disposal of educational institutions with an interest in water management.

Outputs

The expected outputs of the educational track are the following:

- Design one postgraduate course module on Conflict Prevention, Diplomacy and Cooperation in International Water Resources;
- The module will have an interdisciplinary and inter-active character in which the development of concepts, the promotion of existing approaches and the application of communicative and mediating tools are to be combined. The course will be developed as a 3-week postgraduate course module. It will be conducted as a postgraduate module with full accreditation, with much emphasis on knowledge transfer and skill development. A broad spectrum of didactical forms will be developed: workshops, role-plays, simulation games, meta-plan sessions, lectures, small group works, and field exercises. The target audience includes experts, trainers and postgraduate students;
- On the basis of the above-mentioned course, design a short version (5 days) specifically targeting highly placed decision-makers and diplomats. A broad spectrum of didactical forms will be developed and tested: workshops, role-plays, simulation games, meta-plan sessions, lectures, small group works and exercises. The target audience includes diplomats and decision-makers;
- A postgraduate course module on Conflict Prevention and Cooperation in International River Basin Management;
- The course will have a focus on legal and institutional development, comparative water allocation systems, comparative flood control approaches, development of tools for decision support systems, shared vision development tools, watershed management arrangements. Similar didactical formats will be of use as in the previous course. There will also be emphasis on information exchange and database and knowledge management. The courses will have generic and specific inputs. The specific inputs will be developed regionally under the umbrella of PC→CP. The generic inputs will be received from the other tracks of PC→CP and incorporated in educational materials. The target audience includes postgraduate students, experts and trainers with an interest in integrated water resources management;
- A Professional/Master's certificate in transboundary water management;
- An educational module on participation, conflict management and consensus building for mid level water resources managers and senior executives.

Inputs to the first World Water Development Report (WWDR)

PC→CP will contribute to WWDR with a 15-page document addressing the challenge of sharing water resources, and assessing the legal, negotiation and technical tools available for the prevention and the resolution of water conflicts. This chapter of WWDR will also give a tentative definition of water conflicts and will reflect the spirit of PC→CP showing that the transition from potential conflict to cooperation potential is possible. Finally, a map will show current basins at risk as well as those, which are currently cooperating along with an explanatory background paper on the development of indicators for "basins at risk" with a potential to "stray" into a phase of political friction away from cooperation forms of water resources management.

The Global Environment Facility: forging partnerships and fostering knowledge transfer to sustain transboundary waters in Europe, Central Asia and around the world

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Introduction

Formed in the aftermath of the 1992 Earth Summit in Rio, the Global Environment Facility (GEF) has since emerged as the world's largest single investor in international environmental management. The GEF focuses resources from a triad of international Implementing Agencies – the United Nations Development Programme (UNDP), the United Nations Environmental Programme (UNEP) and the World Bank – to catalyse multi-country, multi-sectoral partnerships for global environmental benefit. Within its International Waters (IW) Focal Area, the GEF helps recipient countries to work together and with donor countries to manage their shared water resources.

The GEF International Waters Focal Area

Countries sharing water resources often face complex water-related environmental problems. To be successful in addressing these transboundary problems, the GEF Operational Strategy, adopted in 1995, recognized that a series of international waters (IW) projects might be needed over time to:

- Build capacity and political commitment of countries to work together;
- Jointly understand and set priorities based on assessments of environmental conditions in waterbodies;
- Identify actions to address the highest priority transboundary problems; and
- Implement agreed regional and national policies, legislative and institutional reforms and attract the investments needed to address them.

The 465 million USD investment made by GEF over the past decade has leveraged a total of 1.05 billion USD in support of 57 approved IW projects. Another 29 GEF IW projects are in preparation. Funds support Nations sharing transboundary basins or marine ecosystems to:

- Cooperate in assessing sources of degradation, establishing priorities (via Transboundary Diagnostic Analysis, TDA);
- Determine and adopt policy, legal and institutional reforms (via a Strategic Action Program, SAP); and
- Test feasibility of investments to address conflicts and reverse degradation.

In essence, this comprehensive approach requires a set of relatively straightforward projects that collectively cover complex situations and activities. This breaks complex challenges up into manageable pieces and fosters action at three institutional levels: multilateral (i.e., multi-country), inter-ministerial and subnational (i.e., essentially provincial and community) levels. Judicious utilization of funding demands an internal GEF programme strategy to ensure that all the necessary institutions are involved and resources are available over timescales consistent with progressively increasing country commitments. In addition, “coordinating mechanism” is needed among the GEF Implementing Agencies (IAs) and the GEF Secretariat (GEFSEC) to ensure that the identification of priorities and appropriate sequencing of interventions actually occurs.

The GEF Operational Strategy and Operational Programs in the International Waters Focal Area were established based on an understanding that fewer resources would be devoted to this Focal Area than to those of biodiversity and climate change. This understanding was reflected in notional funding allocations to the initial ten Operational Programs. It might, correspondingly, be reasonable for the expectations of the overall results within the International Waters Focal Area to be lower than those from the other focal areas. Thus, if International Waters activities had been expected by GEF Council to achieve results more rapidly and thoroughly in relation to economically important cases of serious transboundary ecosystem

degradation, more resources would have to be devoted to specific geographic areas to leverage the political commitments and to accelerate the enormous sectoral changes required. If comparatively lower funding was the dominant priority of the Council, only light-touch catalytic interventions could logically be expected with concomitantly low expectations for reversing environmental degradation.

The GEF Waterbody-based programme (Operational Program 8) incorporates the objective of testing whether the comparative advantages of each of the three Implementing Agencies (IAs) could achieve a reversal in degradation trends in a single geographical area [1]. In other words, could the assignment of increased resources to a single geographical area through the collective involvement of the three IAs accelerate the achievement of measurable environmental improvement as a test case with limited resources? This would be an important learning activity for the world community, namely, whether complex cases of degradation could really be reversed within a modest timeframe. In Europe and North America, such reversals have taken 20-25 years to achieve. It would test whether the GEF could utilize the lessons learned and help focus donors' development assistance to reducing this time by perhaps 50% in recipient countries. Thus, Operational Program 8 essentially set an objective for GEF to program sufficient resources in a single geographical area to implement the GEF Operational Strategy in an accelerated manner.

Testing the geographically based programmatic approach

Through discussions within the GEF's International Waters Task Force [2] (IWTF), the Danube River and Black Sea region was chosen as a test geographic area. The selection of this region was based on:

- The history and maturity of progressive GEF and donor involvement;
- Expressed recipient Government commitments to making necessary reforms and investments in support of waterbody-specific conventions; and
- The availability of historical monitoring information to provide a baseline against which to gauge improvements.

In the Chief Executive Officer's address at the GEF retreat in Baltimore in 1998, the development of programmatic approaches was welcomed. This provided increased incentives for the IWTF and the IAs to implement the programmatic approach specified in the Operational Strategy. Moreover, the policy initiatives message of the Chief Executive Officer (CEO) of January 1999, advocating that the GEF focus on results and impacts, spurred the International Waters Task Force to move to develop the Danube River and Black Sea basin programmatic approach and to discuss it with the participating countries during 2000. By the time of the Istanbul Stocktaking Meeting on the programmatic approach in June 2000, the three IAs and the GEFSEC had achieved the development of the approach within the three-year timeframe specified in Operational Program 8.

Danube/Black Sea Basin Strategic Approach

The twenty-two countries [3] in the drainage basin of the Black Sea face a variety of shared environmental problems that are largely transboundary in nature. Through a series of GEF-assisted projects, these countries have determined that excessive releases of nutrients from agricultural, municipal and industrial sources are the highest priority transboundary water problem that they share. Excessive fluxes of nitrogen and phosphorus in rivers create polluted conditions in the Danube Delta and the Black Sea that have seriously compromised resources, amenities and biological diversity. Beginning in the GEF Pilot Phase, the Danube Basin countries and the six countries surrounding the Black Sea decided to work together with

[1] *GEF Operational Programs*, paragraph 8.5e.

[2] The International Waters Task Force consists of representatives from the GEF Secretariat and from each Implementing Agency.

[3] The six littoral Black Sea states are Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine. Sixteen additional countries in the Black Sea basin include: Albania, Austria, Belarus, Bosnia and Herzegovina, Croatia, the Czech Republic, Germany, Hungary, Italy, Poland, Republic of Moldova, Slovakia, Slovenia, Switzerland, The former Yugoslav Republic of Macedonia and Yugoslavia. For more information, see the Overview of the Black Sea-Danube Partnership (http://www.worldbank.org/blacksea-danube) and the Global International Waters Assessment (GIWA) report for the Black Sea (http://www.giwa.net/areas/black_sea_model_report/index.htm). The GEF supports both of these initiatives.

support from the European Union and the GEF on a series of international waters projects. A series of small projects has supported in progressive fashion increased country commitments to action. The projects resulted in the countries learning to work together, assigning priorities to transboundary problems and mutually agreeing on interventions needed to address the highest priority problems through "Strategic Action Programs" (SAPs).

The Danube Basin SAP and the Black Sea SAP are now ready for implementation by the countries according to GEF Operational Program 8 of the International Waters Focal Area. Incremental cost financing is needed to resolve the priority transboundary issues. To accelerate implementation of the SAPs, a geographically based programmatic approach was developed among the IAs, the participating countries and the GEFSEC. The approach includes a variety of interventions, including two final regional projects through UNDP (with the assistance of UNEP in one of them) for Black Sea and Danube basin countries to support incremental costs of policy/legal/institutional reforms and a novel "Partnership Investment Fund" with the World Bank on nutrient reduction (principally nitrogen focused) in the agricultural, municipal and industrial sectors. The GEF Council approved the first tranche in May 2001. The second tranche of the Partnership Investment Fund was endorsed by the GEF Council at its May 15-17, 2002 meeting. [4]

The Strategic Partnership represents the World Bank's commitment to assist the 15 recipient countries in the basin in implementing the two Strategic Action Programs addressing, as the highest transboundary priority, nutrient reduction. This partnership is designed to mobilize at least $210 million non-GEF funding for on-the-ground nutrient reduction investments. The investment produces a leverage of 3:1 through the provision of 70 million USD to the World Bank in three tranches over a 6-year period. The Chief Executive Officer has delegated approval authority to speed implementation of sub-projects under the Partnership. This would be done by:

- Incorporating in the dialogue with each of the 15 GEF-recipient countries policies that address nutrient reduction in the agricultural, municipal and industrial sectors;
- Promoting inclusion of Danube/Black Sea restoration issues in the ongoing Country Assistance Strategy (CAS) development processes; and
- Using the convening powers and comparative advantage of the World Bank to mobilize funding and engage other donors/partners to achieve an overall contribution of 3 USD from other sources for each 1 USD contributed by the GEF for nutrient reduction measures.

Replication of demonstration projects would be expected through country requests to the World Bank and other sources.

This programmatic approach is relatively simple. As suggested by the countries, there would be two final regional international waters projects to assist the Danube basin and Black Sea countries respectively in focusing on implementing the reforms and, where necessary, building capacity to enact the reforms consistently with the basin conventions the countries have signed and the Strategic Action Programs the countries have adopted. The two regional projects, led by UNDP but in one case having components under the responsibility of UNEP, would complement the separate, already approved, Dnieper basin project also being led by UNDP (third component). The fourth component in this approach is a proposed GEF/World Bank Partnership Investment Fund for Nutrient Reduction. This translates the multilaterally-agreed priority of nutrient reduction (especially nitrogen loading reductions) into single country World Bank operations that help to leverage additional funding and accelerate the implementation of investments for nutrient reductions in the agricultural, municipal and wetland restoration areas. Various other activities through EU accession contribute to this approach, which essentially helps address country commitments under the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities and the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Finally, GEF has programmed a number of other complementary projects in the Black Sea, Danube and Dnieper basins that can help contribute to this globally significant test. If successful, the GEF Council may wish to consider expanding this to other areas in the future.

[4] See Agenda Item 8 of the GEF Council Meeting summary (http://gefweb.org/Joint_Summary_of_the_Chairs_-_FINAL.pdf). Further status reports on the Partnership Investment Fund are available via the Overview of the Black Sea-Danube Partnership web site.

GEF International Waters projects in Europe and Central Asia

Table 1 provides a summary of the different GEF projects that have been completed, are underway, or under preparation in the UNECE region. One should note the concentration of different small projects in the Danube/Dnieper/Black Sea basin that reflects this one Council-authorized test of such a programmatic approach. Across Europe and Central Asia, the GEF is supporting a dozen projects currently under development or implementation. Their focus spans lakes (e.g. Lake Peipsi and Lake Ohrid), rivers (e.g. Danube River and Dnieper River basin), large marine ecosystems (e.g. Baltic Sea, Black Sea, Caspian Sea and Mediterranean Sea) and the Arctic Ocean.

Project development generally begins with conducting a Transboundary Diagnostic Analysis (TDA) of the waterbody's priority transboundary environmental challenges and their root causes. The TDA effort contributes to the formulation of a Strategic Action Program, detailing how countries will cooperate in undertaking policy/legal/institutional reforms regionally and individually and investments to address these transboundary priority challenges. Through this process, the GEF IW projects build stakeholder commitment and coordination among riparian countries, both essential to implementing the SAP. Project development also often includes one or more demonstration activities involving local, national and/or international partnerships. Successful demonstrations may be sustained, enlarged or replicated during a project's implementation phase. The GEF aims for implemented projects to generate sufficient momentum to eventually become self-sustaining.

A variety of GEF-supported issue-specific and capacity building International Waters projects operate on the global scale with component activities in Europe and Central Asia. GloBallast, for instance, addresses the issue of inter-basin transmission of invasive aquatic species in ships' ballast water – including through demonstration activities in the Black Sea area. Examples of GEF capacity-building projects with involvement in this region include the Global International Waters Assessment [5] (GIWA), TRAIN-SEA-COAST [6] and, as detailed below, the International Waters: Learning Exchange and Resource Network (IW:LEARN).

The GEF recognizes that any given recipient country may not initially have sufficient local technical resources or expertise to fully develop or implement an International Waters project. Further, mature IW projects have experiences and lessons learned that could help newer projects to proceed more efficiently or effectively than their predecessors. To facilitate such learning and knowledge sharing among International Waters projects, the GEF created IW:LEARN.

The GEF IW:LEARN Project

IW:LEARN aims to build a "global knowledge community" to sustain Earth's transboundary water resources. Specific services provided to foster this International Waters community of practice include:

- Facilitated face-to-face and electronic forums between IW managers and stakeholders to identify and address priority transboundary waters management needs at the local, national, regional and global scale;
- Synthesis of "knowledge products" (e.g. articles, guidelines, distance education modules) gleaned from instructive experiences and lessons learned in order to address to these needs;
- Dissemination of these knowledge products via both on-line and off-line electronic media as well as through face-to-face workshops and outreach activities;
- Development of on-line and standalone electronic "resource centres" to provide wide access to these knowledge products and related knowledge resources (e.g. IW project profiles, tools, best practices, community news, events, etc.) via both electronic and traditional media (e.g. paper, radio, etc.);

[5] GIWA is a water programme led by UNEP that aims at producing a comprehensive and integrated global assessment of international waters, the ecological status of, and the causes of environmental problems in 66 water areas in the world, as well as at focusing on the key issues and problems facing the aquatic environment in transboundary waters.

[6] The TRAIN-SEA-COAST Programme is an inter-country cooperative training network composed of training/educational centres in developing countries, countries in transition and developed countries that aims at strengthening the capabilities of institutions and individuals having responsibilities in the field of coastal and ocean management.

- Collaboration with International Waters projects to test and evaluate emerging Information and Communications Technologies (ICTs) and processes to advance transboundary water management;
- Needs-based technical assistance to IW projects to apply such ICTs to increase effectiveness of transboundary communication and coordination both within and between projects;
- Workshops for IW personnel to develop and replicate all the above products, services and tools to meet their own transboundary waters management needs; and
- Establishment of regional support facilities to assist personnel in the development of these products and services to foster additional regional and thematic knowledge communities for the benefit of IW projects in their region.

IW:LEARN has supported forums and dialogs among over 200 participants of International Waters projects and their civil society counterparts at the global scale, as well as regionally in the Latin America and Caribbean, East Asia and European regions, and locally in Southwestern Africa. Its knowledge products have been synthesized into a distance Masters degree pilot programme in international development with focus on international waters – with 5 graduates and numerous applicants for the next cohort. Two on-line resource centres have been deployed by IW:LEARN and its partners: the "International Waters Resource Centre" (http://www.iwlearn.net) as well as a local transboundary "Distance Learning and Information Sharing Tool" (DLIST) along the Benguela Current coastal zone in Namibia and South Africa (http://www.dlist.org). Both web sites provide original content and knowledge resources to support transboundary waters management needs via the World Wide Web.

Through Information and Communications Technologies (ICT) workshops, IW:LEARN has trained andrecruited over 40 International Waters information systems specialists and public information officers into its ongoing Implementation Team (the "I-team"). The I-team functions via the Internet as a peer-to-peer focus group and technical assistance community between GEF and other International Waters projects. I-team members also assist their projects and partners to utilize emerging ICTs, such as instant messaging and Internet-based telephony, where appropriate, to advance their respective transboundary water management objectives. The I-team will also contribute to the development of regional IW:LEARN support facilities in Latin America and the Caribbean, Africa, the Middle East and elsewhere.

With sufficient regional interest and involvement, specific GEF IW:LEARN activities – distance learning, knowledge sharing, and technical capacity building – could be applied to benefit transboundary waters management across Europe and Central Asia. So doing will also create a regional instance of GEF IW:LEARN's global knowledge community to sustain Earth's transboundary water resources. This process was launched with a seven person meeting of regional GEF projects and partners at the Second International Conference on Sustainable Management of Transboundary Waters in Europe (in Miedzyzdroje, Poland on April 22, 2002). The authors look forward to working with these projects and the European IW community as a whole to realize these goals.

The authors wish to thank the GEF International Waters projects, their cooperating agencies, participating countries and organizations that collectively contributed to this synthesis of knowledge on the GEF's International Waters portfolio in Europe and Central Asia.

Table 1. GEF International Waters projects in the UNECE region

Project Title	GEF Financing	Participating Countries	Imple-menting Agency
I. Danube/Black Sea Basin Programmatic Approach			
Black Sea Environmental Program (BSEP)	$349,920	Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine	UNDP, UNEP
Black Sea Strategic Action Program (BSSAP)	$1,798,000	Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine	UNDP
Building environmental citizenship to support transboundary pollution reduction in the Danube: a pilot project in Hungary and Slovenia	$750,000	Hungary, Slovenia	UNDP

Project Title	GEF Financing	Participating Countries	Imple-menting Agency
Control of eutrophication, hazardous substances and related measures for rehabilitating the Black Sea ecosystem: Phase I	$4,350,000	Bulgaria, Romania, Georgia, Russian Federation, Turkey, Ukraine	UNDP, UNEP
Danube regional project: strengthening the implementation capacities for nutrient reduction and transboundary cooperation in the Danube River basin	$750,000	Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Republic of Moldova, Romania, Slovakia, Slovenia, Ukraine, Yugoslavia	UNDP
Danube River basin environmental management	$8,500,000	Austria, Hungary, Slovenia, Czech Republic, Slovakia, Bulgaria, Romania, Republic of Moldova, Ukraine, Germany	UNDP
Developing the Danube River pollution reduction programme	$4,190,000	Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Republic of Moldova, Romania, Slovakia, Slovenia, Ukraine, Yugoslavia	UNDP
GEF strategic partnership for the Danube/Black Sea basin	$16,000,000	Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine	UNDP, UNEP
Nutrient reduction project – strategic partnership for nutrient reduction in the Danube River basin and the Black Sea	$7,500,000	Hungary	World Bank
Nutrient reduction programme – regional project for the Black Sea	$349,920	Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine	UNDP, UNEP, World Bank
Black Sea agricultural pollution control project	$5,500,000	Romania	World Bank
Danube pollution reduction programme – financing pollution projects by local financial intermediaries	$87,000	Slovenia	World Bank
Transfer of Environmentally Sound Technology (TEST) in the Danube River basin	$990,000	Bulgaria, Croatia, Hungary, Romania, Slovakia	UNDP
Dnieper River basin strategic action programme	$7,000,000	Belarus, Russian Federation, Ukraine	UNDP
II. Baltic Sea Large Marine Ecosystem			
Baltic Sea regional project	$5,850,000	Estonia, Latvia, Lithuania, Poland, Russian Federation	World Bank
Rural Environmental Protection Project (REPP)	$3,000,000	Poland	World Bank
III. Mediterranean Large Marine Ecosystem			
Priority actions for the further elaboration and implementation of the strategic action programme for the Mediterranean Sea	$6,240,000	Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Lebanon, Morocco, Slovenia, Syria, Tunisia, Turkey	UNEP
IV. Caspian Sea Basin			
Addressing transboundary environmental issues in the Caspian Environment Programme (CEP)	$7,989,120	Azerbaijan, Islamic Republic of Iran, Kazakhstan, Russian Federation, Turkmenistan	UNDP, UNEP, World Bank

Project Title	GEF Financing	Participating Countries	Imple-menting Agency
Regional partnership for prevention of transboundary degradation of the Kuraand Araks Rivers	$ 5,000,000	Armenia, Azerbaijan, Georgia, Islamic Republic of Iran, Turkey	UNDP
V. Aral Sea Basin			
Water and environmental management in the Aral Sea basin	$12,233,570	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan	World Bank
VI. Lake Basins			
Lake Ohrid conservation project	$4,100,000	Albania, The former Yugoslav Republic of Macedonia	World Bank
Development and implementation of the lake Peipsi/Chudskoe basin management programme	$1,000,000	Estonia, Russian Federation	UNDP
VII. Arctic Ocean			
Persistent toxic substances, food security, and indigenous peoples of the Russian North	$750,000	Russian Federation	UNEP
Support to the national plan of action for the protection of the Arctic marine environment from anthropogenic pollution in the Russian Federation	$6,191,000	Russian Federation	UNEP, World Bank
VIII. Other			
Integrated water and ecosystem management project	$4,630,000	Albania	World Bank
Agricultural development project	$8,860,000	Georgia	World Bank
Integrated ecosystem management in the transboundary Prespa park region	$8,000,000	Albania, The former Yugoslav Republic of Macedonia, Greece	UNDP
Agricultural pollution control project	$30,000	Republic of Moldova	World Bank
Upgrading of Chisinau waste-water treatment plant	To be determined	Republic of Moldova	World Bank
Wetland restoration and pollution reduction	$350,000	Bulgaria	World Bank
Agricultural pollution control project	$300,000	Turkey	World Bank

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