

United Nations Economic Commission for Europe



Convention on the Protection and Use of Transboundary Watercourses
and International Lakes

**PROCEEDINGS
OF THE SECOND INTERNATIONAL CONFERENCE**

**SUSTAINABLE MANAGEMENT
OF TRANSBOUNDARY WATERS IN EUROPE**

Poland, Międzyzdroje, 21-24 April 2002

Edited by
Francesca Bernardini
Małgorzata Landsberg-Ucziwek
Sirkka Haunia
Martin Adriaanse
Rainer Enderlein

This publication is also available on the web site of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes at <http://www.unece.org/env/water/>.

This publication may be freely quoted or reprinted but acknowledgement of the source is requested.

ISBN : 9036954800
Printed by : ComGraph, Szczecin, Poland
Published : January 2003

Programme Committee

Małgorzata Landsberg-Uczciwek - Chairperson

Voivodeship Inspectorate of Environmental Protection in Szczecin, Poland

Martin Adriaanse

IWAC, Netherlands

Roger Aertgeers

WHO/EURO

Françoise Belmont

UNEP/ROE

Pawel Blaszczyk

Environmental Protection Institute, Poland

Wim Cofino

IWAC, Netherlands

Rainer Enderlein

UNECE

Sirkka Haunia

Finnish Environment Institute, Finland

Gulnara Roll

Peipsi Centre for Transboundary Co-operation, Estonia

Thomas Stratenwerth

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany

Manuel Varela

Ministry of the Environment, Spain

Carel de Villeneuve,

Ministry of Transport, Public Works and Water Management, Netherlands

Organizing Committee

Czesław Więckowski

Ministry of the Environment, Poland

Piotr Rutkiewicz

Ministry of the Environment, Poland

Andrzej Kreft

Regional Water Management Board in Szczecin, Poland

Lech Pieczyński

Voivodeship Fund of Environmental Protection and Water Management, Szczecin, Poland

Ireneusz Lewicki

Wolin National Park, Poland

Tomasz Szczygielski

Economic Information Bureau, Szczecin, Poland

Małgorzata Landsberg-Uczciwek

Voivodeship Inspectorate of Environmental Protection in Szczecin, Poland

Editorial Board

Francesca Bernardini

UNECE

Malgorzata Landsberg-Ucziwek

Voivodeship Inspectorate of Environmental Protection in Szczecin, Poland

Sirkka Haunia

Finnish Environment Institute, Finland

Martin Adriaanse

IWAC, Netherlands

Rainer Enderlein

UNECE

Acknowledgement

The editors would like to express their deep gratitude to all of those whose efforts made the preparation of these Proceedings possible, through contribution to the Conference, review of drafts, hosting and financial support, in particular the Ministry of the Environment of Poland, the Ministry of the Environment 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, whose financial assistance allowed the publication of these Proceedings.

Preface

Five years after the first International Conference on Sustainable Water Management in Europe, held in Mrzeżyno in 1997, we meet again in Poland to discuss and develop ideas on how to better manage water resources in a transboundary context. We meet at a time when freshwater scarcity and pollution affects larger and larger areas. Shortage of water is reported in every continent. 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 alone, 120 million people, i.e. one in seven of the population, do not have access to safe drinking water and adequate sanitation.

We have already recognised the major reasons for freshwater scarcity and its worsening quality, on the one hand, and catastrophic floods, on the other: climate change, non-sustainable use of water, discharge of untreated municipal and industrial waste water, and run-off and leakage from over-fertilised agricultural areas that pollute surface waters and groundwaters.

The Rio Declaration on Environment and Development identified 27 principles for sustainable development. Although none of these principles explicitly addresses freshwater, each principle has a direct bearing on sustainable water management and its transboundary dimension.

Indeed, the Rio principles related to human rights to a healthy and productive life in harmony with nature, sovereignty of States to exploit their own resources and the responsibility to ensure that these activities do not cause damage to the environment of other States, international cooperation and partnership to protect the health and integrity of ecosystems, changing consumption and production patterns, capacity-building and exchange of scientific and technological knowledge, public participation, development of adequate legal instruments including liability for caused damage, and the precautionary and polluter-pays principles should form the basis for water management at the local, national and transboundary levels, as well as for regional and global governance.

I am confident that this Conference will discuss the application of the Rio principles in everyday practice. In particular, I hope that special emphasis will be put on water law and its enforcement, public participation, building democratic institutions for water management, water pricing, and exchange of scientific and technological knowledge.

The UNECE region is in a privileged situation, as its climate conditions, economic capacity and technological development “soften” the problems, which are graver in other parts of the world. However, water scarcity is growing, and floods and other extreme hydrological events become more frequent, particularly in the Eastern part of the region, and water-related diseases are not yet eradicated.

Fortunately, the UNECE region recognised already in the 1960’s the necessity of international cooperation in the area of water management. The 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which now celebrates its 10th anniversary, was one of the major achievements. Work under the UNECE Water Convention has resulted in the adoption of a Protocol on Water and Health and gave rise to subregional cooperation agreements, such as the Danube River Protection Convention. In parallel with the drawing up of the Convention, other agreements have been developed, including the 1992 Agreement between Germany and Poland on cooperation in the field of water management at border waters. A Protocol on civil liability for damage to transboundary waters caused by hazardous activities, which is a consequent follow-up to the Rio principles 13 and 16, is currently under negotiation. Finally, since our first Conference, many new bilateral agreements have been signed between the States in the UNECE region.

Over decades, Poland had only three neighbours. Since the fall of the “iron curtain”, we are sharing our waters with seven other countries. For Poland, being both a downstream and an upstream country and bordering the Baltic Sea, cooperation on water management ranks high on the agenda of international cooperation.

This cooperation entails sharing natural resources, developing and implementing joint policies on the protection and use of these waters and joint communication networks, in order to achieve a sustainable use of

waters and prevent disputes over joint resources. It also means sharing experiences with other countries, river commissions and experts on legal, administrative, economic and technical issues.

Poland is proud of its achievements in the area of water-quality improvements and the ever increasing investments to protect waters and use them in a sustainable way. Visiting us 5 years after the Mrzeżyno Conference, you can compare the quality of our waters and study the progress achieved.

We are meeting in Poland just between two global water conferences: the International Conference on Freshwater (Bonn, December 2001) and the Third World Water Forum (Kyoto, March 2003), which brought and will bring up new challenges. We also have to implement new Directives of the European Union, such as the Water Framework Directive. And we do have to develop recommendations for a long-term strategy under the Water Convention. I am convinced that these important developments and facts will influence your deliberations and will give rise to a set of recommendations for our joint future work.

Stanisław Żelichowski

Minister of the Environment of the Republic of Poland

List of abbreviations

ASCE	American Society of Civil Engineers
BSEP	Black Sea Environmental Programme
CSCE	Commission for Security and Cooperation in Europe
ECA	Economic Commission for Africa
EEA	European Environment Agency
ESCWA	Economic and Social Commission for Western Asia
ETC/IW	European Topic Centre on Inland Waters
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GEMS	Global Environment Monitoring System
GIWA	Global International Waters Assessment
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
GWP	Global Water Partnership
HELCOM	Helsinki Commission - Baltic Marine Environment Protection Commission
IAEA	International Atomic Energy Agency
IAH	International Association of Hydrogeologists
IHP	International Hydrological Programme of UNESCO
IMO	International Maritime Organization
INWEH	International Network on Water, Environment and Health of UNU
IUCN	World Conservation Union
IWAC	International Water Assessment Centre
IWMI	International Water Management Institute
NATO	North Atlantic Treaty Organisation
NIS	Newly independent States
OCSE	Organization for Security and Co-operation in Europe
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNEP/ROE	Regional Office for Europe of the United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNU	United Nations University
WFD	Water Framework Directive
WGMA	Working Group on Monitoring and Assessment
WHO	World Health Organization
WHO/EURO	Regional Office for Europe of the World Health Organization
WMO	World Meteorological Organization
WWAP	World Water Assessment Programme
WWF	World Wide Fund for Nature

CONTENTS

Programme Committee

Organizing Committee

Editorial Board

Acknowledgement

Preface

List of abbreviations

**SECOND INTERNATIONAL CONFERENCE ON SUSTAINABLE MANAGEMENT
OF TRANSBOUNDARY WATERS IN EUROPE 15**

Cooperation on transboundary waters: a challenge for Europe and other regions in the world
Kaj Bärlund 21

**The UNECE Convention on the Protection and Use of Transboundary Watercourses
and International Lakes: the path ahead**
Lea Kauppi and Sirkka Haunia 29

**The Protocol on Water and Health - Europe's first legally binding instrument to combat
water-related diseases**
Roberto Bertollini and Roger Aertgeerts 33

UNEP water strategy
Françoise Belmont 45

Potential Conflict to Co-operation Potential: a challenge to water management
Janos J. Bogardi 49

**The Global Environment Facility: forging partnerships and fostering knowledge transfer
to sustain transboundary waters in Europe, Central Asia and around the world**
Dann Sklarew and Alfred M. Duda 55

SESSION I

INTEGRATED APPROACH TO TRANSBOUNDARY WATER MANAGEMENT

**UNEP Global Programme of Action and the UNECE Convention on the Protection
and Use of Transboundary Watercourses and International Lakes**
Martin Adriaanse 65

SESSION I a. INTEGRATION: A CONCEPT WITH MANY FACETS

Dealing with conflicting uses at Lake Constance
Michael Becker 73

Integrated Disaster Preparedness and Sustainable Development Programme for the Tisza River Basin (SDP TRB) Kálmán Morvay and Péter Varga	77
Lake Ohrid Conservation Project - a model for integrated management of transboundary waters Jove Kekenovski, Lirim Selfo, Dejan Panovski and David Read Barker	83
Developing guidelines for monitoring and assessment of transboundary lakes Pertti Heinonen	91
Comprehensive Transboundary International Water Quality Management Agreement Conrad G. Keyes, Jr. and Mark W. Killgore, P. E.	97

SESSION I b. BEYOND FRESHWATER MANAGEMENT: LEARNING FROM OTHERS

Beyond freshwater management - integrating environment and development in coastal lagoon and wetlands areas: lessons learned from the Helsinki Commission's (HELCOM) Management Plans for Coastal Lagoons and Wetlands (MLW) project Henrik Dissing	105
Sustainable development of Wolin Island Urszula Jakuczun	113
Impact of river basin management on the Baltic Sea: ecological and economical implications of different nutrient load reduction strategies Gerald Schernewski and Thomas Neumann	125
Connecting rivers and seas - the Danube/Black Sea experiment Laurence Mee	131
Recreational water quality and human health in the Caspian region Kathy Pond, Aidan A. Cronin and Steve Pedley	141
Cooperation in the framework of the Mediterranean Action Plan Highlights of municipal waste-water treatment plants in the Mediterranean George Kamizoulis	153
Integrating wetland conservation and wise use into river basin management Tobias Salathé	161

SESSION II INFORMATION AND COMMUNICATION: BRIDGING GAPS BETWEEN ACTORS

From monitoring to tailor-made information Wim P. Cofino and C.M. Lorenz	171
The use and valuing of environmental information in the decision-making process: an experimental study Jos G. Timmerman, Geoffrey D. Gooch, Kai Kipper, Andrus Meiner, Sandra Mol, David Nieuwenhuis, Gulnara Roll, Margit Säre, Ülo Sults and Peeter Unt	177

SESSION II a. ADEQUATE INFORMATION

Lessons learned from pilot projects under the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes	
Martin Adriaanse	189
Bug surveys: an initiation of transboundary cooperation	
Malgorzata Landsberg-Uczciwek and Teresa Zan	195
Risk assessment as a tool for policy makers	
Peter Rončák, Juliana Adamková and Miroslava Metelková	205
Projects on transboundary rivers - Criteria for water-quality assessment between countries	
Ferenc László	211
On the collection and use of environmental information in transboundary water management: the case of Lake Constance	
Susanna Nilsson and Sindre Langaas	215

SESSION II b. INVOLVEMENT OF RIGHT INSTITUTIONS AND PEOPLE

Public participation in a sub-basin of the River Scheldt - the Scheldt estuary	
Jozef van Hoof and Carel de Villeneuve	227
Public access to information and participation in decision-making in local, national and transboundary contexts: experience of MAMA-86's drinking-water campaign	
Anna Tsvetkova	235
Strategies for public participation in the management of transboundary waters in countries in transition	
Gulnara Roll, Oliver Avramoski, Margit Säre and Piret Uus	243
Institutional challenges for ensuring active involvement of the public in the implementation of the EU Water Framework Directive	
Henrik Dissing	253

SESSION III

CHALLENGES TO WATER MANAGEMENT AND FRAMEWORK FOR ITS MODERNISATION

Achievements and prospects of the water law process in the UNECE region	
Attila Tanzi	263
Management of transboundary aquifers: contribution of the UNECE Water Convention to the Internationally Shared (Transboundary) Aquifer Resources Management (ISARM) programme	
Shammy Puri and Geo E. Arnold	279

SESSION III a. STRUCTURAL AND ECONOMIC DEVELOPMENTS

Review of existing structures, models and practices for transboundary water management in Europe - The implementation of transboundary water management - identification of present problems and a design for future research

Geoffrey D. Gooch, Pär Höglund, Gulnara Roll, Evelin Lopman and Natallia Aliakseyeva 285

Investment vehicles for small and medium enterprises

Esther Park 295

Which role for economics in the implementation of the EU Water Framework Directive?

Arnaud Courtecuisse 299

Adapting the law of water management to global climate change: an American perspective

Joseph W. Dellapenna 315

A transboundary approach to mitigating total dissolved gas in the Columbia River basin

Mark W. Killgore, P.E. 325

The present structure and development scenarios of Lake Peipsi fish resource use - an Estonian perspective

Markus Vetemaa, Margit Eero, Toomas Saat and Aija Kosk 331

SESSION III b. LEGAL AND INSTITUTIONAL ARRANGEMENTS

The Aarhus Convention: a new instrument promoting environmental democracy

Jeremy Wates and Ljiljana Stancic 341

Creating networks within and outside the UN family for enhanced cooperation: use, management and protection of internationally shared aquifers in the Mediterranean region

Mohammed Al-Eryani, Bo Libert, Stephen M. Donkor and Branko Bosnjakovic 349

Joint Transboundary Water Commission (TWC) - Slovak-Hungarian Water Quality Working Group

Milan Matuska, Jarmila Makovinska, György Simonfai and Ferenc László 353

Developing transboundary cooperation on the Zapadnaya Dvina/Daugava River basin

Evgeny Zybin 363

The discharge rule of Lake Saimaa and River Vuoksi: issues for transboundary cooperation

Markku Ollila 365

Cooperation in the Meuse River basin

Sander Bastings 371

SESSION IV

EUROPEAN UNION LEGISLATION AND THE WATER CONVENTION

Water management in Poland in the light of the EU Water Framework Directive

Andrzej Kreft 381

Preventive conflict management in the context of implementing the EU Water Framework Directive in the Oder River system

Jürgen Hafemann 385

Water-quality criteria according to the EU Water Framework Directive: how do they work in Lake Peipsi?	
Peeter Nõges, Tiina Nõges, Juta Haberman, Külli Kangur, Andu Kangur, Peeter Kangur, Reet Laugaste, Helle Mäemets, Ingmar Ott, Henn Timm, Vyacheslav Yastremskij and Taavi Virro	393
Protected areas and directly dependent water and terrestrial ecosystems as a component of integrated approach to river basin planning and management	
Joerg Janning	403
The EU list of priority substances - a new strategy against water pollution	
Bernd Mehlhorn	409
Inventory analysis of groundwater in the German part of the Oder River Basin District according to the EU Water Framework Directive	
Marco Meinert	415
Heavy metals in the upper and middle Oder river system - Recommendations for transboundary river chemical monitoring	
Edeltrauda Helios-Rybicka, Ewa Adamiec and Marian Skwarczek	419
POSTERS	
LakeNet: Promoting sustainable management of lakes in the UNECE region and beyond	
Lisa Borre and David Read Barker	437
International cooperation in the Danube basin	
Zsuzsa Buzás	441
Eutrophication by the Oder River: implications for tourism and sustainable development of the coastal zone	
Tobias Dolch and Gerald Schernewski.....	449
Tourism as an economic factor along the Baltic coast	
Balance of water availability and water demand in large river basins - Methodology demonstrated in a pilot study for the Danube River	
Irina Dornblut	453
Water management problems related to borderline waters of the Nysa Łużycka River basin	
Alfred Dubicki	455
Pilot project on environment and health rapid risk assessment in secondary rivers of the mean and lower Danube basin - Methodology and application	
Bruno Frattini and Neil Manning	465
Bilateral Latvian-Lithuanian Lielupe River Watershed Management Demonstration Project, 2000 – 2002	
Normunds Kadikis, Dzidra Hadonina, Aldona Margeriene, Raimundas Sakalauskas	471
How to influence more effectively? Public participation: legal basis and new technologies	
Galina Kapanen	475
Computerised decision support tools in water management - a selective overview	
Ryszard Kościacz	479

Status of Estonian rivers in the Lake Peipsi basin	
Loigu, E., Leisk, Ü., Olli, K., Pall, P., Timm, H., Järvekülg, A., Viik, M., Porgassaar, M., Nõges, T.	483
Improvement of ecological situation of Vistula Lagoon.	
Anders Malmgren-Hansen, Erik Koch Rasmussen, Boris Czubarenko, Halina Burakowska, Andrzej Lewandowski	491
European Centre for River Restoration (ECRR) and its importance for transboundary water management	
U. Menke and M.J.R. Cals	495
Mobilization of pollutants from Oder River sediments	
Albrecht Müller	497
Reduced nitrogen loading enhances cyanobacterial blooms in Lake Peipsi	
Nõges, T., Blinova, I., Jastremski, V., Laugaste, R., Loigu, E., Skakalski, B., Tõnno, I.	501
Review of water quality in some areas of the littoral region of Lake Ohrid	
Vera Novevska, Trajce Naumoski	505
Mercury in bottom sediments of port basins and canals in the Oder estuary	
Mikołaj Protasowicki, Edward Niedźwiecki	509
Reconstruction of proper wetland management in the case of Czarnocin Basin	
Kazimierz Rabski	513
Water quality problems in Baltic coastal waters: the Oder River as a source of human pathogenic viruses	
Gerald Schernewski, Iwan Tejakusuma, Timo Huttula, Wolf-Dieter Jülich and Victor Podsechin	515
An integrated approach for a research project on management of transboundary waters in the EU-border region	
Per Stålnacke, Geoffrey Gooch, Sindre Langaas and Gulnara Roll	521
Investigation of cyprinid spawning grounds and conditions for sustainable fish management of transboundary lake Ohrid	
Trajce Talevski and Marina Talevska	531
Phosphatase activity as an additional parameter for water assessments in the littoral region of Lake Ohrid	
Angela Vasileska and Vera Novevska	539
A new approach to estimate eutrophication - Results from the EU-project SIGNAL	
Maren Voss, Marianna Pastuszak, Stanislaw Sitek and Constanze Stegemann	543
Impact of the Oder River nutrient load reductions on the trophic state of the Szczecinski Lagoon - A modeling approach	
Magdalena Wielgat and Gerald Schernewski	547
Organic pollution in the Oder River	
Lidia Wolska and Jacek Namieśnik	551
Competition of interests in the Niger River basin (Mali)	
Leo Zwarts	555
LIST OF PARTICIPANTS	557