

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT



INLAND WATERWAYS & ENVIRONMENTAL PROTECTION



EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT



INLAND WATERWAYS & ENVIRONMENTAL PROTECTION



Ministerie van Verkeer en Waterstaat

Transport en Luchtvaart



EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT (ECMT)

The European Conference of Ministers of Transport (ECMT) is an inter-governmental organisation established by a Protocol signed in Brussels on 17 October 1953. It comprises the Ministers of Transport of 43 full Member countries: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, FRY Macedonia, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. There are seven Associate member countries (Australia, Canada, Japan, Korea, Mexico, New Zealand and the United States) and one Observer country (Morocco).

The ECMT is a forum in which Ministers responsible for transport, and more specifically the inland transport sector, can co-operate on policy. Within this forum, Ministers can openly discuss current problems and agree upon joint approaches aimed at improving the utilization and at ensuring the rational development of European transport systems of international importance.

At present, ECMT has a dual role. On one hand it helps to create an integrated transport system throughout the enlarged Europe that is economically efficient and meets environmental and safety standards. In order to achieve this, it is important for ECMT to help build a bridge between the European Union and the rest of the European continent at a political level.

On the other hand, ECMT's mission is also to develop reflections on long-term trends in the transport sector and to study the implications for the sector of increased globalisation. The activities in this regard have recently been reinforced by the setting up of a New Joint OECD/ECMT Transport Research Centre.

Also available in french under the title:

Voies navigables et protection de l'environnement

Further information about the ECMT is available on Internet at the following address:

www.cemt.org

© ECMT 2006 – ECMT Publications are distributed by: OECD Publications Service,
2, rue André Pascal, 75775 PARIS CEDEX 16, France

ACKNOWLEDGEMENTS

In discussions on policies to improve the sustainability of their sector, transport Ministers sometimes express frustration that plans to develop waterways face public opposition even though waterborne traffic is normally seen as an environmentally preferable alternative to road or rail haulage. Expansion and development of waterways can have significant environmental impacts, even if good project design can mitigate or compensate for damage. But perhaps the most important factor in engendering resistance to waterway investments has been the frequent failure to consult effectively with NGOs and the public and involve them in planning and development decisions.

This report reviews experience in mitigating the environmental impacts and developing effective consultation and planning procedures across Europe. In particular it examines the ways in which the EU Water Framework Directive affects the planning environment for international waterways and sets a new agenda for improving water quality. The analysis concludes that basin-wide environmental protection and development strategies for waterways need to be developed to complement the river basin management plans required under the Directive. The report makes recommendations on good practice and identifies the Danube river basin as the critical area for improvement. This is where the efforts of international governmental organisations and NGOs could most usefully be combined to develop the first of the basin-wide strategies envisaged.

The ECMT is grateful to Henry Opdam and his team of consultants at Royal Haskoning for preparing the main body of this report and to the Ministry of Transport and Water Management of the Netherlands for supporting the work financially. ECMT would also like to thank all of the experts listed in section 1.6 for their co-operation and contributions to the report and in particular the members of the Steering Committee.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	3
ABBREVIATIONS	7
EXECUTIVE SUMMARY	9
CHAPTER 1. INTRODUCTION.....	13
1.1 Background and Objectives.....	14
1.2 Institutional Context.....	14
1.3 Approach and Methodology.....	16
1.4 Scope of Work.....	17
1.5 Results of the Study.....	17
1.6 Acknowledgements	19
CHAPTER 2. ENVIRONMENTAL ASSESSMENT PROCEDURES	23
2.1 Introduction	24
2.2 The EIA Directive and IWT Projects	25
2.3 IWT, EIA and the EU Birds and Habitats Directives.....	32
2.4 Water Framework Directive.....	34
2.5 UNECE Conventions and Related Instruments.....	39
CHAPTER 3. PRACTICE AND EXPERIENCE IN SELECTED COUNTRIES.....	45
3.1 Responses to the Questionnaire.....	46
3.2 France	48
3.3 Germany	52
3.4 Austria.....	59
3.5 Romania	64
3.6 Ukraine.....	70
CHAPTER 4. LESSONS LEARNED	73
4.1 Environmental Issues	74
4.2 Legislation and Procedures	76
4.3 Public Consultation and Participation	78
4.4 Transboundary Impacts	80
4.5 Key Issues	82
CHAPTER 5. OUTSTANDING ISSUES	89
5.1 Integrated European IWT Vision, Policy, Strategy and Planning.....	90
5.2 Legislation and Procedures	91
5.3 Public Consultation and Participation	91
5.4 Other Issues.....	92

BIBLIOGRAPHY.....	94
Publications.....	95
Websites.....	98
MAPS.....	99

ABBREVIATIONS

AVV	Advisory Institute for Transport (The Netherlands)
AWB	Artificial water body
BFG	Bundesanstalt für Gewässerkunde (Federal Institute of Hydrology, Germany)
BMVIT	Federal Ministry of Transport, Innovation and Technology (Austria)
CCNR	Central Commission for Navigation on the Rhine
CEDA	Central Dredging Association
CIADT	Interministerial Committee on Land Management and Development (France)
CIS	Common Implementation Strategy
CNDP	National Public Debate Commission (France)
DGG	Directorate General for Freight Transport, Ministry of Transport (The Netherlands)
EC	European Commission
ECMT	European Conference of Ministers of Transport
EEC	European Economic Community
EFIP	European Federation of Inland Ports
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESPO	European Sea Ports Organisation
EU	European Union
GDP	Gross Domestic Product
GEP	Good Ecological Potential
GES	Good Ecological Status
HMWB	Heavily Modified Water Body
IADC	International Association of Dredging Companies
ICPDR	International Commission for the Protection of the Danube River
ICPR	International Commission for the Protection of the Rhine
INE	Inland Navigation Europe
IPTANA	Design Institute for Road Water and Air Transport (Romania)
ISPA	Instrument for Structural Policies for Pre-Accession
IWT	Inland Waterway Transport
MMGA	Ministry of Environment and Water Management (Romania)
MTCT	Ministry of Transport, Construction and Tourism (Romania)
NGO	Non-Government Organisation
OECD	Organisation for Economic Co-operation and Development
ÖIR	Österreichisches Institut für Raumplanung
PAH	Polycyclic Aromatic Hydrocarbon
PIANC	International Navigation Association
RAMSAR	Convention on Wetlands of International Importance especially as Waterfowl Habitat, signed in Ramsar, Iran, in 1971.
RBMP	River Basin Management Plan
RMD	Rhein-Main-Donau
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
TEN-T	Trans-European Network for Transport
UNECE	United Nations Economic Commission for Europe
VNF	Voies Navigables de France
WFD	Water Framework Directive
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

The environmental impacts of inland waterway development

Environmental impacts

Inland navigation can contribute to making transport more sustainable, particularly where it substitutes for road transport, but inland shipping and especially the development of waterways for navigation can have considerable environmental impacts. Waterway development works for inland navigation can have significant impacts on the ecological value and water quality of water bodies. The nature and extent of the impacts depend on the kind of works concerned and, to a large degree, on the characteristics of the water body itself. The kinds of mitigation techniques that can be employed can also differ markedly, for example between sections of river with rocky bed and banks, and reaches with sandy or muddy bottoms situated in flood plains. In some cases new works for navigation can be designed to improve water quality or biodiversity and create valuable habitats.

Hydro-morphological pressures

Foremost among the potential impacts are hydromorphological pressures. Altering the shape of river courses to improve navigation¹ affects bottom and bank characteristics and the dynamics of sediment transportation. Effects can spread up- and downstream over many years. Without careful attention, alterations can interfere with communication between the main channel, side branches and backwaters. Permanent changes to water levels and flows affect the whole river valley bottom and notably the ecology of floodplains. Although it is often difficult to separate works strictly necessary for navigation from those designed for flood protection, navigation works tend to be designed to stabilise channels in both space and time. This constrains the natural dynamics of the river that create and renew transitory habitats that can be of intrinsic ecological value. Thus impacts on biodiversity can be substantial.

EIA must cover all impacts

Dredging sometimes has severe impacts, especially when sediments are contaminated with industrial discharges. Bank reconstruction can completely transform or remove habitats. It is essential for environmental impact assessment (EIA) to cover all of these pressures.

Avoiding damage

In many cases civil engineering works can be designed to minimise impacts, but hydromorphological pressures are sometimes unavoidable. Their ecological impacts are often site-specific and not always well understood. In some cases impacts may be negligible but often significant ecological damage can result. Hence there is a need to identify risk areas at a strategic planning level, and employ a detailed EIA at the project level when works are planned in these areas. Governments need to be ready to

support research in cases where little or no information on hydromorphology and ecosystems is available.

Reconciling the promotion of navigation and environmental protection

Early consultation

Careful design can often mitigate impacts, and in several case studies it allayed concern over the environmental impacts of investments in infrastructure for inland navigation. Early consultation with environmental stakeholders, and indeed all stakeholders, is important in ensuring that such solutions are found. It is equally important to reach a common understanding of the issues and foster a co-operative search for solutions if the environmental impacts of a project prove not to be amenable to conventional mitigation approaches. In the case studies examined, all conflicts identified stemmed from failure to involve environmental stakeholders early enough in project planning. Expensive procedures were then required to seek compromises after lengthy and costly delays.

Strategic planning at river basin level

Strategic plans for the development of river basins that integrate economic, social and environmental imperatives could facilitate consensus building on individual development projects. The Water Framework Directive (WFD) provides a strategic planning basis for this in terms of water quality objectives, and has created a valuable tool through the establishment of river basin management plans. The Birds and Habitats Directives and Natura 2000 sites operationalise the strategic imperative to preserve sites of international importance to wildlife. There are no equivalent legal instruments to direct the development of inland navigation. Preparation of inland navigation development strategies in parallel with the river basin management plans of the WFD might provide the missing strategic basis for addressing conflicts between the interests of navigation and the environment. The report submitted to Ministers, CEMT/CM(2006)17, recommends that shipping and environmental protection authorities work together to produce strategies for the environmental protection and development of inland waterways at the river basin level.

Pan-European considerations

Pressure to increase profitability together with safety concerns lead industry to argue for large, deep channel dimensions to be provided wherever possible. At the same time industry generally recognises the need to protect the environment and the constraints this may impose on the development of navigation channels. Governments seek to promote the development of more pan-European inland shipping. This might be pursued through establishing a large standard channel specification for all international waterways but an alternative approach built up from river basin development strategies appears more likely to succeed than imposing uniform standards. Basin-wide strategies would need to take inter-basin traffic into account where river basins are interconnected but have the potential to make the different local, regional and pan-European dimensions more transparent.

SEA and multi-modal corridor assessment

The ideal strategic planning framework would include strategic environmental assessment (SEA) covering transport on the basis of multi-modal transport corridor analysis, along with non-transport demands on the waterway (for hydropower production, flood protection, irrigation, industrial use, drinking water abstraction and waste discharge). The relatively recent discipline of incorporating multi-modal corridor analysis in transport SEA is examined in detail in the report *Assessment and Decision Making for Sustainable Transport* published by ECMT in 2004. Transport ministers adopted a resolution and guidelines on good assessment in 2003,² which were endorsed by environment ministers by an Act of the OECD Council.³ In the short term, however, a narrower focus on just navigation and environmental protection might be appropriate, as explained below in the next paragraph.

Conclusions

Priority action

Strategic framework for the Danube River

The report submitted to Ministers concludes that a strategic vision for protection and development of the Danube River is urgently required. Most of the waterway development projects entailing unresolved environmental issues are located in the Danube basin. Moreover, the planning and consultation procedures and the capacity for public administration and governance tend to become weaker as one travels down the Danube. Some of these weaknesses could be addressed by a structured dialogue between government, environment and industry stakeholders that aims to produce a consensus statement on inland waterway transport in the Danube basin. The focus of this work would be narrower than the ideal planning framework discussed above and concentrate solely on inland navigation (and not cover other uses of the river or other modes of transport). This would facilitate completion in good time to influence the River Basin Management Plan for the Danube, which has to be completed in 2009 to satisfy the requirements of the Water Framework Directive.

Bucharest 2006

The International Commission for Protection of the Danube River and the Danube Commission are in a good position to take a joint lead in the preparation of the consensus statement, under the guidance of a steering group consisting of high level representatives of the relevant stakeholders. The aim will be to complete the consensus statement by the end of 2007. Ministerial endorsement for this proposal will be sought at the Bucharest Pan European Inland Waterway Transport Conference in September 2006.

Other conclusions

Involvement of stakeholders and the public

The fundamental conclusion of the report submitted to Ministers is that prompt and successful decision making depends critically on the way the involvement of the public, environmental and industry stakeholders is organised, and especially on engaging with stakeholders early. This applies not only to the preparation of specific projects but also to the process of strategic planning.

Problem “ownership”, not just consultation

Existing SEA and EIA procedures, at both EU and national level, require public consultation, but not necessarily public participation. The UN Aarhus Convention and associated EU directives deal with the right of the public to be informed, to have the opportunity to make comments and to have access to justice, rather than with public participation in the process of defining objectives, alternative solutions, boundary conditions and priorities. Moreover, SEA and EIA procedures generally require formal public consultation only after preparation of a project proposal or development plan. Experience and practice in several of the projects examined show that assessment procedures, as well as the probability of arriving at a workable solution within a reasonable time, greatly benefit from early involvement of project beneficiaries and environmental stakeholders, who thus take on “ownership” of the problems involved and feel accountable for and committed to finding integrated solutions. This requires a highly participative and integrated approach: an open planning process where all stakeholders (government agencies, private sector, NGOs, public, etc.), from the early stages of preparation onwards, play an active role and jointly develop commitment to the project.

Dredging contaminated sediments

Finally, the report singles out dredging operations for particular attention. Often waterway and port authorities inherit problems associated with polluted sediments when they were not responsible for the pollution that caused the contamination. A legal and procedural framework must be developed for ensuring that channel excavation for waterway development and maintenance dredging can be planned and executed while (a) respecting the strict national and European regulations on polluted sediments and (b) applying the polluter pays principle. This will take time. In the meantime it is essential that inland navigation is not burdened with the excess costs of handling polluted sediments, compared to the cost of dredging uncontaminated sediments. The International Commission for the Protection of the Rhine began work in 2005 on a strategy to manage sediments for the Rhine and its tributaries. The results should serve as a basis for developing a Europe-wide strategy on managing polluted sediments.

NOTES

1. By-passing meanders, straightening of main channels, raising or lowering of water levels etc..
2. Resolution 2003/1 on Assessment and Decision Making for Sustainable Transport.
3. Recommendation of the Council on Assessment and Decision-Making for Integrated Transport and Environment Policy, 21 April 2004 - C(2004)80.

Chapter 1

INTRODUCTION

1.1 Background and Objectives

At the Prague Council in 2000, European transport ministers agreed to a common approach to develop sustainable transport policies. The importance of good cost-benefit analysis and effective strategic environmental assessment (SEA) was stressed, together with the development of better procedures and tools for presenting the results of appraisals to decision makers.¹ Improved decision making was viewed as the key to integrating transport and environment policies.

Inland shipping can contribute to sustainable transport strategies by achieving relatively low air and noise emissions per tonne of freight transported, compared with other modes of freight transport.² However, both shipping and development of waterways can have adverse environmental impacts on water quality, biodiversity, landscape and the recreational value of water bodies.

This report examines current practice in relation to environmental protection in the maintenance and expansion of inland waterway capacity as revealed by several pertinent case studies. It identifies current major policy issues and suggests ways to improve assessment and decision making with regard to environmental protection and reconciling demands for expanded navigation capacity with sustainable development.

The aim of the study is to provide practical guidance to ministers on the best approaches to environmental protection in the development of inland waterways, based on experience in several ECMT member countries. The study provides a basis for:

- Exchanging experience on good practice.
- Addressing issues to be taken up at the Pan-European Inland Waterway Transport Conference in Bucharest in September 2006.

1.2 Institutional Context

The European Conference of Ministers of Transport (ECMT) initiated the present study, with support from the Ministry of Transport and Water Management in the Netherlands, to focus on existing approaches and challenges for environmental protection in the development of inland waterway transport (IWT). The work was guided by a steering committee in consultation with a wider group of experts from Member countries and international organisations (listed in section 1.6). The main responsibilities of these organisations in relation to inland navigation can be summarised as follows.

The **Central Commission for Navigation on the Rhine (CCNR)** was created by the Final Act of the Congress of Vienna in 1815 that established the principle of freedom of navigation on international waterways. The 1868 Convention of Mannheim updated the regulations for navigation on the Rhine and the Commission continues to be responsible for developing the regulatory basis for use of the river. Its fundamental objective is to protect the freedom for navigation from physical, administrative, fiscal and regulatory obstacles. This includes ensure navigation channels are maintained in good condition. The Commission seeks to promote the development of navigation and the competitiveness of inland shipping with an increasing emphasis on safety and environmental protection.

The **Danube Commission** supervises implementation of the 1948 Convention Regarding the Regime of Navigation on the Danube. The Convention provides for free navigation on the Danube in accordance with the interests and sovereign rights of the now 11 Contracting Parties of the Convention

aiming thereby at strengthening the economic and cultural relations among these States and with other nations. Its responsibilities include:

- Planning major works in the interest of navigation on the basis of proposals and projects presented by the Member States and evaluating their cost.
- Making recommendations to the Member States on the execution of these works.
- Establishing a uniform system of traffic regulations for the whole navigable portion of the Danube and laying down the basic provisions governing navigation on the Danube.
- Harmonizing regulations on inland navigation with the European Union and the Central Commission for the Navigation on the Rhine.

The **European Commission** (EC) coordinates inland navigation policy in its Member States through the Directorate for Maritime and Inland Shipping in DGTREN although most decision making powers rest with national governments in this domain. DG Environment has powers for improving the quality of all surface waters in the Union, implemented through the Water Framework Directive.

The **European Conference of Ministers of Transport** (ECMT) is a forum for discussion and consensus building for Ministers from its 43 European Member countries and 7 OECD Associate countries. It works on transport policy development and co-ordination and in the inland waterway sector concerns itself with issues of economic regulation and environmental protection.

The **International Commission for Protection of the Danube River** (ICPDR) works to ensure the sustainable and equitable use of waters and freshwater resources in the Danube River Basin. It was created in 1998 by the Danube River Protection Convention ratified by the Environment Ministers of 13 contracting parties and 4 other countries that have minor areas of territory in the Basin. The Convention is the main legal instrument for transboundary water management in the Danube River Basin and the Commission focuses on achieving:

- Safeguarding of the Danube's water resources for future generations.
- Naturally balanced waters free from excess nutrients.
- No more risk from toxic chemicals.
- Healthy and sustainable river systems.
- Damage-free floods.

The **International Commission for Protection of the Rhine** (ICPR) was created by the 1963 Convention on the Protection of the Rhine against Pollution (the Bern Convention) agreed by Switzerland, France, Luxembourg, Germany and the Netherlands, with the European Union subsequently also becoming a contracting party. Conventions on chemical pollution and flood control followed, consolidated by a new Convention on Protection of the Rhine in 2003. In 2001 a Rhine Water Co-ordinating Committee was established by the Commission together with Austria, Belgium and Italy to co-ordinate implementation of the EU Water Framework Directive in the Rhine river basin.

The **United Nations Economic Commission for Europe** (UNECE) includes an Inland Transport Committee with responsibilities for inland navigation and an Environment Committee responsible for a number of conventions governing water protection, environmental impact assessment and decision making procedures. These are described in detail in section 2.5 below. Chief among these instruments is the Convention on Environmental Impact Assessment in a Transboundary Context, signed in Espoo, Finland and ratified by 41 countries.

1.3 Approach and Methodology

The terms of reference for the assignment, as approved by the ECMT Steering Committee, called for a desk study to identify good practices when dealing with environmental issues and the preparation, design, implementation and operation of IWT projects, based on (a) a collection and review of literature, (b) an information analysis made available through a resource person indicated by the Steering Committee in each of several countries, (c) the results of a questionnaire distributed via these resource persons and (d) information collected during visits to a limited number of projects.

The questionnaire, distributed in January 2005, was designed to identify projects of interest, intended for further investigation. Initially, it was to be followed up by telephone interviews with respondents. After analysis of the questionnaire results, however, it was decided to abandon the idea of telephone interviews. A decision was made to visit a few selected projects and meet with key persons and authorities to discuss specific issues related to the analysis of the environmental impacts, as well as the involvement of key stakeholders and beneficiaries, in order to learn how national and international legislation and regulations are applied.

Box 1.1 Risks Associated with the Approach and Methodology

It was acknowledged that the approach and methodology adopted entailed some risks involving:

1. Dependence on the persons interviewed to provide relevant data, documents and literature and to assess specific project characteristics.
2. Fragmented case-related information on general issues.
3. Missing relevant literature.
4. Missing relevant resource persons.

An important source of information that was taken into consideration only after submission of the draft final report on 18 August 2005 is ICPDR (2005).

Important stakeholders, such as ICPDR and WWF, were not consulted until the draft final report stage.

Nevertheless, the approach and methodology proved adequate in achieving the objectives: to exchange good practices and best practices and to identify and assess outstanding issues.

In this respect, it is important to mention that PIANC (2003) makes conclusions and recommendations similar to those of the present desk study, especially with regards to the importance of integrated strategic planning in the use of natural waterways.

After submission of the interim report in April 2005 and consultation with the Steering Committee, the following were selected for further investigation:

- Seine-Nord Europe project in France.
- Danube Straubing-Vilshofen project in Germany.
- Danube Vienna East project in Austria.
- Danube projects in Romania.
- Bistroye Canal project in Ukraine.

The criteria for selection were to:

- Address both “new” waterways and “old” rehabilitation works.
- Assure sufficiently wide coverage of different countries.
- Ensure that all stages in the IWT cycle could be assessed.
- Include at least a few cases dealing with international or transboundary issues.

1.4 Scope of Work

The analysis focused on information received from the resource persons and found on the Internet, the responses to the questionnaire and the lessons learned from workshops and the interviews with key persons during the visits to the projects.

In analysing the above-mentioned projects, the evaluation focused on (a) national legislation and procedures regarding the assessment of environmental impacts, (b) public consultation and participation, and (c) environmental issues.

The present document is the final report. It summarises the results of the analyses, the lessons learned and outstanding issues, in the following sections:

- Introduction.
- SEA and environmental impact assessment (EIA) as regards European IWT policy, planning and the preparation and implementation of inland waterway development projects, including the relationship of assessment to such instruments as the EU Birds, Habitats and Water Framework Directives and UNECE conventions.
- Experience and practice in France, Germany, Austria, Romania and Ukraine regarding the application of national and EU legislation and procedures regarding assessment of environmental impacts.
- Lessons learned from the selected IWT development projects in France, Germany, Austria, Romania and Ukraine.
- Outstanding issues for discussion at the 2006 ECMT meeting in Bucharest.

1.5 Results of the Study

The main results of the desk study, consultations and interviews with experts and workshops with stakeholders are summarised below.

Environmental Issues

The key problem is the canalisation of free-flowing rivers. In the strategic planning and assessment phases, especially, much remains to be improved (see Public Participation, below).

Spatial planning conflicts dominate the decision-making process. Water pollution or damage caused by inland vessels, although potentially significant, is generally not regarded as a problem. Dredging, however, does pose a threat to the aquatic environment through not only the disposal of dredged material but also the dispersal of pollutants into surface waters during dredging. Another significant threat to the environment stems from discharges of fuel oil and lubricants and emissions of chemicals such as PAHs during shipping operations. Dredging and pollution issues are being addressed by the Central Commission for Navigation on the Rhine (CCNR) and International Commission for the Protection of the Rhine (ICPR).

Policy and Strategy

Transport policies and environmental policies are not integrated. For water quality, the EU Water Framework Directive (WFD) provides a strategic vision, but for IWT such a vision at the international level is lacking, which hampers balanced and effective decision making. Vision, policy and strategy must be consistent and provide a long-term framework for development, founded on both national and international political consensus.

Rules and Regulations

All countries with navigable inland waterways have established procedures and regulations for EIA. In most cases these rules are strictly followed. This research project, however, showed that simply following the rules does not guarantee a successful project. An integrated approach from the very beginning, in which all interests are consulted and addressed in a balanced way, is essential for timely preparation and implementation of projects and avoidance of unnecessary delays.

Viability of Alternative Solutions

Achieving an agreement on the development of IWT, as for any major transport infrastructure project, requires identification and elaboration of alternative solutions that meet the minimum requirements of all parties involved.

If such solutions cannot be identified, agreement between parties with different interests is unlikely. When stakeholders are unable to agree on which alternative satisfies the minimum requirements of all parties, experience suggests that it is more efficient and less costly to establish an agreed procedure through which a decision will be made than to approve a given alternative and risk court action against the decision.

Differences between Countries

The research project revealed differences in the ways environmental problems are perceived, appreciated and dealt with in the countries examined, despite similar legislation and planning procedures. The perception and application of the same or similar set of rules and regulations may differ from one country to another and lead to varying appreciations and approaches in the decision-making processes. These differences may be attributed to or associated with:

- Cultural differences; in some countries strict enforcement of the rules and regulations is considered sufficient, whereas in others a similar set of regulations is considered more as a starting point for designing the best project possible.
- Differing levels of socio-economic development leading to differences in appreciation and valuation of social, economic and environmental interests, values and priorities.
- Differences in democratic tradition leading to differences in how societal groups are organised and empowered, and in the ways they are involved in the decision-making process and have an impact on it.
- Differences in organisation determining to what extent stakeholders and project beneficiaries act as a driving force in decision making. A country's level of socio-economic development and its constitutional and political setting strongly influence the degree to which stakeholders and beneficiaries can organise and exercise democratic rights.

Public Participation

When IWT development projects fail it is often because public participation came too late. Ideally, stakeholders and the wider public should participate in all stages of project development. Participation is especially important in the project definition phase and in the process of working out realistic alternative solutions for problematic projects. European legislation and procedures are not very specific on the arrangements for public consultation and participation. EU legislation envisages formal steps for public consultation only after completion of environmental impact studies and submission of projects for approval. Nevertheless, member countries are free to make their own arrangements for organising the process of public consultation. Experience and practice in several projects show that the progress of EIA procedures and the probability of agreeing a workable solution in a reasonable time greatly benefit from early involvement of project beneficiaries and environmental stakeholders. Successful participation procedures result in stakeholders taking on “ownership” of problems and feeling accountable for and committed to finding integrated solutions.

The research project also showed that environmental information is poorly disseminated by governments, despite the Aarhus Convention provisions requiring governments to share environmental and safety information with the public.

1.6 Acknowledgements

The desk study could not have been completed successfully without the co-operation provided by the members of the Steering Committee and the information received from the resource persons in the countries and the key individuals met there. The ECMT and the team of consultants greatly appreciate their commitment and co-operation.

Name	Organisation	Country, Location
------	--------------	----------------------

Steering committee

Roelof F.E. Weekhout	Ministry of Transport, Public Works and Water Management	The Netherlands
Volker Hüesing	Bundesanstalt für Gewässerkunde	Germany
Philippe Rochette	Centre d'Etudes Techniques Maritimes et Fluviales	France
Gernot Pauli	Central Commission for Navigation on the Rhine	France
Stephen Perkins	ECMT	France

Resource persons

Leo Grill	Bundesministerium für Verkehr, Innovation und Technologie	Austria
Radek Sus	Ministry of Environment	Czech Republic
Helmut Blöch	European Commission, DG Environment	EC
Philippe Rochette	Centre d'Etudes Techniques Maritimes et Fluviales	France
Volker Hüesing	Bundesanstalt für Gewässerkunde Koblenz	Germany
Michael Schleuter	Bundesanstalt für Gewässerkunde Koblenz	Germany
Hubert Liebenstein	Bundesanstalt für Gewässerkunde Koblenz	Germany
Hans Sommer	Wasser- und Schifffahrtsamt Koblenz	Germany
Detlev Wahl	Bundesanstalt für Gewässerkunde Koblenz	Germany
Volker Steege	Wasser- und Schifffahrtsamt Bremerhaven	Germany
Rienk J. Dijkstra	Ministry of Transport, Public Works and Water Management	The Netherlands
Alexandru S. Cucu	Ministry of Transport, Construction and Tourism	Romania
Konstantin I. Sizov	Delta-Pilot	Ukraine

Key persons

Germany

Wolfgang Hofmann	Wasser- und Schifffahrtsamt Regensburg	Regensburg
Gerhard Haimerl	RMD Wasserstrassen GmbH	Munich
Jürgen Weber	Regierung von Niederbayern	Landshut
Rudolf Sonnleitner	RMD Wasserstrassen GmbH	Munich
Klaus Volker Rachl	Planungsbüro Prof. Dr. Jörg Schaller	Kranzberg
Georg Rast	WWF Rastatt (in relation to the Bistroye Canal project)	Rastatt

Austria

Christian Baumgartner	National Park Donau-Auen	Orth an der Donau
Georg Grabherr	Universität Wien	Vienna
Helmut Habersack	Universität für Bodenkultur	Vienna
Michael Hengl	Bundesamt für Wasserwirtschaft	Vienna
Gerhard Klasz	DonauConsult Zottl & Erber	Vienna

Name	Organisation	Country, Location
Victoria Koller-Kreimel	Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft	Vienna
Hans Kordina	Forschung Planung Beratung	Vienna
Ingo Korner	AVL Technisches Büro Reckendorfer	Vienna
Norbert Krouzecky	Universität Wien	Vienna
Gerhard Kusebauch	DonauConsult Zottl & Erber	Vienna
Carl Manzano	National Park Donau-Auen	Orth an der Donau
Walter Reckendorfer	AVL Technisches Büro Reckendorfer	Vienna
Fritz Schiemer	Univeristät Wien	Vienna
Reinhard Schlögl	Via Donau	Bad Deutsch-Altenburg
Christian Schramm	Via Donau	Vienna
Roland Schmalfuss	DonauConsult Zottl & Erber	Vienna
Hermann Zottl	DonauConsult Zottl & Erber	Vienna

Romania

Melania Boscaneanu	Lower Danube River Administration	Galați
Diana Mihaela Cocai	Ministry of Environment and Water Management	Bucharest
Marius Decuseară	Lower Danube River Administration	Galați
Gheorghe Dimache	National Research-Development Institute for Environmental Protection (ICIM)	Bucharest
Catalina Dumbrava	Lower Danube River Administration	Galați
Angela Filipas	Ministry of Environment and Water Management	Bucharest
Doina Gherasim	Lower Danube River Administration	Galați
Valerica Grigoras	Ministry of Environment and Water Management	Bucharest
Orieta Hulea	WWF International Danube-Carpathian Programme	Bucharest
Gabriela Isac	Ministry of Environment and Water Management	Bucharest
Razvan Manolescu	Ministry of Transport, Construction and Tourism	Bucharest
Liliana Mara	SC IPTANA SA	Bucharest
Dumitru Marin	Ministry of Transport, Construction and Tourism	Bucharest
Ion Munteanu	Danube River Biosphere Administration	Tulcea
Anisoara Niculescu	Ministry of Transport, Construction and Tourism	Bucharest
Gabriela Osiceanu	Ministry of Environment and Water Management	Bucharest
Monica Patrichi	Ministry of Transport, Construction and Tourism	Bucharest
Paul Popescu	Ministry of Environment and Water Management	Bucharest
George Stoian	Trapeç SA	Bucharest
Anisoara Tomescu	Navigation Channels Administration	Constanța

Ukraine

Konstantin I. Sizov	Delta-Pilot	Odessa/Vilkovo
---------------------	-------------	----------------

Name	Organisation	Country, Location
UNECE		
Viatcheslav Novikov	United Nations Economic Commission for Europe	Geneva
Danube commission		
Danail Nedialkov	Danube Commission – General Director	Budapest
ICPDR		
Philip Weller	International Commission for the Protection of the Danube River - Executive Secretary	Vienna
Jasmine Bachmann	Public Participation and Public Relations expert	Vienna
ICPR		
Anne Schulte-Wülwer-Leidig	International Commission for the Protection of the Rhine - Executive Secretary	Koblenz
Dieter Saha	Project Manager	Koblenz
NGOS		
Georg Rast	WWF	Rastatt
Ulrich Eichelmann	WWF	Vienna
Edith Wenger	WWF	Frankfurt am Main
SEA expert		
Paul Tomlinson	TRL Ltd	UK
Royal Haskoning's team of consultants		
Henry J. Opdam	Team Leader, IWT Specialist	Nijmegen
Roel A.E. Knoben	Water Framework Directive Specialist	Den Bosch
Marion van Maren	Environmentalist	Nijmegen
Adriana Pienaru	Environmentalist	Bucharest
Johan van Voorthuizen	Deputy Team Leader, River Basin Management Specialist	Nijmegen
Cees A.M. Vulto	Institutional Expert	Nijmegen

NOTES

1. See ECMT (2004) for more on this subject.
2. Environmental impacts of shifts between modes of transport are beyond the scope of this study.

Chapter 2

ENVIRONMENTAL ASSESSMENT PROCEDURES

2.1 Introduction

Canal and river systems, besides being used as waterways, usually have other important functions as part of river and wetlands ecosystems, as sources of water supply or for land drainage. The impact of waterway development and shipping on rivers and wetlands is a major concern where waterways have important natural functions and are already strained due to water pollution.

Sustainable waterway development and management necessitate striking a balance over the intermediate and long run between the objectives of various water users and the carrying capacity of the natural system.

Inland waterway development requires the improvement or development of navigation and related infrastructure. To sustain navigation, waterways must be safe and reliable, with certain physical characteristics related to depth, clearance, width, alignment and current velocity. To sustain their ecological character and environmental quality, waterways must also maintain their ecosystem functions (their natural physical, chemical and biological processes).

Environmental and social aspects of inland waterway development need to be taken into account early in project preparation to ensure that the project meets sustainable transport¹ and environmental objectives. While the main environmental impacts of a project will be identified during the planning phase, their significance during the construction and operation phases also has to be determined and managed.

Environmental aspects to be considered during the main stages of the IWT project cycle – planning and design, construction and operation – are briefly discussed in the following sections. At the level of planning, SEA may be required. At the level of projects, an EIA procedure² may be necessary.

Strategic Environmental Assessment

At the EU level, Directive 2001/42/EC, known as the SEA Directive, makes SEA mandatory for certain plans and programs that are likely to have significant effects on the environment. The purpose of the directive is to ensure that environmental consequences are identified and assessed when such plans and programs are under preparation and before their adoption. The public and environmental authorities can give their opinion, and all results are to be integrated and taken into account in the course of the planning procedure. After the plan or program is adopted, the public is to be informed regarding the decision and the way in which it was made. In the case of likely significant transboundary effects, the affected country and its public are informed, and can make comments that are also integrated into the national decision-making process.

The SEA has to provide information on existing environmental problems relevant to the plan or program, especially those relating to areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC, the Birds and Habitats Directives. Environmental impacts to be considered involve issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage (including architectural and archaeological heritage) and landscape, and inter-relationships among these issues.

The SEA Directive defines the subject rather narrowly. EMCT (2000) widens the tool's scope and role to assessing impacts that go beyond individual projects and functioning as an early warning system by identifying potential problems and stakeholders, and stakeholder participation, early in the planning process. This view holds that SEA is most effective when fully integrated into a strategic

planning process leading to widely accepted decisions, although SEA may also provide valuable results in other circumstances (Box 2.1).

Box 2.1 Strategic Environmental Assessment

SEA is most effective when fully integrated into the strategic planning process. Hence SEA needs to be incorporated into each stage of the planning process that will eventually lead to a decision. The SEA outcome has to be given adequate weight in making investment or regional planning decisions and this has to be done in a transparent way. The linkage to a decision will be facilitated by limiting the assessment to the bare essentials. Conversely, if there is no planning decision to be made, SEA is generally not required.

Nevertheless, SEA can also provide useful results when not directly linked to a decision. It is a valuable tool in promoting international and regional co-operation in strategic thinking. Joint SEA is an effective way to resolve national differences in environmental assessment methodologies and to overcome a narrow national focus that hinders the balancing of environmental costs in one country with costs and benefits in another country. Such differences have in the past sometimes constituted a major barrier to rational joint planning in Europe and between jurisdictions in many OECD countries. In addition, pilot SEA exercises can provide a valuable testing ground on which to develop methodologies and expertise in countries with no experience of SEA or similar assessment processes in government.

Adapted from ECMT (2000)

This wider scope for SEA is directly linked to, and constitutes the basis for, a major recommendation of this report: to initiate a strategic development study for the Danube basin.

Environmental Impact Assessment

EU Directive 85/337/EEC of 27 June 1985, amended by Directive 97/11/EC of 3 March 1997, concerns assessment of the effects of certain projects on the environment. The EIA Directive defines a procedure to identify, describe and assess the direct and indirect effects of a project on humans, fauna and flora, soil, water, air, climate, landscape, material assets and cultural heritage, and the interaction thereof.

In most EIA regimes, a project developer presents the required environmental information to the competent authority in the form of an environmental impact statement (EIS; as used here the abbreviation also covers other formats in which environmental information is provided).

2.2 The EIA Directive and IWT Projects

Figure 2.1 summarises the assessment procedure outlined in the EIA Directive. The highlighted steps are mandatory while the others represent good practice. Guidance documents provide assistance with screening, scoping and EIS review (European Commission, 2001b-d).

For IWT projects, during the planning and design stages, development alternatives have to be identified that would minimise adverse impacts on the basic functions of the water system, thus increasing the probability of long-term sustainability of the project. The extent of environmental impacts can be controlled by choosing among options such as which river system to use, what types of vessels to accommodate and where to site associated infrastructure.

Figure 2.1 The EU Environmental Impact Assessment Procedure

KEY STAGES	NOTES
Project Preparation	The developer prepares the proposals for the project
Notification to Competent Authority	In some MS there is a requirement for the developer to notify the CA in advance of the application for development consent. The developer may also do this voluntary and informally
Screening	The CA makes a decision on whether EIA is required. This may happen when the CA receives notification of the intention to make a development consent application, or the developer may make an application for a Screening Opinion. The Screening decision must be recorded and made public. (See the guidance on Screening in EIA) (Article 4).
Scoping	The Directive provides that developers may request a Scoping Opinion from the CA. The Scoping Opinion will identify the matters to be covered in the environmental information. It may also cover other aspects of the EIA process (see the guidance on Scoping in EIA). In preparing the opinion the CA must consult the environmental authorities (Article 5(2)). In some MS Scoping is mandatory.
Environmental Studies	The developer carries out studies to collect and prepare the environmental information required by Article 5 of the Directive (see Appendix A).
Submission of Environmental Information to Competent Authority	The developer submits the environmental information to the CA together with the application for development consent. If an application for an Annex I or II project is made without environmental information the CA must screen the project to determine whether EIA is required (see above). (Articles 5(1) and 5(3)). In most MS the environmental information is presented in the form of an Environmental Impact Statement (EIS).
Review of Adequacy of the Environmental Information	In some MS there is a formal requirement for independent review of the adequacy of the environmental information before it is considered by the CA. In other MS the CA is responsible for determining whether the information is adequate. The guidance on EIS Review is designed to assist at this stage. The developer may be required to provide further information if the submitted information is deemed to be inadequate.
Consultation with Statutory Environmental Authorities, Other Interested parties and the public	The environmental information must be made available to authorities with Environmental responsibilities and to other interested organisations and the general public for review. They must be given an opportunity to comment on the project and its environmental effects before a decision is made on development consent. If transboundary effects are likely to be significant other affected MS must be consulted (Articles 6 and 7).
Consideration of the Environmental Information by the Competent Authority before making Development Consent decision	The environmental information and the results of consultations must be considered by the CA in reaching its decision on the application for development consent (Article 8).
Announcement of Decision	The decision must be made available to the public including the reasons for it and a description of the measures that will be required to mitigate adverse environmental effects (Article 9).
Post-Decision Monitoring if Project is Granted Consent	There may be a requirement to monitor the effects of the project once it is implemented.
<p>The highlighted steps must be followed in all Member States under directives 85/337/EC and 97/11/EC. Scoping is not mandatory under the directive but Member States must establish a voluntary procedure by which developers can request a Scoping Opinion from the CA if they wish. The steps which are not highlighted form part of good practice in EIA and have been formalised in some Member States but not in all. Consultations with environmental authorities and other interested parties may be required during some of these additional steps in some Member States.</p> <p>Abbreviations: CA = Competent Authority; MS = Member States.</p>	

Source: European Commission (2001c).

Screening

During project preparation, the first step in environmental assessment takes place: screening to determine whether EIA is required. Annexes I and II of Directive 97/11/EC and equivalent lists in individual countries define the types of projects requiring EIA. Box 2.2 shows the IWT projects covered in Annex I, Article 4(1) and Annex II, Article 4(2). Projects listed in the latter article are subject to EIA if it is determined, either through case-by-case examination or on the basis of thresholds and criteria set by the country involved, that they are likely to have significant negative effects on the environment.

**Box 2.2 IWT Projects Requiring EIA under Directive 85/337/EEC,
Amended by Directive 97/11/EC**

ANNEX I

8. (a) Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1 350 tonnes;
- (b) Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1 350 tonnes.

ANNEX II

10. Infrastructure projects

- (c) Construction of railways and intermodal transshipment facilities, and of intermodal terminals (projects not included in Annex I);
- (e) Construction of roads, harbours and port installations, including fishing harbours (projects not included in Annex I);
- (f) Inland-waterway construction not included in Annex I, canalization and flood-relief works.

Scoping

Scoping is the process of determining the content and extent of the environmental information to be submitted to the competent authority. Scoping thus defines the terms of reference for the environmental studies that have to be undertaken to compile the necessary information and prepare the EIS.

Environmental Impact Statement

The EIS contains the project-related environmental information that must be provided to the competent authority. The statement characterises and quantifies the nature of the environmental impacts that might arise during project construction and operation.

The potential impacts of an IWT project depend on whether it involves construction of a new channel, rehabilitation of an existing man-made channel or the transformation of natural rivers or

wetlands into waterways. Box 2.3 summarises key social, economic and environmental impacts that the European Commission has identified as potentially arising from various types of waterway development and from waterway operation. In addition it should be noted that:

- Dams, locks and impoundments alter sedimentation patterns, fragment river ecosystems and present barriers to fish migration.
- Damage to banks and shallow water ecosystems from bow waves during waterway use can be significant.

Box 2.3 Potential Environmental Impacts of Waterway Development³

- *New channels*: Impacts can include land loss and severance, potentially affecting productive land, wildlife habitat and communities. New channels can also alter drainage, potentially affecting wetlands, but sometimes they can introduce new wildlife habitat and provide for other non-transport uses.
- *Modification of existing waterways*: Impacts depend greatly on the extent of modification, from simple maintenance dredging to full canalisation. Concerns include biodiversity loss; loss of livelihoods dependent on products from rivers and wetlands; conflicts with uses such as drainage, flood protection, water supply and tourism; and hydrological changes, such as alteration of surface flows and drainage, destruction of flood plains, increased erosion, flooding risk and drainage of wetlands.
- *Waterway construction*: Direct impacts can include noise, dust, and risk of soil erosion and siltation; in addition, disposal of spoil and dredged material often damages shore or bankside habitats. Related concerns include water pollution risks; health and safety risks to workers and the public; and health and cultural risks to local communities from non-local workforce (but also employment opportunities).
- *Waterway use*: Impacts depend on the density, speed and type of vessels and the cargo carried, and on maintenance activities required to keep channels navigable. Concerns include risks of water pollution from fuel and oil spillage, from accidents and from disposal of waste and wastewater from vessels; and of pollution from shore or bankside activities such as vessel maintenance, fuel and goods storage, trading areas and inland ports. Other concerns involve secondary development along transport routes, and increased pressure on previously remote and fragile areas and on indigenous people from tourism and resource exploitation, including forestry and mining.

Source: European Commission (2000b).

Environmental Management Plan

An environmental management plan is prepared before construction and operation. It includes provisions to implement mitigation and monitoring measures in response to the impacts identified and assessed in the EIS. The plan is developed in the context of the EIA in order to assure proper implementation of mitigation measures and the verification of predicted environmental impacts through monitoring.

Public Consultation and Participation

The EIA Directive, particularly Articles 5, 6 and 9 and Annex IV (Boxes 2.4 and 2.5), provides for general arrangements regarding public consultation and participation. Information as specified in Article 5 and Annex IV should be made available in time, members of the public should be given the opportunity to express their opinion and the final decision should be communicated and clarified. Organisational arrangements for this process are left to individual countries.

Box 2.4 Information to be Made Available under the EIA Directive

Annex IV – Information Referred to in Article 5

1. Description of the project, in particular:
 - A description of the physical characteristics of the entire project and the land-use requirements during the construction and operational phases.
 - A description of the main characteristics of the production processes, for instance, nature and quantity of the materials used,
 - An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.
2. An outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.
3. A description of the aspects of the environment likely to be significantly affected by the proposed project including; population, fauna, flora, soil, water, air, climatic factors, material assets, the architectural and archaeological heritage, landscape along with the inter-relationship between the above factors.
4. A description of possible noteworthy effects of the proposed project on the environment resulting from:
 - The existence of the project.
 - The use of natural resources.
 - The emission of pollutants, the creation of nuisances and the elimination of waste.
 - The description by the developer of the forecasting methods used to assess the effects on the environment.
5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
6. A non-technical summary of the information provided under the above headings. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the developer in compiling the required information.

Box 2.5 Public Consultation Provisions of the EIA Directive

Article 6

1. Member States shall take the measures necessary to ensure that the authorities likely to be concerned by the project due to their specific environmental responsibilities are given an opportunity to express their opinions on the information supplied by the developer along with the request for development consent. To this end, Member States shall designate the authorities to be consulted, either in general terms or on a case-by-case basis. The information gathered pursuant to Article 5 shall be forwarded to those authorities. Detailed arrangements for consultation shall be laid down by the Member States

2. Member States shall ensure that any request for development consent and any information gathered pursuant to Article 5 are made available to the public within a reasonable time in order to give the public concerned the opportunity to express an opinion before the development consent is granted.

3. The detailed arrangements for such information and consultation shall be determined by the Member States, which may possibly, depending on the particular characteristics of the projects or sites concerned:

- Determine the public concerned.
- Specify the places where the information can be consulted.
- Specify the way in which the public may be informed, for example, by bill-posting within a certain radius, publication in local newspapers, organization of exhibitions with plans, drawings, tables, graphs, models.
- Determine the manner in which the public is to be consulted, for example, by written submissions, by public enquiry.
- Fix appropriate time limits for the various stages of the procedure in order to ensure that a decision is taken within a reasonable period.

Article 9

1. When a decision to grant or refuse development consent has been taken, the competent authority or authorities shall inform the public thereof in accordance with the appropriate procedures and shall make the following information available to the public:

- The content of the decision and any conditions attached thereto.
- The main reasons and considerations on which the decision is based.
- A description, where necessary, of the main measures to avoid, reduce and, if possible, offset the major adverse effects.

Transboundary Impacts

If a project is expected to have significant impacts on neighbouring countries, these countries are to be informed, whether they so request or not. At the same time, the public in the country of the

Box 2.6 Provisions of EIA Directive Concerning Transboundary Impacts

Article 7

1. Where a Member State is aware that a project is likely to have significant effects on the environment in another Member State or where a Member State that is likely to be significantly affected so requests, the Member State in whose territory the project is intended to be carried out shall send the affected Member State as soon as possible and no later than when informing its own public, inter alia:

(a) a description of the project, together with any available information on its possible transboundary impact;

(b) information on the nature of the decision which may be taken, and shall give the other Member State a reasonable time in which to indicate whether it wishes to participate in the Environmental Impact Assessment procedure, and may include the information referred to in paragraph 2.

2. If a Member State which receives information pursuant to paragraph 1 indicates that it intends to participate in the Environmental Impact Assessment procedure, the Member State in whose territory the project is intended to be carried out shall, if it has not already done so, send the affected Member State the information gathered pursuant to Article 5 and relevant information regarding the said procedure, including the request for development consent.

3. The Member States concerned, each insofar as it is concerned, shall also:

(a) arrange for the information referred to in paragraphs 1 and 2 to be made available, within a reasonable time, to the authorities referred to in Article 6 (a) and the public concerned in the territory of the Member State likely to be significantly affected; and (b) ensure that those authorities and the public concerned are given an opportunity, before development consent for the project is granted, to forward their opinion within a reasonable time on the information supplied to the competent authority in the Member State in whose territory the project is intended to be carried out.

4. The Member States concerned shall enter into consultations regarding, inter alia, the potential transboundary effects of the project and the measures envisaged to reduce or eliminate such effects and shall agree on a reasonable time frame for the duration of the consultation period.

5. The detailed arrangements for implementing the provisions of this Article may be determined by the Member States concerned.

Article 9

2. The competent authority or authorities shall inform any Member State which has been consulted pursuant to Article 7, forwarding it the information referred to in paragraph 1.

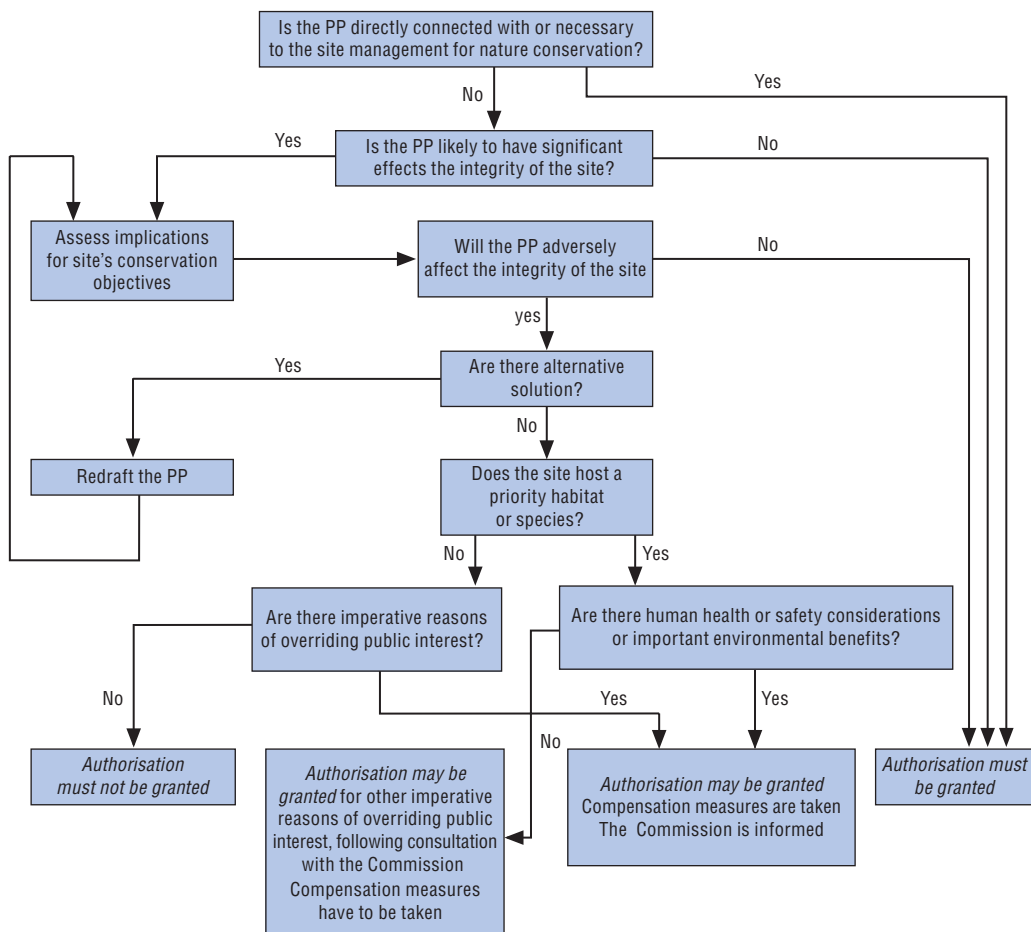
project is also to be informed of its transboundary implications. The neighbouring countries are to be given the opportunity to participate in the EIA and public consultation procedures. The project country

is responsible for arrangements to facilitate this process and must inform the affected countries on results of the consultation and measures to be taken. Box 2.6 shows relevant provisions of the EIA Directive.

2.3 IWT, EIA and the EU Birds and Habitats Directives

In May 1992 EU governments adopted legislation designed to protect the most seriously threatened habitats and species across Europe. This was the Habitats Directive (92/43/EC), and it complements the Birds Directive (79/409/EEC) adopted 13 years earlier. At the core of both directives is the creation of a network of sites known as Natura 2000. The Birds Directive requires the establishment of Special Protection Areas (SPAs) for birds. The Habitats Directive similarly requires Special Areas of Conservation (SACs) to be designated for other species and for habitats. Together, these protected areas form the Natura 2000 network, whose purpose is to preserve biodiversity by maintaining or restoring natural habitats. Figure 2.2 shows guidance on the stages of an assessment with respect to a project's potential impacts on a Natura 2000 site.

Figure 2.2 **Project Assessment with Respect to Natura 2000 Sites**



Source: European Commission (2001a).

Current or potential Natura 2000 sites could face conflicting interests arising from development of waterways in the Trans-European Network for Transport (TEN-T), such as the further development

of the Oder-Elbe connection and certain stretches of the Danube River. In such cases, the EU's EIA and SEA procedures apply.

Article 4.4 of the Birds Directive and Article 6(3) of the Habitats Directive concern specific requirements for environmental assessment (Boxes 2.7 and 2.8). Member countries must implement legislation requiring assessment of any project likely to have significant effects on a Natura 2000 site.

Box 2.7 Article 4 of the Birds Directive

1. The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

In this connection, account shall be taken of:

- (a) Species in danger of extinction.
- (b) Species vulnerable to specific changes in their habitat.
- (c) Species considered rare because of small populations or restricted local distribution.
- (d) Other species requiring particular attention for reasons of the specific nature of their habitat.

Trends and variations in population levels shall be taken into account as a background for evaluations.

Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies.

2. Member States shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes. To this end, Member States shall pay particular attention to the protection of wetlands and particularly to wetlands of international importance.

3. Member States shall send the Commission all relevant information so that it may take appropriate initiatives with a view to the coordination necessary to ensure that the areas provided for in paragraphs 1 and 2 above form a coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies.

4. In respect of the protection areas referred to in paragraphs 1 and 2 above, Member States shall take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Outside these protection areas, Member States shall also strive to avoid pollution or deterioration of habitats.

Box 2.8 Article 6 of the Habitats Directive

1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.

2. Member States shall take appropriate steps to avoid, particularly in special areas of conservation (SPAC), the deterioration of natural habitats, the habitats of species as well as disturbance of the species for which the area has been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.

3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

5. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

2.4 Water Framework Directive

Introduction

The WFD (Directive 2000/60/EC) came into effect on 22 December 2000. Its purpose is to establish a common approach to protecting, and setting environmental objectives for, inland surface waters (e.g. rivers, canals, lakes, reservoirs), transitional waters, coastal waters and groundwater.

Not only does implementation of the WFD raise shared technical challenges for EU countries, but also many European river basins are international, crossing administrative and territorial borders, so a common understanding and approach is crucial to successful and effective implementation. To address such challenges in a co-operative and co-ordinated way, the EU Member States, Norway and the European Commission agreed a Common Implementation Strategy five months after the WFD entered into force.

Guidance documents and technical reports have been produced to assist stakeholders in implementing the WFD. The guidance documents are intended to provide an overall methodological approach but will need to be tailored to each country's circumstances.

The WFD, which aims to ensure that water resources are used sustainably, is widely considered a major contribution to EU environmental legislation.

For surface waters, the directive's overall aim is for countries to achieve "good ecological status" and "good chemical status" in all water bodies by 2015. Water bodies designated as artificial or heavily modified may be eligible for derogations from these requirements and instead aim to achieve "good ecological potential" along with good chemical status. For good ecological potential, allowance is made for physical characteristics, such as bank protection, weirs and channel straightening, which have been engineered to allow navigation and other human uses; also, mitigation measures must be applied.

Ecological and chemical quality objectives must be set for all water bodies, whether natural, modified or artificial. Ecological objectives are defined essentially via comparison with the best ecological quality achievable for a given water body.

Box 2.9 Some WFD definitions

- *Good ecological status (GES)* is the status of a body of surface water that meets the relevant requirements set forth in Annex V of the WFD.
- *Good ecological potential (GEP)* is the status of a heavily modified or artificial body of water that meets the relevant provisions of Annex V.
- *Artificial water body (AWB)* is a body of surface water created by human activity (the definition is understood to exclude any water body created by the direct physical alteration, movement or realignment of an existing water body).
- *Heavily modified water body (HMWB)* is a body of water that, as a result of physical alterations by human activity, is substantially changed in character (so that it cannot achieve GES).

Highly Modified Water Bodies and Artificial Water Bodies

The WFD permits countries to identify and designate HMWBs and AWBs if they meet certain conditions set forth in Article 4(3), shown in Box 2.10.

Figure 2.3 shows the steps involved in identifying and designating HMWBs and AWBs. Tentative designation was submitted to the Commission in March 2005, and final classification will be done while elaborating river basin management plans (RBMPs), which are to be completed by 2009.

Step 1, applicable to all water bodies, involves application of the 2003 horizontal guidance document on water body identification. Steps 3-5 come from Annex II of the WFD: section 1.4 on identification of pressures and section 1.5 on assessment of impact.

Box 2.10 Designation of Water Bodies as Heavily Modified or Artificial

Article 4

3. Member States may designate a body of surface water as artificial or heavily modified, when:
- a) The changes to the hydromorphological characteristics of that body [required] for achieving good ecological status would have significant adverse effects on:
 - The wider environment.
 - Navigation, including port facilities, or recreation.
 - Activities for the purpose of which water is stored, such as drinking-water supply, power generation or irrigation.
 - Water regulation, flood protection, land drainage.
 - Other equally important sustainable human development activities.
 - b) The beneficial objectives served by the artificial or modified characteristics of the water body cannot, for reasons of technical feasibility or disproportionate costs, reasonably be achieved by ... a significantly better environmental option.

HMWBs and AWBs must be at least provisionally identified during the characterisation of surface waters. After their identification and designation are finalised for the first river basin planning cycle, on publication of the RBMPs, the designations will have to be reviewed every six years.

The information gathered in the 11 steps summarised in Figure 2.3 will contribute to the RBMPs. These plans will contain programs of measures (outlined in Article 11 of the WFD) to ensure that the environmental objectives for natural water bodies, HMWBs and AWBs are met.

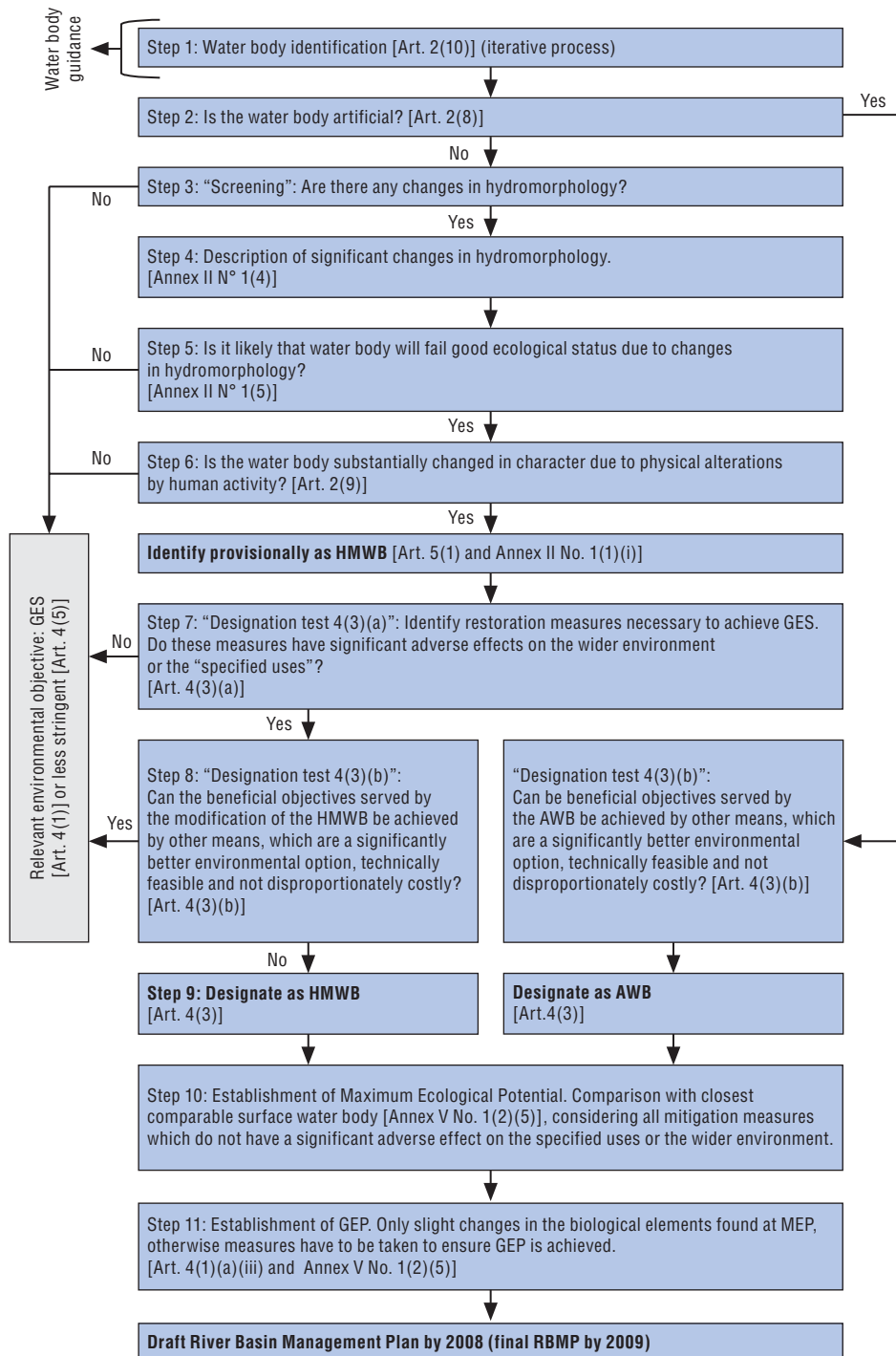
In some cases it will not be beneficial to the environment or society to restore a modified water body to its natural condition, because restoration would have a significant adverse impact on the wider environment. For example, if improvement works disturbed the bed of a water body, this could result in the release of pollutants trapped in sediments. The EU guidance for AWBs and HMWBs considers the wider environment as comprising not only the natural environment but also the human environment, including archaeology, heritage, landscape and geomorphology.

The “significantly better environmental option” cited in Box 2.10 need not mean GES. As has been noted, for waterways designated as HMWB or AWB, the WFD objective is relaxed from GES to GEP (to be achieved by 2015), which means the biological quality must come as close as possible to GES for a comparable natural system such as a freshwater lake or slow-flowing river, while maintaining the beneficial objective of the modification.

Annex V of the WFD specifies that “the quality elements applicable to artificial and heavily modified surface water bodies shall be those applicable to whichever of the four natural surface water categories resembles the heavily modified or artificial water body concerned”. Table 1.2.5. of Annex V defines degrees of ecological potential for HMWBs or AWBs, based on the various quality elements.

If an artificial water body can achieve GES, the country concerned can choose whether to designate it as an AWB; if it is so designated, its GEP objective will be equivalent to the GES objective. A heavily modified water body that can achieve GES, however, cannot be designated HMWB because it will not satisfy the first designation test (shown in Figure 2.3).

Figure 2.3 Steps in HMWB and AWB Identification and Designation



Source: CIS Working Group 2.2 (2003a).

The WFD and the Birds and Habitats Directives

The provisions for protected areas in the WFD under Article 4 on environmental objectives and Article 6 on registers of protected areas make clear that, for a Natura 2000 site, objectives under the Birds or Habitats Directive become the *de facto* WFD objectives and the site is designated as a protected area under the WFD. AWB or HMWB designation does not affect this obligation, and action must be taken as part of the WFD program of measures (Article 11) to ensure that conservation objectives are met.

Key Actions by Member States

Article 1 of the WFD calls for preventing further deterioration of aquatic ecosystems, and Article 4(1)(a)(i) specifies that “Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water”. Preventing deterioration is a logical step towards achieving GES or GEP.

Member States and accession countries committed to adjust their national legislation to the WFD provisions by May 2004. Therefore, they should not only have already developed measures to achieve GES by 2015, but also, more importantly, they may not develop plans that would detract from or undermine the WFD’s prime objective by causing deterioration of the status of water bodies.

Under the WFD, statutory strategic management plans must be produced for each river basin district by 2009. These plans, the RBMPs, will set out how the objectives for all water bodies within each river basin are to be achieved. Box 2.11 outlines these and other key actions.

Box 2.11 Key Actions in WFD Implementation

- Identify the individual river basins lying within their national territory, assign them to river basin districts and identify competent authorities, by 2003 (Art. 3, Art. 24).
- Characterise river basin districts in terms of pressures, impacts and economics of water uses, including a register of the protected areas within each district, by 2004 (Art. 5, Art. 6, Annex II, Annex III).
- Provide tentative designation of water bodies, by March 2005.
- Carry out, with the European Commission, the intercalibration of the ecological status classification systems, by 2006 (Art. 2(22), Annex V).
- Make monitoring networks operational, by 2006 (Art. 8).
- Identify a program of measures, based on sound monitoring and analysis of river basin characteristics, by 2009 to achieve the WFD environmental objectives cost-effectively (Art. 11, Annex III).
- Produce and publish RBMPs for each district, including the designation of HMWBs, by 2009 (Art. 13, Art. 4(3)).
- Implement water pricing policies that enhance the sustainability of water resources, by 2010 (Art. 9).
- Make the measures of the program operational, by 2012 (Art. 11).
- Implement the programs of measures and achieve environmental objectives, by 2015 (Art. 4).

Public Consultation and Participation

Information and participation are basic principles of the WFD, and the competent authorities are legally obliged to involve all key stakeholders, not only those with water quality or ecological interests. This new requirement of active involvement by all interested parties in water resource planning (Box 2.12) represents an important improvement over past situations.

Box 2.12 Public Information and Consultation under the WFD

Article 14

1. Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans. Member States shall ensure that, for each river basin district, they publish and make available for comments to the public, including users:

- a) A timetable and work program for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers.
- (b) An interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers.
- (c) Draft copies of the river basin management plan, at least one year before the beginning of the period to which the plan refers. On request, access shall be given to background documents and information used for the development of the draft river basin management plan.

2. Member States shall allow at least six months for comments in writing on those documents in order to allow active involvement and consultation.

3. Paragraphs 1 and 2 shall apply equally to updated river basin management plans.

2.5 UNECE Conventions and Related Instruments

Espoo EIA Convention

The Convention on Environmental Impact Assessment in a Transboundary Context, adopted in 1991 in Espoo, Finland, provides rules and regulations for contracting parties regarding major projects likely to have significant environmental impacts across borders. Appendix 1 lists specific activities affected, including trading ports, inland waterways and ports for inland-waterway traffic that permit the passage of vessels over 1 350 tonnes.

Among other provisions, this UNECE convention requires parties to:

- (a) Take appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impacts of proposed activities listed in Appendix I.
- (b) Establish EIA procedures that permit public participation.

- (c) Prepare EIA documentation as described in Appendix II (Box 2.13).

Appendix III gives general guidance on determining the environmental significance of activities not listed in Appendix I (Box 2.14).

Box 2.13 Espoo Convention: Content of EIA Documentation

Appendix II

Information to be included in the environmental impact assessment documentation shall, as a minimum contain in accordance with Article 4:

- a) A description of the proposed activity and its purpose.
- b) A description, where appropriate, of reasonable alternatives (for example, locational or technological) to the proposed activity and also the no-action alternative.
- c) A description of the environment likely to be significantly affected by the proposed activity and its alternatives.
- d) A description of the potential impact of the proposed activity and its alternatives and an estimation of its significance.
- e) A description of mitigation measures to keep adverse environmental impact to a minimum.
- f) An explicit indication of predictive methods and underlying assumptions as well as the relevant environmental data used.
- g) Identify gaps in knowledge and uncertainties encountered in compiling the required information.
- h) Where appropriate, an outline for monitoring and management programs as well as plans for post-project analysis.
- i) A non-technical summary including a visual presentation as appropriate (maps, graphs, etc.).

The convention also requires the country initiating an activity to notify other countries concerned and enter into a consultation process, with the public in the affected countries being involved in decision making in a way equivalent to the involvement of the public in the initiating country.

Helsinki Water Convention

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention), adopted in Helsinki in 1992, is intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwater.

It obliges parties to prevent, control and reduce water pollution from point and non-point sources. It includes provisions for monitoring, research and development, consultation, warning and alarm systems, mutual assistance, institutional arrangements, the exchange and protection of information, and public access to information. There are no specific clauses on inland navigation.

**Box 2.14 Espoo Convention: Environmental Significance of
Activities not Listed in Appendix I**

Appendix III

1. In considering the activities proposed in Article 2, paragraph 5, applies, the concerned Parties may consider whether the activity is likely to have significant adverse transboundary impact, particularly due to one or more of the following criteria:

- a) Size: proposed activities which are substantial for the type of the activity.
- b) Location: proposed activities which are located in or close to an area of special environmental sensitivity or importance (such as wetlands designated under the Ramsar Convention,⁴ national parks, nature reserves, sites of special scientific interest, or sites of archaeological, cultural or historical importance); would be likely have significant effects on the population.
- c) Effects: proposed activities with particularly complex and potentially adverse effects, including those giving rise to serious effects on humans or on valued species or organisms, those which threaten the existing or potential use of an affected area along with those causing additional loading which cannot be sustained by the carrying capacity of the environment.

2. The concerned Parties shall consider for this purpose, proposed activities which are located close to an international frontier as well as more remote proposed activities which could give rise to significant transboundary effects far removed from the site of development.

Aarhus Convention and EU Directives 2003/4/EC and 2003/35/EC

The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, adopted in Aarhus, Denmark, in 1998, is a UNECE instrument granting rights to the public and imposing obligations on public authorities.

The European Union has aligned its legislation with the provisions of the convention, mainly through two directives: 2003/4/EC on public access to environmental information, and 2003/35/EC on public participation with respect to the drafting of certain plans and programs relating to the environment, and on access to justice.

Article 6 of the convention requires parties to “provide for early public participation, when all options are open and effective public participation can take place”. It states that “public participation procedures shall include reasonable time-frames for the different phases” and that parties must “ensure that ... due account is taken of the outcome of the public participation” in the decision concerned.

The Aarhus Convention and the two related directives, like the EIA Directive and WFD, leave the responsibility for organising the public consultation and participation procedures to individual countries. For instance, Article 2(3) of the directive on public participation specifies in general terms the obligations of Member States (Box 2.15).

Box 2.15 Directive 2003/35/EC on Public Participation

Article 2(3)

Member States shall identify the public entitled to participate for the purposes of paragraph 2, including relevant non-governmental organisations which meet any of the requirements imposed under national law, such as **those promoting environmental protection**.

The detailed arrangement for public participation under this Article shall be determined by the Member States so as to enable the public to prepare and participate effectively.

Reasonable time-frames shall be provided allowing sufficient time for each of the different states of public participation required by this Article.

Annex II of Directive 2003/35 adds an Annex V to Directive 96/61/EC on integrated pollution prevention and control. The articles of this annex in general also apply to EIA procedures regarding infrastructure plans, programs and projects, and they include specific additions to the arrangements for public consultation of Directives 97/11/EC (amending the EIA Directive) and 2001/42/EC (the SEA Directive).

Box 2.16 Directive 2003/35/EC, Annex II

In Directive 96/61/EC, the following Annex shall be added:

ANNEX V

Public participation in decision-making

1. The public shall be informed (by public notices or other appropriate means i.e., electronic media where available) of the following matters early in the procedure decision making or, at the latest, as soon as the information can reasonably be provided:

- a) The application for a permit or, as the case may be, the proposal to update a permit or permit conditions in accordance with Article 15(1), including the description of the elements listed in Article 6(1).
- b) Where applicable, the fact that a decision is subject to a national or transboundary environmental impact assessment or to consultations between Member States in accordance with Article 17.
- c) Details of the competent authorities responsible for decision making, those from which relevant information can be obtained, those to which comments or questions can be submitted, and details of the time schedule for transmitting comments or questions.
- d) The nature of possible decisions or, if one exists - the draft decision.
- e) Where applicable, the details relating to a proposal to update a permit or permit conditions.

Box 2.16 Directive 2003/35/EC, Annex II (continued)

- f) An indication of the times and places where, or by which, the relevant information will be made available.
 - g) Details of the arrangements for public participation and consultation made pursuant to point 5.
2. Member States shall ensure that, within appropriate time-frames, the following is made available to the public concerned:
- a) in accordance with national legislation, the main reports and advice issued to the competent authority or authorities at the time when the public concerned were informed in accordance with point 1;
 - b) in accordance with the provisions of Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information (*), information other than that referred to in point 1 which is relevant for the decision in accordance with Article 8 and which only becomes available after the time the public concerned was informed in accordance with point 1.
3. The public concerned shall be entitled to express comments and opinions to the competent authority before a decision is made.
4. The results of the consultations held pursuant to this Annex must be taken into due account in the decision making process.
5. The detailed arrangements for informing the public (for example by bill posting within a certain radius or publication in local newspapers) and consulting the public concerned (for example by written submissions or by way of a public inquiry) shall be determined by the Member States. Reasonable time-frames for the different phases shall be provided, allowing sufficient time to inform the public and for the public concerned to prepare and participate effectively in environmental decision-making subject to the provisions of this Annex.

NOTES

1. A strict, politically agreed definition of “sustainable transport” in the EU does not yet exist. Generally speaking, a sustainable transport system must contribute to economic and social welfare without depleting natural resources, destroying the environment or harming human health. The European Commission Expert Group on Transport and Environment (2000) defines a sustainable transport system as a system that:
 - Allows basic access needs and development of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between generations.
 - Is affordable, operates efficiently, offers choices in transport mode, and supports a vibrant economy, and regional development.
 - Limits emissions and waste within the planet’s ability to absorb them, uses renewable resources at or below their rates of generation, uses non-renewable resources at or below the rates of development of renewable substitutes and minimises the use of land and the generation of noise.

This definition, which is an extension of the definition of environmentally sustainable transport that has been applied in the OECD project on environmentally sustainable transport, is proposed by the Expert Group for use in the EU.
2. In this report, “environmental impact assessment” refers to the *procedure* that fulfils the environmental assessment requirements of the EU’s EIA Directive, while “environmental impact statement” refers to a part of the EIA procedure.
3. A review of the literature yields various lists of potential environmental impacts, but no single list that is totally consistent and/or complete.
4. The intergovernmental treaty providing the framework for national action and international co-operation on the conservation of wetlands. The 147 contracting parties to the convention have designated 1 524 wetland sites, totalling 1.3 million km², for inclusion in the Ramsar List of Wetlands of International Importance.

Chapter 3

PRACTICE AND EXPERIENCE IN SELECTED COUNTRIES

3.1 Responses to the Questionnaire

A questionnaire was developed and distributed to (a) identify the cases to be addressed regarding the evaluation of good and bad practice at national level, and (b) identify the legal framework and regulations in each country concerned. Fifteen project cases were reported on and the results analysed (see Map 1).

Germany

- Niederfinow ship lift in the Havel-Oder waterway.
- Improvement at the mouth of the Mosel River.
- Second lock system at Fankel in the Mosel River.
- Maintenance plan of the Elbe River.
- Deepening of the Außenweser at Bremerhaven.
- Modification of the Unterweser River and the Außenweser estuarine channel at Bremerhaven.
- Improvement of the Danube River section between Straubing and Vilshofen.

France

- Seine-Nord Europe development.
- Dunkerque-Valenciennes-Tournai Canal.
- Rhine-Rhône link.

The Netherlands

- Rehabilitation of the Prinses Margrietkanaal.

Austria

- Improvement of the Danube River between Vienna and the Slovak border.

Czech Republic

- Elbe weirs.
- Elbe channel improvement.

Romania

- Waterway improvement projects on the Danube (Sulina canal and Călărași-Brăila section).

Ukraine

- Danube-Black Sea bypass (Bistroye Canal).

Annex 1 presents the questionnaire and responses, which are summarised below.

Environmental Issues

All cases deal with inland waterway development projects; no shipping, port or fleet development projects are included. One project reports problems regarding sediment and water quality but no other adverse environmental impacts are reported as being due to shipping and/or IWT operations (ports, ship lifts and locks) themselves.

The major problems reported instead focus on the planning of inland waterway development and relate to (a) competition for use of the waterway (hydropower, navigation, flood control, agriculture, ecology, natural parks), for both canal and river systems and adjacent areas (wetlands, flood plains); and (b) associated river training works: dams, weirs, locks, groyne systems, bank protection, etc.

Potential hydromorphological pressures thus dominate the environmental issues raised, and the most significant direct environmental impact reported is due to dredging and disposal of dredged material.¹

Numbers 3, 6 and 10 above are the only projects reported to have been abandoned or suspended because of environmental problems. Although no specific details are presented, the long history of the Rhine-Rhône link indicates that, apart from possible insufficient economic benefits, the failure of the project may be attributed to (a) inappropriate and untimely preparation of environmental impact studies, (b) changes in policies and environmental regulations during the long preparation period and (c) changes in societal interests over the period.

When evaluating the project cases regarding involvement of stakeholders and beneficiaries, the preliminary conclusion drawn is that strictly following and respecting the official rules and regulations, while essential, does not guarantee success.

Legislation and Procedures

Regarding requirements for and implementation of EIA, each country has its own set of rules and regulations. All EU members have adopted EU legislation in this respect.

It will be useful to investigate the extent to which the newest EU countries have adopted the relevant EU rules and regulations thus far, and what the situation is in this respect in other countries, such as Ukraine, Romania and Bulgaria.

In all but a few cases, the rules and regulations appear to have been strictly followed. In some cases it is reported that, to secure stakeholder support, more activities were undertaken than required.

A key concern seems to be ensuring that the decision-making process is not unnecessarily delayed, since societal appreciation of environmental and other interests develops and changes over time, as do associated rules and regulations.

Effects of EU Bird, Habitats and Water Framework Directives at National Level

As mentioned earlier, the EU Birds and Habitats Directives have a major impact on the development of IWT infrastructure, and their objectives for protected areas became *de facto* objectives of the WFD as well.

In the WFD, the AWB or HMWB designation and the definition of GES or GEP for water bodies in specific terms may have significant implications regarding opportunities for future development of navigation.

In general, it seems, shipping and IWT are recognised, during the designation of existing waterways under the WFD, as being of pressing interest. It is reported that IWT authorities are involved in the designation process, albeit rather passively in some countries. Given that preliminary designations had to be submitted to the European Commission by March 2005, it is now vital for the IWT sector to participate actively in elaboration of the RBDPs to be established by 2009.

Preliminary Conclusions

Analysis of the responses shows that success (in terms of finding a broadly accepted solution for a project) depends on key points including:

- The number, extent and intensity of conflicting interests.
- Strict adherence to rules and regulations in project preparation.
- Timely preparation of environmental impact studies.
- Timely decision making to avoid the risk that rules, regulations and environmental policies will change during project preparation.
- Open and early communication with, and involvement of, stakeholders such as government agencies, the private sector, the public and NGOs.

These preliminary conclusions are reviewed below in the context of experience and practice in France, Germany, Austria, Romania and Ukraine.

3.2 France

Legislation and Procedures

In general the administrative procedure for the preparation of large infrastructure projects in France is as summarised in Figure 3.1.

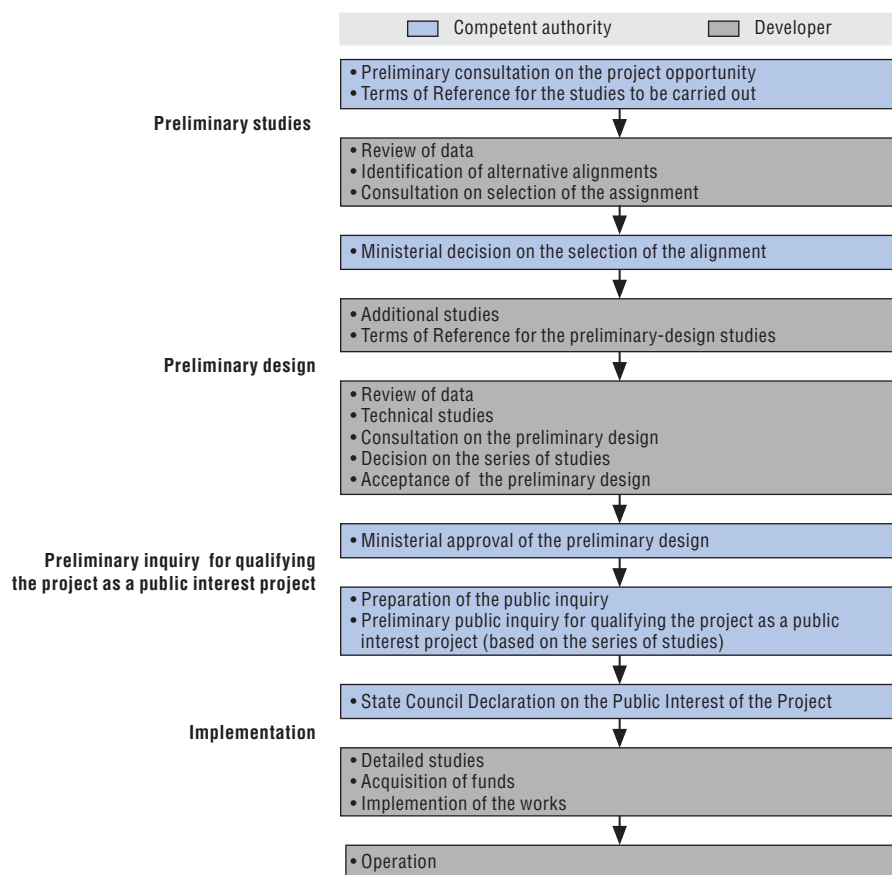
A more detailed flow diagram is presented in Annex 2.1 of this report.

The French Government defines policy and sets priorities with respect to physical planning programs and projects during sessions of the Comité Interministériel de l'Aménagement et du Développement du Territoire (CIADT), the Interministerial Committee on Land Management and Development, chaired by the prime minister or the minister in charge of physical planning.

Regarding EIA, the Code de l'Environnement covers not only the legal text on environmental assessment of projects and programs but also obligations and procedures with respect to public participation in the course of project development. Annex 2.1 lists the most relevant sections of the code.

The code entered into force in 2002 and incorporates the relevant provisions of EU directives, including the Birds, Habitats and Water Framework Directives.

Figure 3.1 Procedure for Development of Large Infrastructure Projects, France



Source: Philippe Rochette.

Public Consultation and Participation

The Code de l'Environnement also takes into account the provisions of Directive 2003/4/EC on public access to environmental information, which appear in Article L124-1 of the code. The directive itself and the provisions of Article L124-1 are based in turn on the Aarhus Convention.

In addition, a law on *la démocratie de proximité* (local democracy) promulgated by the French Government on 27 February 2002 includes provisions on public participation in the development of major projects.

The law of 12 July 1983 on democratisation of public enquiries and environmental protection, known as the Bouchardeau law, made EIA obligatory for certain types of project and provided new regulations with respect to informing the public. Difficulties met during the development of the high-speed train link to the Mediterranean led to a procedure being established for public consultation at an early stage of major infrastructure project development, including creation of an independent body to be in charge of public debate.

This body, the Commission Nationale du Débat Public (CNDP), established in 1997 with a secretariat overseen by the environment minister, organises public debate on major projects. Its

establishment is the result of strong demand for public information and participation prior to project implementation.

The local democracy law transformed the CNDP into an independent administrative authority charged with guaranteeing that public debate takes place and ensuring that the public is informed on major projects. The law confirmed the principle that the CNDP organises public debate on the opportunities, objectives and main characteristics of such projects.

Consultation of interested parties takes place from the earliest stages of a project. During the planning and evaluation stage, the CNDP organises a public debate based on a file provided by the developer (*maître d'ouvrage*). The file describes the project's objectives and main characteristics, assesses the economic and social risk involved, identifies the main environmental impacts and estimates the economic and social costs. The CNDP guarantees public participation during the entire project development process, from the start of preliminary studies until the closure of public inquiries.

Seine-Nord Europe Project

The Seine-Nord Europe Canal will be the French section of the Seine-Escaut (Scheldt) European link. It will run 105 km from Janville, north of Compiègne, to the Dunkerque-Escaut Canal, crossing the regions of Picardy and Nord-Pas-de-Calais (see Map 2). The decision to develop the Seine-Nord Europe Canal was taken by the CIADT on 18 December 2003, with the aim of obtaining a decree of *déclaration d'utilité publique* (project go-ahead) by the end of 2007.

Environmental Issues

With respect to canal and river bank management, in 2003 the project developer, Voies Navigables de France (VNF), published a technical guide on ecological protection of navigable river and canal embankments. Regarding waterway dredging, since 1995 the technical procedures involved in dredging operations have been the subject of a circular, distributed nationally within VNF, which notably requires systematic physical-chemical analyses prior to dredging and feasibility studies if extracted substances are a source of pollution. With respect to dredging spoil, VNF finances numerous research programs on improving the techniques used in extracting, managing, processing and disposing of dredged material.

The proposed canal corridor does not coincide with an existing river or stream corridor, so the project will not upset the function of existing river and wetland ecosystems. Selection of the corridor was based on the results of a multi-criteria analysis. Of the 16 criteria considered, 9 concerned the environment – an unusually high proportion.

The canal corridor avoids the high-water bed of the Oise, Somme and Escaut river valleys, which have significant ecological value. It also avoids densely populated areas, which traditionally develop along watercourses. Nor is the Seine-Nord Europe Canal expected to affect local water resources significantly, as it is designed to function autonomously, its water being recycled via pumping stations. Withdrawal of water from the environment will be limited to the amount necessary to replace losses from evaporation, and can be suspended during dry periods.

For the canal ecosystem to function with characteristics closely resembling those of a lake or slow-moving stream, the layout of the banks will be important. So will the quality of the canal water, which should meet the standards for support of aquatic life.

Inclined banks will have to be planted with suitable trees and shrubs, and where lagoons separate navigation channels from banks they will be seeded with aquatic plants. To control water pollution, measures will be needed to avoid pollution due to surface water run-off, drainage, and contamination by organic matter and minerals from waste water. The plans should also include fish spawning and rearing areas.

Developer

The corridor having been determined by ministerial decision on 8 April 2002, the government asked VNF in 2004 to conduct preliminary design studies for the proposed canal.

VNF was established in 1991 to manage, maintain and develop France's navigable rivers and canals, which total some 6 700 km. Its environmental policy has long included a commitment to restoring the ecological functions of waterways and mitigating the main impacts on biodiversity and the natural environment. In the latter regard, its main activities are:

- Building pool systems, fish ladders, fish locks, elevators and artificial channels to enable migrating fish to get past dams.
- Whenever possible, using “soft” engineering techniques instead of civil engineering approaches to bank protection, including measures to promote the development of indigenous vegetation on the canal and river banks.
- Establishing game and beaver passages along canals to prevent animals from drowning; openings are made in the bank protection, below normal water level, to provide animals with “footholds” that allow them to reach the top of the bank, and “biological corridors” guide beavers and other mammals towards natural paths to keep them from crossing roads.
- Protecting and restoring natural environments (e.g. rehabilitating fish spawning grounds), and drafting documents detailing objectives related to the Natura 2000 network.

Environmental Studies

The first EIA was conducted as part of the preliminary design studies. A detailed EIA of the project and a description of mitigating measures will be integrated into the public consultation file (*dossier d'enquête publique*) before the public utility declaration is decreed.

Public Consultation and Participation

Public debate on the concept of such a project first took place from December 1993 to February 1994, assessing the relevance of the project, its advantages and possible disadvantages and its potential impact on the economy and physical planning. In 1995 and 1996 preliminary studies were executed and 21 possible corridors were proposed for analysis and comparison. From 15 September to 31 December 1997 public consultation took place on which corridor should be selected. More than 2 500 persons participated in the meetings. Moreover, numerous meetings on specific themes were organised by demand of local stakeholders.

The preliminary design stage started on 22 April 2004. Public consultation began while preliminary design studies were still under way so that the opinions expressed by stakeholders (local authorities, NGOs, etc.) could be incorporated as soon as possible.

The formal public consultation activities of the preliminary design stage started in March 2005 with a meeting to inform stakeholders about progress on the project studies and, especially, to hear stakeholder opinions on the various versions of the selected alignment then being studied. In one month alone, 23 intercommunity and thematic meetings were held. At intercommunity meetings, local stakeholders submitted remarks, recommendations and opinions on the canal alignment, allowing a range of local variations to be developed.

A second round of consultation meetings, from 15 May to 19 September 2005, was organised along lines recommended by the CNDP and further expanded the number of opinions available to VNF. In all, 70 public consultation meetings took place between 11 March and 19 September 2005. These meetings contributed effectively to the definition of the canal alignment.

The preliminary design dossier will be based on the results of the studies executed as well as the results of the consultation meetings, which involved all stakeholders and the relevant governmental agencies.

3.3 Germany

Legislation and Procedures

Figure 3.2 illustrates the project planning procedure in Germany. IWT development projects are based on the Federal Infrastructure Plan, which results from strategic planning at federal level and is regularly amended. Projects resulting from the strategic planning are subject to cost-benefit analysis and environmental risk analysis.

The instruments describing the plan approval procedure for IWT projects are the administrative ordinance VV WSV 1401, *Guidelines for Planning Procedures for the Development and New Construction of Federal Waterways, Part B*, and the Federal Administrative Procedures Act (*Verwaltungsverfahrensgesetz*). The guidelines are undergoing review to reflect certain EU directives, with the result that projects modifying an existing navigation channel will be subject to a plan approval procedure, including EIA.

A recent EIA procedural flow chart (Figure 3.3) shows the plan approval procedure (*Planfeststellungsverfahren*, which for inland waterway projects are the responsibility of various waterway and shipping authorities), including necessary comparisons and assessments regarding the EU Birds, Habitats and Water Framework Directives.

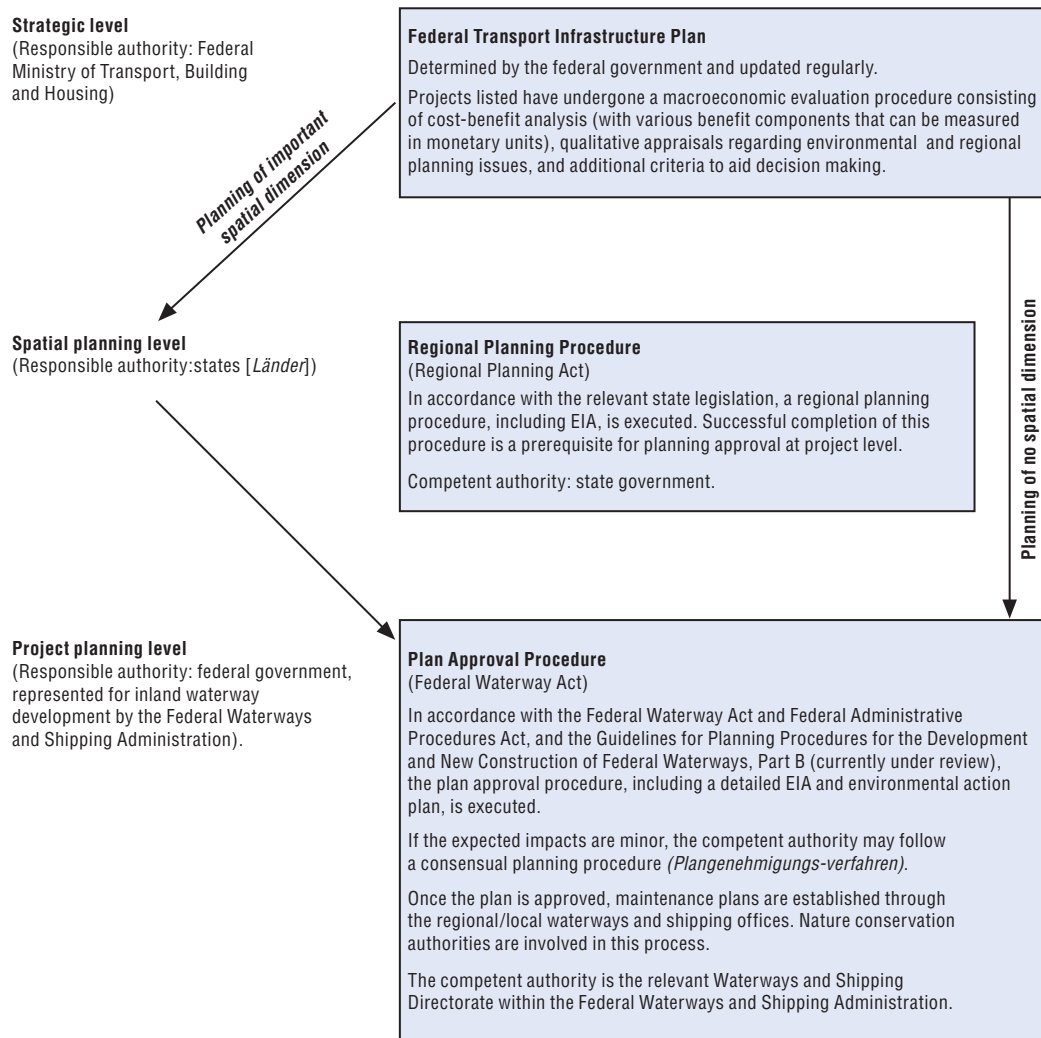
For larger projects a regional planning procedure (*Raumordnungsverfahren*), carried out at the level of the states (*Länder*), precedes the plan approval procedure. The steps of this procedure are laid out in the following legislation:

- *Raumordnungsgesetz* (law on regional policy of the Federal Republic of Germany, par. 15).
- *Raumordnungsverfahrensverordnung* (decree on the regional planning procedure, par. 1).
- *Umweltverträglichkeitsprüfungsgesetz* (UVPG, law on EIA, par. 16).

The steps of the regional planning procedure are similar to those of the plan approval procedure, and focus on major issues and alternative solutions. The regional planning procedure:

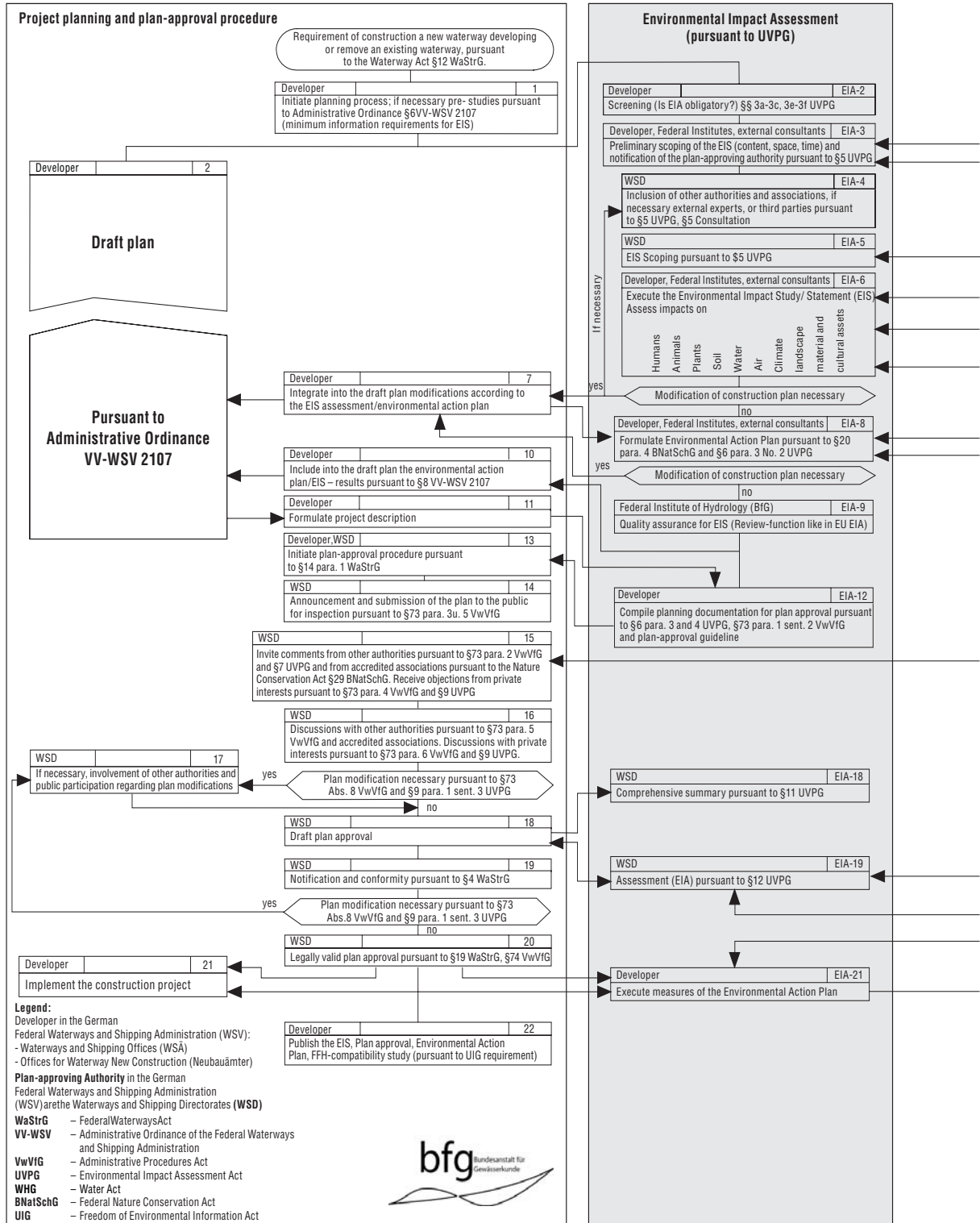
- Indicates conflicting interests.

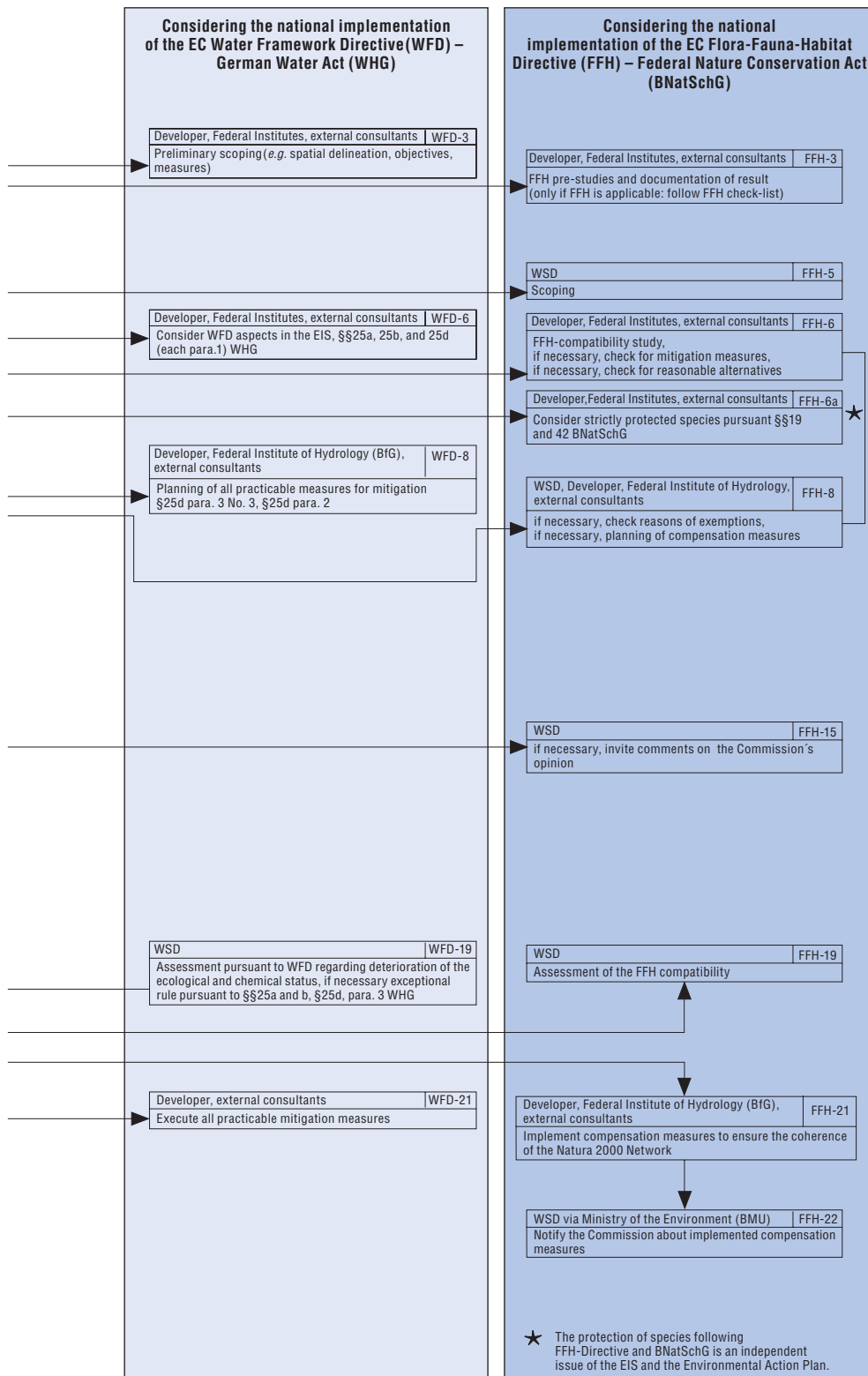
- Identifies feasible alternatives.
- Limits development of areas that should be preserved.
- Expedites subsequent administrative procedures.
- Is designed to be open in order to improve public acceptance of the results.

Figure 3.2 **Planning Procedure in Germany**

Source: BFG.

Figure 3.3 EIA Procedure in Germany, August 2005 Draft





The plan approval procedure itself begins with Article 5 of the UVPG, calling for a meeting with all official stakeholders and beneficiaries to discuss and identify the scope and extent of any remaining studies to be carried out.

The plan approval procedure also includes evaluation of the project in the light of the relevant EU directives.

Public Consultation and Participation

The guidelines on planning for federal waterways outline the formal process of public consultation related to the plan approval procedure. Scoping accompanied by public consultation is compulsory for all IWT projects in Germany.

Danube Straubing-Vilshofen Project²

The 70 km section of the Danube River between Straubing and Vilshofen (see Map 3) is free-flowing and of high ecological value. Upstream and downstream of this stretch, a series of locks and weirs provides a least available depth (LAD) for navigation of 2.5 metres. On the Straubing-Vilshofen section LAD is 1.8 to 2.0 metres.

A regional planning procedure for the project was begun in the early 1990s but was terminated in 1996, chiefly because of potential environmental impacts and conflicts with flood control interests.

An initial stakeholder meeting in 1996 supplied input for the terms of reference on the studies required and alternatives to be considered. The detailed studies, conducted from 1996 to 2001, comprised the following steps:

- Identification of the assessment framework and criteria for five alternatives.
- Identification and assessment of environmental impacts.
- Analysis of conflicts and identification and elaboration of compensating and mitigating measures.
- Identification and definition of the landscape and ecological objectives for the Straubing-Vilshofen area.
- Identification and definition of regional planning objectives.
- Description of the alternatives and their impacts.
- Analysis of the situation and assessment of natural and human resources.

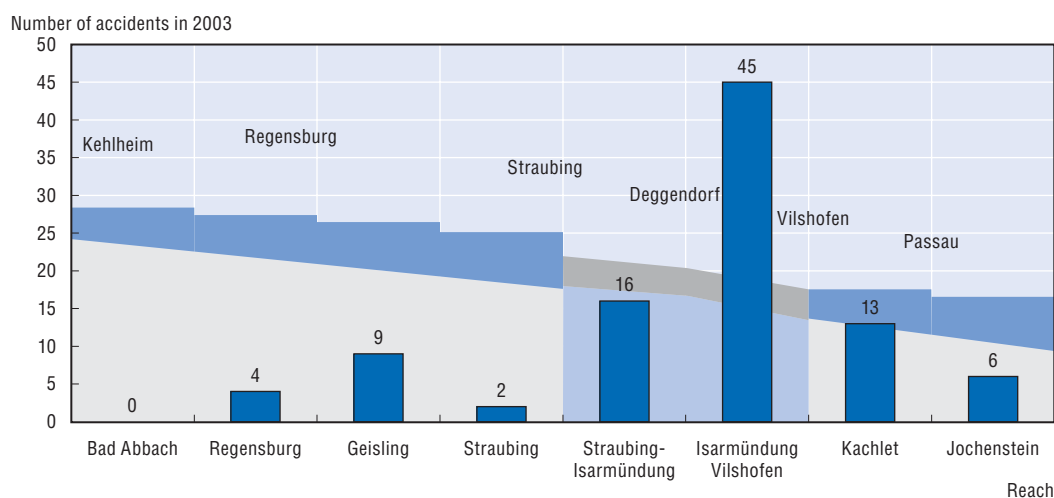
Other waterway projects in Germany have not undergone such detailed studies. Figure 3.4 shows important characteristics of the Straubing-Vilshofen section in relation to other reaches of the Danube in Germany. The diagram shows the LAD in each section; that of the Straubing-Vilshofen section is exceeded for about 200 days per year while on the other stretches LAD is exceeded almost year-round. The figure also shows the number of navigation accidents recorded in each reach in 2003.

Due to the size and importance of the project, a regional planning procedure was carried out before the plan approval procedure. The regional procedure comprised the following steps:

- December 2003 to December 2004, drawing up of plans and scoping of the EIA procedure.
- January to April 2005: participation phase, with 130 parties invited to give comments.
- May to June 2005: evaluation of comments (110 statements and 17 000 signed objections by individuals).

- Summer to autumn 2005: decision and publication of alternative selected.

Figure 3.4 **Danube River, Bad Abbach to Jochenstein: Available Depth and 2003 Navigation Accidents**



Source: Wasser- und Schifffahrtsamt Regensburg, in presentation by Gerhard Haimerl, RMD Wasserstrassen GmbH, 2005

The following steps were or are to be carried out at the same time as the EIA procedure:

- After selection of the preferred alternative by the Waterways and Shipping Directorate with support from the federal and Bavarian state authorities, another meeting of beneficiaries and stakeholders was organised, under Article 5 of the UVPG, to discuss the terms of reference of additional environmental studies required before the start of the plan approval procedure.
- Formal review of the project in the context of the Habitats and Birds Directives will take place in 2006-07.
- Key actions regarding the WFD began in 2003 and are to continue until 2015.
- The plan approval procedure is to be carried out over 2007-09; it takes into account the decisions and policies resulting from the regional planning procedure and the results of the above steps.
- Implementation could be complicated by legal procedures but is expected to begin in about 2010.

Environmental Issues

The major environmental issue is conflict of interest between the shipping industry, which seeks harmonised navigation conditions on all sections of the Rhine-Main-Danube route from Rotterdam to the Black Sea, and environmentalists, who want to keep the Straubing-Vilshofen reach free-flowing and as natural as possible. Other environmental and social issues relate to fishery, recreation, tourism,

agriculture and urban development. The Straubing-Vilshofen section of the Danube has been given a provisional WFD designation of HMWB.

Conservationists put a particularly high value on this stretch of the river because dams and canals for power production, flood protection and navigation have modified so many of Germany's riverine landscapes. Damming the river at this point would seriously affect its landscape value and the local ecology.

Developer

RMD Wasserstrassen GmbH, a wholly owned subsidiary of Rhein-Main-Donau AG (itself owned by the state of Bavaria and the Federal Republic of Germany), was founded in 1998 as the developer for the Straubing-Vilshofen project. This is an exception to the usual practice, in which the Waterways and Shipping Offices serve as developer for waterway projects.

Alternative Solutions

After due consideration of the situation, four alternatives were studied in detail:

- a) Leaving the stretch free-flowing and carrying out river training works to achieve LAD of 2.2 metres for an average of 180 days per year.
- b) Free-flowing with river training to reach LAD of 2.5 m for 95% of the year, which would have required river bed stabilisation (but this option was dropped for technical and economic reasons).
- c) A one-barrage project combined with river training works as described in alternative (a).
- d) Either (i) a two-barrage project with relatively high hydraulic heads, or (ii) a three-barrage option with relatively moderate hydraulic heads.

Detailed technical descriptions of these alternatives served as input for environmental studies, spatial compatibility studies and mitigation/compensation plans. The studies and the evaluation methods used were broadly accepted by the stakeholders involved. While all impacts can be mitigated or compensated for, the alternatives entail differences regarding temporal scale, spatial scale and significance of impacts. In terms of environmental friendliness, the alternatives can be ranked in roughly the above order.

Consistency of Policy and Political Support

Political support of projects, and preferences among the various alternatives, may differ due to the constitutional makeup of Germany as a federal republic with fairly autonomous states.

The Federal Waterways and Shipping Administration, as owner of the waterway, is responsible for its management and development, and is the competent authority for the plan approval procedure. It has decided to continue the planning process based on alternative (a), which it considers as taking into account all interests involved.

The competent authority for the regional planning procedure, however, is the state of Bavaria. The state government favours either alternative (c), with one weir/lock system and additional river training works, or (d) (ii), with three relatively low-head weirs and locks.

Public Consultation and Participation

In addition to the consultation and participation procedures outlined above in the project description, results of the technical elaboration of the alternatives, detailed analysis and evaluation of environmental impacts were made public at www.do-gis.de.

These results and the various points of view on the project were presented in a public colloquium in Deggendorf and were submitted as part of the regional planning procedure. Austria was also kept informed, and was invited to comment in the regional planning procedure. The Austrian Government's main concern is how the different alternatives would affect flood frequency in Austria.

The 110 formal statements and 17 000 signed reactions from individual citizens submitted during the public consultation phase in the spring of 2005 can be summarised as follows:

- The environmental parties accepted only alternative (a).
- The farming sector rejected alternative (d)(ii) because the area required for compensation and mitigation measures would be too large.
- The Donau Wald regional planning association favours alternative (c).
- The widely ranging views of the 70 municipalities involved are related to flood control rather than the development of the waterway.
- New issues for further investigation were raised, notably (i) the effects of low water levels on the Staatshaufen and Isarmündung nature reserves, (ii) the effects of the free-flowing option on aquatic ecosystems, (iii) the effects of flood control measures on erosion and aquatic ecosystems and (iv) the reliability of transport demand projections.

Because the first attempt to initiate the regional planning procedure in the early 1990s failed, the second attempt in 1996 began with public consultation on the types of project to be considered and the studies to be conducted. This is not a mandatory part of the regional planning procedure, although it is required under Article 5 of the UVPG in the plan approval procedure that is scheduled for 2007-09.

While all parties may not agree on the option selected, early involvement of the beneficiaries and stakeholders in 1996 contributed to acceptance of the results of the studies carried out.

3.4 Austria

Legislation and Procedures

The legal framework in Austria has been adjusted to reflect EU regulations and international agreements, most notably the SEA, EIA, Habitats, Birds and Water Framework Directives, the Ramsar Convention, the Espoo Convention and the Aarhus Convention (in the form of directives 2003/4/EC and 2003/35/EC, the former being the basis for Austria's 2005 Environmental Information Act, or *Umweltinformationsgesetz*).

The main Austrian laws regarding EIA procedures at federal and state level are the Vienna and Lower Austria Environmental Protection Acts, the Water Act and the National Parks Act (*Naturschutzgesetz Wien*, *Naturschutzgesetz Nieder-Österreich*, *Wasserrechtgesetz* and *Nationalparkgesetz*).

Provisions of the WFD were included in the 2003 amendment to the Water Act, which among other matters defined criteria for GES and GEP; thus, the risk of noncompliance has already been assessed for most water bodies. An exception is the section of the Danube east of Vienna, whose designation has not yet been decided, though the opening in June 2005 of an expanded and modernised sewage treatment plant is expected to improve its water quality considerably. The criteria for water body designation are solely based on ecological considerations, i.e. exclusive of potential uses. Figure 3.5 shows the steps involved in Austria's EIA procedure.

The EIA procedure (*Umweltverträglichkeitsprüfung*) can be briefly summed up as the combination of an EIS (*Umweltverträglichkeitserklärung*, which is the responsibility of the developer) and the environmental permit (*Umweltverträglichkeitsgutachten*) issued by the competent authority (in this case, the states or *Länder*) on the basis of the EIS. For the Vienna East project the states involved are Vienna and Lower Austria. The federal government does not have the final say; it can only make recommendations. On international issues, collaboration and decision making are organised very well within this system, with certain topics sometimes necessitating additional co-ordination efforts.

Public Consultation and Participation

The history of the Danube IWT project downstream of Vienna contributed to the innovative integrated approach being taken, in which all interested parties have been co-operating to arrive at a balanced solution.

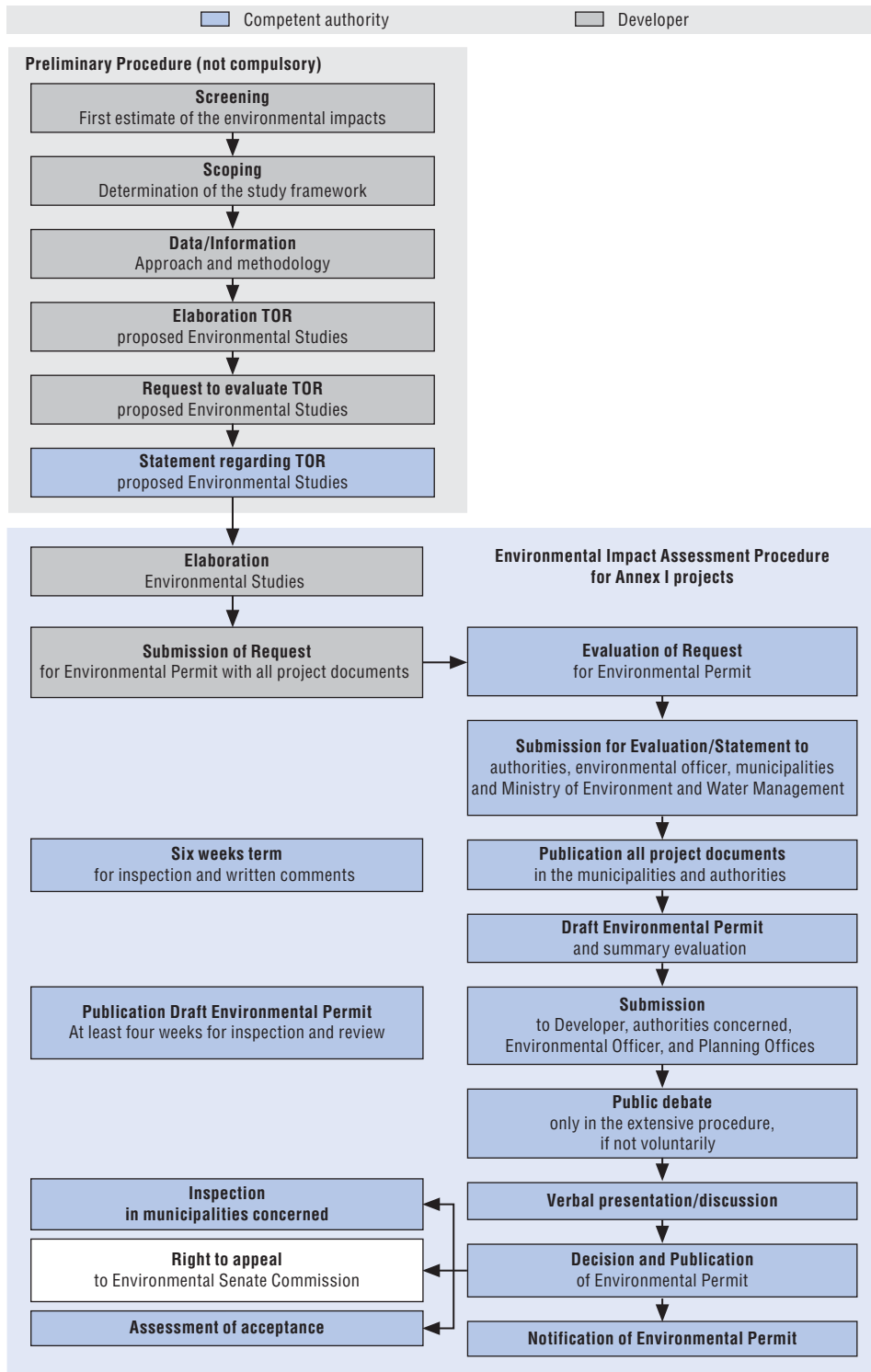
When the Danube improvement project was first developed in the 1970s and early 1980s, it was envisaged as combining hydropower generation and improved navigation via a weir and lock system at Hainburg. In 1984, the project was halted for failure to follow due process in issuing permits. Intense opposition, especially on environmental grounds, and broad public resistance led to its being abandoned as then conceived.

An environmental commission was established in 1985 and guiding principles were agreed: (a) a weir would be built at Freudenu; (b) no weir would be installed at Hainburg, so that the river would be free-flowing to Gabčíkovo in the Slovak Republic; (c) river degradation would have to be halted within 20 years; and (d) the status of national park would have to be respected.

By 1996, however, when the Danube Flood Plain National Park was finally created, it had become clear to all parties that a compromise was needed to balance the interests of navigation and environmental protection. The Federal Ministry of Transport, Innovation and Technology (BMVIT) and the Waterway Authority, Via Donau, began working with the national park management to find a win-win solution.

To this end, in 2001 an independent moderator was appointed and an interdisciplinary steering committee established, and an integrated approach was initiated. A clear distinction was drawn between moderation (where all parties have to agree, without pre-set conditions) and mediation (in which a mediator assists the developer in achieving objectives within predetermined margins). For moderation to be fully successful it must be applied from the outset; it is noted, for instance, that the costs of ultimately unsuccessful moderation in relation to the third landing strip at the Vienna airport totalled EUR 1.8 million over five years.

Figure 3.5 EIA Procedure in Austria



Source: Consultants' analysis.

The steering committee, which has the final say, is composed of environmental and other experts and park representatives. It is chaired by a BMVIT representative and reports to BMVIT and Via Donau. Its aims are to ensure that an integrated approach is taken, formulate planning principles, promote co-ordination and consensus, keep the process transparent and oversee the establishment of a water and environmental monitoring system.

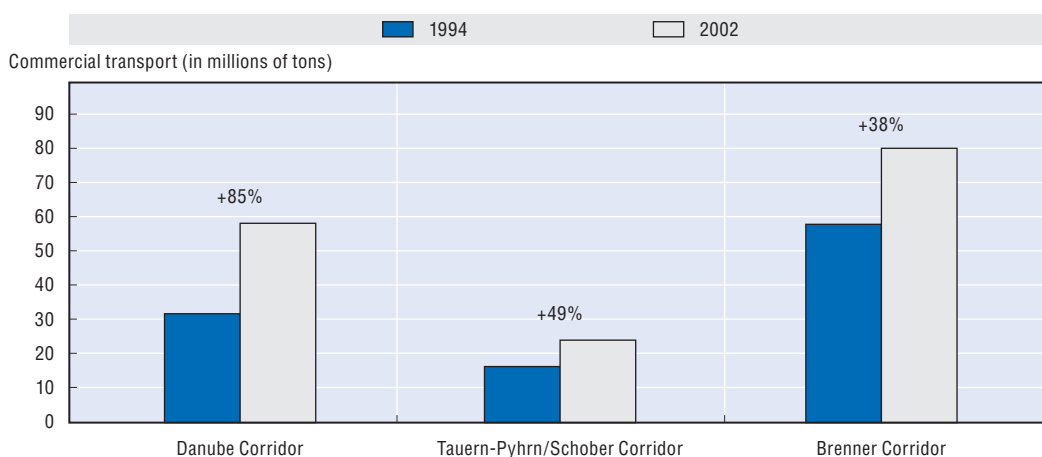
In the conception phase, five workshops were held with stakeholders: one general and four regarding (a) interests and demands, (b) identification of solutions, (c) identification of alternatives and boundary conditions, and (d) a dialogue with the steering committee to discuss alternatives. The workshops were organised to receive comments, which have been taken into account in the further elaboration of the project.

It is important to note that the agreed solution is a compromise. Although the ultimate outcome is generally considered a win-win situation, neither the environmental nor navigation interests are entirely satisfied, but both can live with the solution. WWF Austria and international WWF have more or less expressed agreement with the chosen option, but have said they fear that, downstream of Austria, improvements to fairway conditions will not integrate ecological considerations to the same extent as in Austria.

Danube Vienna East Project³

The Danube, Europe's second longest river, links Austria with areas of economic growth potential in south-eastern Europe. With the Main-Danube Canal and the Rhine it forms a transport axis extending from the North Sea to the Black Sea. Because of its strategic importance it is included in TEN-T as Pan-European Corridor VII. EU enlargement has led to steadily rising traffic volumes along the Danube corridor, where commercial transport grew by 85% from 1994 to 2002 (Figure 3.6.). The largest increase was in road traffic, which soared by 119%. Experts forecast annual GDP growth rates of 3-4% for the new EU member states and accession candidates in south-eastern Europe over the next ten years. Thus, enlargement will further accelerate traffic increases.

Figure 3.6 Cross-border Transport in Austria



Source: Schramm (2005)

The Danube waterway has considerable spare transport capacity but so far has been able to capture only a small share of the enormous traffic growth in the Danube corridor. A key reason is the

insufficient fairway conditions in the free-flowing sections of the Upper Danube. Removing these bottlenecks is widely considered a prerequisite for assuring an environmentally and socially sustainable transport system on the Danube. Improvement of the Danube waterway for navigation is a priority of Austrian transport policy.

The section of the Danube between Vienna and the Slovak border (see Map 4) is one of the weakest points, in terms of efficiency, on the east-west transport axis. It is characterised by continuous riverbed erosion, up to 3.5 cm per year, along with insufficient or widely fluctuating fairway depths, which greatly hinder efforts to ensure that navigation is a reliable and competitive mode of transport.

The objective of the project is to balance the interests of inland navigation and the environmental needs of the national park.

Environmental Issues

A major environmental issue was the original plan to canalise the free-flowing stretch of river with a weir and lock system. This would have strongly changed the ecological balance of what is now the national park, and measures would have been needed to minimise the risk of extensive wetland drying.

Moreover, a series of upstream dams retains sediment, altering the sediment balance downstream and resulting in net river bed erosion (at Wildemauer the water level dropped about 70 cm in 50 years). Measures to restore the balance are under consideration.

Developer

To address these issues and improve navigational and ecological conditions in this section of the Danube, BMVIT and Via Donau initiated the Integrated River Engineering Project on the Danube East of Vienna. They are supported by the steering committee, which in April 2004 agreed planning guidelines to serve as the basis of an EIS, completed in 2005. The EIA procedure is to be completed by the end of 2006.

Alternative Solutions

The integrated approach respects the objectives of both improving the section for navigation and developing and maintaining it as a natural, free-flowing stretch of river flanked by the Danube Flood Plain National Park. An interdisciplinary team of experts analysed 11 options for developing this reach of the Danube. The chosen option involves (a) stopping further degradation of the river bed by installing a 25 cm layer of coarse gravel, (b) removing riprap bank protection where possible, (c) restoring connections between the side-branch system and the main river, and (d) assuring LAD of 2.7 metres in the main channel by dredging shoals and groyne systems where required.

The planning phase started with environmental studies and is to be completed by 2006. A 3 km pilot project not requiring separate EIA is planned for 2006/07. Project completion, originally scheduled for 2010, will more likely be delayed until 2015. The cost of the planning phase and pilot project is estimated at EUR 20 million and that of the total project at EUR 170 million.

Public Consultation and Participation

The integrated interdisciplinary approach just described is considered a practical option and a good model for future Danube waterway improvement projects. Regarding potential international

implications of the project, the Slovak Republic Government was consulted, in the context of the Espoo Convention. It was concluded that no negative downstream impacts were expected. The Slovak Government expressed particular interest in potential flood control problems, but hydraulic model simulations showed none.

3.5 Romania

Legislation and Procedures

The Romanian EIA procedure (Figure 3.7) has been adapted to EU regulations via resolutions and government decisions. GD 918/2002, for instance, brought the 1995 Environmental Protection Act into agreement with the EIA Directive.

Romania has bilateral agreements for management of transboundary rivers with Hungary, Serbia and Montenegro, and Ukraine, and deals with issues regarding Bulgaria through the Danube River Protection Convention. It ratified the Espoo Convention in 2001 and has followed good practice in international consultation under that convention, for example in the procedure regarding a bridge project.

As early as 1992, by ministerial order, Romania had developed EIA guidelines for port and waterway development (IPTANA, 2002). In agreement with these guidelines and with GD 918/2002, the developer has to submit specified documentation to the competent authority.

Depending on the government level involved, the main bodies serving as competent authority are the 41 local environmental protection agencies (EPAs), 8 regional EPAs and the national Ministry of Environment and Water Management (MMGA). The level for a given project is defined by ministerial order and depends on the nature and scope of the project. For IWT projects, the Ministry of Transport, Construction and Tourism (MTCT), which provides funds and is responsible for strategic transport planning decisions, is a further competent authority.

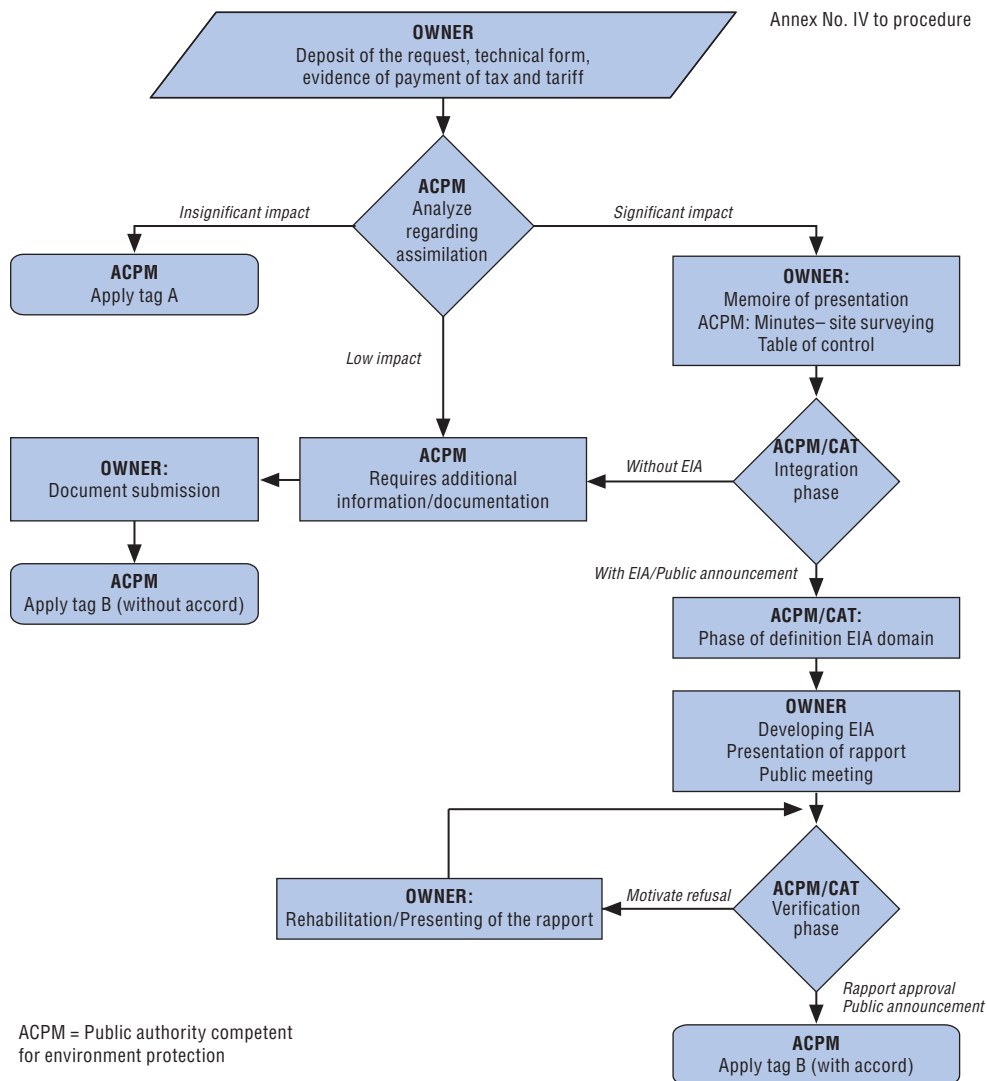
The country's Lower Danube River Administration and Navigable Channels Administration are key developers of waterway improvement projects.

MMGA oversees the issuance of environmental licences and water licences for construction, as well as the corresponding permits for operations (see next section for further information on water licences). It sets up a technical committee for each project, whose membership generally includes representatives of MTCT, MMGA, the health and home affairs ministries and bodies such as the water and utility agencies, along with outside experts. The committee advises the competent authority whether to require a full EIA procedure; if it decides that one is needed, it also determines the terms of reference for the environmental studies to be carried out.

EIA studies must be conducted by registered consulting companies, of which a long list is available. The results must be notified and published, and public consultation carried out (see below for details). A recent amendment of the legislation makes publication the responsibility of the competent authority rather than the developer. The information is also published on the MMGA website. The studies include an environmental management and monitoring plan.

Issuance of an environmental licence may be appealed within 30 days. In such cases additional environmental studies are generally required for confirmation of the licence. If the appeal is unsuccessful, appellants have the option of going to court to seek an injunction on the development.

Figure 3.7 EIA Procedure in Romania



This procedure, in place since 2003, is supported by a series of government decisions issued since 2002; the latest amendment was expected at the end of 2005. Prior to 2003, the procedure followed was similar, but subsequent decisions made it more detailed and specific, and brought it into line with EU legislation. The procedure complies with the Environmental Protection Act and the 1996 Regulation on Environmental Permits.

Water Licences

Under Regulatory Act 310 and the 1996 Water Act, the developer also needs a water licence or licences issued by Apele Române, the national water management company, an autonomous body overseen by MMGA. Separate licences are issued for project preparation/implementation and for operations. They regulate the volume and rate of surface water and groundwater abstraction and the volume, rate and quality of water discharged after use.

To request these licences the developer submits documents specified by Apele Române, including drawings and statements on the intended use, the nature of the water resources involved,

their location in the relevant river basin and related water management issues. Sometimes the only obligation is to notify Apele Române of the intent to use water. The licensing procedure does not include public consultation.

Since 2003, the National Regulatory Authority has issued regulations affecting the water licence system. This authority is part of the Ministry of Public Authority, which reports directly to the prime minister's office. Such regulations (e.g. regarding the public water supply companies) cover water activities from extraction to discharge.

Box 3.1 **Romanian Agencies Dealing with IWT**

Nine administrative bodies deal with IWT infrastructure in Romania:

- Lower Danube River Administration
- Romanian Naval Authority
- Maritime Danube Ports Authority
- Fluvial Danube Ports Authority
- Navigable Channels Administration
- Maritime Ports Administration
- Radionav
- Ceronav

Water Framework Directive

Romania has made good progress in implementing the WFD. Preliminary designation of water bodies was carried out in 2004. There was some difficulty defining water bodies in terms compatible with local practice: Romania has used river basin limits as the administrative boundaries for water management since 1974, and began developing water management programs at catchment level in 1959. The WFD provides for more detailed designation and classification of water bodies within each basin.

Birds and Habitats Directives

Romania adopted and ratified the Birds Directive in 1991 and the Habitats Directive in 1992. Regarding the Danube delta and Brăila Island projects discussed below, Romania is following the Ramsar Convention, which it ratified in 1991.

Public Consultation and Participation

The developer of a project subject to EIA, in consultation with the competent authority, is responsible for organising public participation. Once the results of the environmental studies have been published, they remain publicly available for 30 days and are subject to consultation and debate. Comments made in public hearing or in writing to the developer have to be addressed and objections resolved where possible, and the results submitted to the technical committee, which takes them into account when preparing its final advice to the competent authority.

GD 1115/2002 and Ministerial Order 1182/2002 incorporate provisions on access to information in line with the Aarhus Convention and relevant EU directives. GD 1115/2002 was scheduled to be modified in 2005 to take Directive 2003/4/EC into account.

Stakeholders and beneficiaries are involved in projects from the beginning, essentially starting with the formulation stage. While such early involvement is not compulsory, Romanian policy strongly recommends it. Regulations oblige developers to announce their projects, and it is recommended that they both consult beneficiaries and stakeholders at the start of the project and give them regular progress reports.

Inland Waterway Improvement Projects in Romania

Sulina Canal Phase 1

The Chilia branch of the Danube is the main branch in the river delta, carrying about 56% of the Danube's flow and forming Romania's border with Moldova (for 800 metres) and Ukraine. The Sulina and St. George channels each account for 22% of the Danube's discharge.

Commercial navigation is essentially limited to the Sulina Canal system, 65 km long. It was built in the second half of the 19th century by cross-cutting the existing meandering channel, a project with significant impacts on sedimentation, fisheries and hydrology. The canal is almost self-maintaining and does not need intensive or regular dredging except at the Sulina bar. Dredging recorded in the Sulina Canal from 1860 to 1970 amounted to 51 million cubic metres, averaging less than 500 000 m³ a year.

The Sulina Canal Phase 1 project consists of bank protection work with an estimated cost of EUR 28 million, financed by a European Investment Bank loan agreement signed in 2002. Design work on Phase 2 will begin after the tendering of Phase 1.

No new negative environmental impacts have been reported.⁴ All parties involved consider the work to be of benefit to local people and economic interests (industry, agriculture, fishery), and it will also help prevent erosion and flooding.

EIA of Phase 1 was not mandatory, and the project was deemed to have impacts only at the Tulcea county level. It was classified as a "Tag B" project (see Figure 3.7 above), requiring neither full EIA nor public consultation. A simplified procedure was followed, with approval granted by MMGA and the Danube Delta Biosphere Reserve Authority.

Nevertheless, EIA was carried out to avoid possible delays later. No comments were received from beneficiaries or stakeholders when the project was notified and the information was made public.

Călărași-Brăila

The minimum conditions recommended by the Danube Commission for the roughly 200 km section from Călărași to Brăila are: LAD of 2.5 metres for 94% of the year, minimum channel width of 180 metres and minimum bend radius of 1 km. The typical convoy in this section is made up of a push barge of 1 000 to 3000 HP⁵ and six 2 500 DWT barges, and even larger convoys are allowed.

Cargo traffic volume on this stretch is expected to reach about 20-25 million tonnes by 2015. Traffic intensity, which plummeted during the Balkan conflicts of the 1990s, is still down considerably from pre-conflict levels at around 1.5 convoys per day but is expected to recover to about 4 convoys

per day in the near term. The expected traffic increase is related less to the Călărași-Brăila project than to demand growth associated with the economic development discussed in more detail above in the Austrian case study.

The main navigation issue for this reach is a discharge imbalance during low-water seasons between the main Danube and the Bala branch. Because of changes to the branch since the 1920s, it now receives a bigger share of the flow than the main channel. Construction to regulate the problem was begun in 1995 but halted for lack of funds, and the river has since destroyed the work.

A feasibility study was recently completed on a new project to restore the low-water discharge distribution, not only to improve navigation conditions but also to increase the water flow to the Danube-Black Sea Canal and the availability of cooling water for the Cernavodă nuclear power plant during dry periods. The modifications would not have significant effects during average- and high-water periods. The proposed river training works are similar to those outlined by Frederic Harris for Phare in 1999.

The main training works would be groynes, bank protection, and bottom sills in some small side branches. Dredging would also be carried out, but would amount to only 6-7% of the contract value. Maintenance dredging would total about 300 000 to 600 000 cubic metres per year, a decrease of 30-60% from the levels in recent years. Ten other critical sites have been identified for which training works are proposed, depending on the results of the Bala project.

In conjunction with the feasibility study, a draft EIA was prepared by an authorised independent consultant, the National Research-Development Institute for Environmental Protection. A full EIA was begun in 2005 with funding support from the EU Instrument for Structural Policies for Pre-Accession (ISPA). The project will have to be submitted to the environmental authorities of Romania, Moldova, Bulgaria and Ukraine, so the EIA procedure is expected to be co-ordinated among the four national governments.

The draft EIA, apart from providing a good basis for discussion, may speed up the preparation of the full study, within the limits of the relevant legal procedures and formal requirements. The draft identified a range of environmental impacts and analysed the situation with respect to current water levels and their variation, including groundwater levels and the surface water levels of water bodies such as lakes that could be affected by changes and variation in the river water levels. The main data sources were information provided by local and regional EPAs and sampling data collected annually by the National Research-Development Institute for Environmental Protection.

The draft report assesses potential pollution related to construction and operation of the project, identifies and assesses mitigating measures for inclusion in the project, considers alternative solutions, proposes monitoring activities, analyses risks, and identifies problems associated with carrying out a full EIA.

The draft EIA, which concludes with an executive summary, has not yet been made available to the public but a summary has been published on the MTCT website.

Among the findings of the draft report:

- Major environmental impacts expected are related to hydromorphological changes: positive impacts on navigation conditions, negative impacts associated with changes in water flows and levels in low-water periods.

- Project activities during construction would increase turbidity levels temporarily and locally, but to an insignificant extent compared with natural variations.
- The bank protection would respect the natural landscape and not produce pollution.
- Some Natura 2000 sites in the project area would require special attention and traffic monitoring.

WWF notes that other potential impacts that were not studied include physical disruption of linked ecosystems; noise and disturbance levels for fauna; and erosion or destruction of islands with unique ecosystems.

No public consultation has yet occurred, but notification of the project has been posted on the MTCT website and a few interested organisations have been contacted. The required formal public consultation will be organised in due course and will include opportunities for parties to express or submit comments at local level.

The completed feasibility study is among the legal requirements for a planning approval certificate (*Certificat de Urbanism*), a prerequisite for any further steps in the process. Reports based on these certificates will be submitted to the relevant local environment authorities in the four countries concerned; they in turn will notify the regional and national authorities. In addition, newspaper announcements will be directed to the general public in each country.

The MMGA representative on the technical committee for this project requested that attention be paid to potential impacts that might affect Bulgaria. The draft EIA concluded that no significant transboundary effects would occur; only minor impacts were identified, mostly of a local nature. The project concerns a stretch of the Danube that is exclusively on Romanian territory, about 30 km or more from the border. Bulgarian representatives on the technical committee found that Bulgaria might benefit from the improved navigation conditions. While water levels upstream of Bala might rise slightly in dry periods, this effect would decrease with distance.

Danube-Black Sea Canal

Although no projects altering the Danube-Black Sea Canal are planned, a brief description is included here due to its significance as an alternate route for some shipping in the Danube delta. Opened in 1984, the 64 km canal connects the Danube inland waterway system with the port of Constanța. In 1994, a northern branch to the port of Midia was opened. In 1996, the first unit of the nuclear power plant at Cernavodă, on the canal's western end, came into operation; no EIA had been carried out, as the relevant legislation came into effect only in 1995. Five units were originally envisaged, but the current plan is for four.

The canal system is locked, with a fixed water level. In addition to being used for navigation it provides irrigation and drainage, drinking water, industrial water supply and cooling water for the nuclear plant. The cooling water volume, now 50 m³/s, will double when the second unit starts operating, probably in 2007. There is a hydropower plant with a 7 metre head at Agigea.

Maintenance dredging amounts to about 300 000 m³ per year. No problems with disposal of the dredged material are reported; dumping sites are designated in the river basin under a plan approved in 1935. The sediments are reported not to be very contaminated.

Water quality is continuously monitored at several stations. Waste reception facilities exist for the main seaports (though not for river ports). Navigation speed is regulated to avoid bank erosion at some critical sites. The canal banks were constructed with quarried rock. They are steep, and have not all been stabilised – a step omitted during construction to speed completion for political and budgetary reasons.

3.6 Ukraine

Danube-Black Sea Bypass: Bistroye Canal Project

The Bistroye waterway branches off from the Chilia arm of the Danube (which forms the border between Romania and Ukraine) and crosses the Ukrainian part of the Danube delta to the Black Sea. Ukraine wants to develop the roughly 10 km channel to reduce sailing distances between Ukrainian ports along the Chilia branch and the deep waters of the Black Sea.

Developing the Bistroye Canal would first require deepening the entrance channel from the Black Sea and building a guiding dam. Subsequent steps would include dredging shoals in the Chilia branch to improve access to the inland ports of Reni (Ukraine) and Galați (Romania), and constructing a port on the Black Sea. Ukrainian ports along the Chilia branch include Izmail, Kilia, Vilково (a small fishing port near the inland entrance to the waterway) and Ust-Dunaisk.

Work on the first phase was begun in May 2004 by the German dredging company Josef Möbius Bau AG. The tender procedure was not transparent. The work was eventually stopped, and the dredged channel is probably already completely silted up.

As far as can be seen, given the available information, the project lacks proper formulation, preparation and design:

- There is no overall long-term vision or view of what should be developed or what the transport needs are as regards not only the development of navigation but also the management of the system of lagoons in the Ukrainian part of the Danube delta, which supports fishery, agriculture, nature reserves, tourism, etc.
- No known study examines the transport economics concerned and the feasibility of meeting demand. Traffic forecasts thus are uncertain. Nor is information available on the role of the existing port at Ust-Dunaisk and the project's influence on navigation and traffic flows on the Sulina channel.
- A quick, incomplete EIA was carried out; the results have not been made fully available or widely circulated. The study is unlikely to have been comprehensive or meet required standards. Most of the people in this remote area, except for fishermen, may be unaware of the nature and scope of the potential environmental impacts of the project.
- Technical assessment of the project can only be weak: basic data for evaluation of the hydromorphological behaviour of the river and the impact of the works are not available. Some data are available for Isaccea, Izmail and Tulcea, but their reliability has not been assessed.
- Sediment transported by the river, particularly in the Chilia branch, is reported to be extremely high, affecting maintenance dredging needs. Attention has probably not been paid to the maintenance needs of the project. The siltation rate of the recently dredged channel

suggests that regular annual maintenance could approach the initial capital dredging needs in terms of volume and cost. A complete lifecycle analysis is needed.

Legislation and Procedures

Legislation and procedures concerning environmental issues are being developed in Ukraine, though the process is not very transparent. The Ministry of Transport is the developer of the Bistroye Canal project. The role of the Ministry of Environment, as the probable competent authority regarding environmental issues, is not clear.

In general, the key issue is not legislation as such but rather the capacity to enforce legislation and monitor processes, and the political will and support. For example, in the scoping procedure for a flood control project, several stakeholders (among them the ministries and agencies responsible for agriculture, road development and water management) were invited to participate in an inquiry. The response was minimal: receipt of the request was not confirmed, no responsibility was taken and ownership of problems or the project was not developed. Such counterproductive lack of action is due to the character of the bureaucracy inherited by the current government of Ukraine, with its tendency not to assume responsibilities, as well as a general lack of transparency. Lack of environmental awareness among local people contributes to the situation. Attitudes may also be related to the low level of economic development, the low population density of the project area, poor stakeholder organisation and the absence of a democratic tradition in the country.

The new government, however, shows a willingness to improve governance.

Public Consultation and Participation, and International Co-operation

As indicated above, the EIA process and procedure are not transparent. Though a study of environmental impacts was carried out by order of the Ministry of Transport, involvement of the Ministry of Environment was not clear, and the results have not been made available to all parties. Although Ukraine ratified the Espoo Convention in 1999, the Romanian side was probably not initially informed as well as it should have been. A Romania-Ukraine commission on water management and transboundary rivers, established in 1997/98, regulates exchange of information, monitoring activities and notification of new projects. It has focused on development along the Danube's Tisza River tributary rather than on the Chilia branch; nevertheless, it should have discussed the Bistroye project.⁶

Ukraine's Danube Delta Biosphere Administration in Vilково, under the Ministry of Environment, submitted comments on the project. WWF was also involved in the discussions. Although European Commission directorates are not entitled to a formal role in the Ukrainian process, DG-TREN and DG-ENV were informed about the project.

At the invitation of the Ukrainian Ministry of Foreign Affairs, the Commission and representatives of five international organisations⁷ carried out an expert mission in October 2004, aiming to discuss the project's potential environmental impacts, identify possible mitigating measures and investigate future Ukrainian plans. It recommended not pursuing the work until comprehensive environmental studies are carried out.

ICPDR, of which Ukraine became a full member in 2003, is developing an initiative to organise international workshops on the project, determine steps to be taken and develop terms of reference for studies to be conducted.

An Inquiry Procedure under Article 3.7 of the UNECE Espoo Convention is now underway. A commission of scientific experts was established in 2005 to advise Romania and Ukraine on the environmental impacts of the canal. The commission will visit the two countries in May 2006 and prepare a report that will indicate what further procedures provided for in the Espoo Convention should be applied.

NOTES

1. Note that this result is based on the responses to the questionnaire. For further discussion, see section 4.1.
2. ICPDR observes that the description of the project and its status reflects the fact that no NGO was contacted.
3. The project description in this section draws heavily upon Schramm (2005).
4. ICPDR observes that many environmental problems in the delta are related to construction of the Sulina Canal.
5. This is about half the power of push barges on the Rhine River for similar convoy sizes.
6. MTCT in Romania reported that the commission was not informed and that consultation on the project was apparently limited to diplomatic contacts between the two countries' Ministries of Foreign Affairs. Romania has three main concerns: (a) impact on its Danube Delta Biosphere area, (b) stability of its coastline and (c) impact on the competitiveness of the Sulina channel. A strategic dispute with Ukraine also exists, concerning the small island of Zmeinyi, 60 km offshore from the Danube delta.
7. ICPDR and the secretariats of the Convention on the Conservation of European Wildlife and Natural Habitats and the Aarhus, Espoo and Ramsar Conventions.

Chapter 4

LESSONS LEARNED

4.1 Environmental Issues

The responses to the questionnaire and information from interviews with the various experts in relation to the project cases provide an incomplete picture of the potential environmental impacts of IWT development. A more comprehensive inventory of potential impacts is presented in PIANC (2003), summarised in Figure 4.1. Lessons on environmental issues derived from the questionnaire and interviews are discussed below.

Hydromorphological Pressures

Evaluation of the responses to the questionnaire and the projects selected showed the major problem for developing inland waterway infrastructure came in the planning phase, when conflicting interests dominated the decision-making process. In 11 of the 15 cases reported, integration of IWT infrastructure in spatial development plans involved conflict with other uses of or stakeholders in the canal and river system and adjacent wetlands/flood plains – notably hydropower, agriculture and nature conservation.

The debate centres on keeping a free-flowing (natural) river system versus using river training techniques such as canalisation and normalisation to improve navigation conditions. A key element of the conflict is hydromorphological pressures on river ecosystems posed by construction and maintenance of navigation infrastructure: weirs, locks, groyne systems, bank protection, etc. Such pressures feature in the cases of the Seine-Nord Europe, Straubing-Vilshofen, Vienna East and Bistroye projects, and, to a lesser extent, the Romanian projects.

Dredging

The major environmental impact for the project cases reported in the responses to the questionnaire is dredging and disposal of dredged material.¹ It should be noted, however, that environmental problems associated with dredging are often not directly the result of waterway development for navigation but rather are due to pollutants in the dredged material, whose source generally is other uses.²

Problems Due to IWT Operations

Potential environmental impacts of shipping operations such as cargo handling, ports, ship lifts and locks include water pollution, noise pollution and risk of accidents with dangerous cargoes; other adverse environmental impacts can occur during construction of inland waterway improvement projects. Yet these impacts were hardly mentioned in the case studies examined. Only one project reported problems regarding sediment and water quality.

Similarly, in the five country cases evaluated, while this aspect was duly addressed in the environmental studies for projects, environmental problems due to IWT operations are not mentioned as a significant concern.

Environmental Reasons for Project Suspension

The three (out of fifteen) projects reported in the questionnaire as having been totally or temporarily abandoned due to environmental problems were the second lock system at Fankel on the Mosel River, the modification of Bremerhaven's Unterweser and Außenweser channels and the Rhine-Rhône link.

Figure 4.1 Potential Environmental Impacts of Inland Waterway Transport Development

Table 4.7.1 Navigation needs, alternatives, and potential direct impacts to waterway functions

Needs	Alternative Measures	Potential Impact to Listed Function														
		Stream Evolution	Energy Processes	Riparian Succession	Surface Water Storage	Water Exchange Processes	Hydrodynamic Character	Sedimentation Processes	Substrate and Structure	Sediment Character	Biological Communities	Habitat	Trophic Structure and Pathways	Water and Soil Quality	Chemical Processes and Nutrients	Landscape Pathways
Draft	Adapt loaded vessel to available draft ¹	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Training by groins	x	x	x	○	x	x	x	■	x	x	x	○	○	○	x
	Bank Protection	■	x	■	○	x	○	■	■	x	x	■	x	x	x	■
	Armoring of riverbed	■	■	x	○	x	x	■	■	■	■	■	x	x	○	○
	Longitudinal dikes	■	■	■	x	x	x	■	■	■	■	■	x	x	x	x
	Barrages, dams and locks	■	■	■	■	■	■	■	■	■	■	■	■	x	x	x
	Flow regulation	x	■	x	■	■	■	x	x	x	x	x	x	x	x	○
	Lateral canals	○	x	x	x	x	x	x	x	x	x	x	x	x	x	■
Clearance	Dredging	■	x	x	x	■	x	■	■	■	■	■	x	■	x	x
	Lowering the water level via waterway alteration	■	■	■	■	x	■	x	x	x	■	■	x	x	x	x
	Lowering the water level via hydrologic change	■	■	■	■	x	■	■	x	x	x	■	x	x	x	x
	Retractable wheelhouses	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Width and bend curvature	Rising of bridges or other obstructions	○	x	○	○	○	x	○	○	○	x	x	○	○	○	x
	Realignment and channelization	■	■	x	x	x	x	■	x	x	■	■	■	x	x	■
	Local flow control	x	■	x	x	x	■	■	■	x	x	■	x	x	○	x
	Operational restrictions (e.g. single lane traffic)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Velocity and Wave Control	Adapt vessel design (e.g. less beam or length)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Breakwaters and jetties	x	■	x	x	x	x	■	■	x	x	■	x	x	x	x
	Locks and Dams	■	■	■	■	■	■	■	■	■	■	■	■	x	x	x
	Adapt vessel design (freeboard)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Operational Support	Operational (speed limits, stoppages)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Refuge areas/harbors	x	○	○	x	○	○	x	x	○	x	■	x	x	x	■
	Mooring facilities	○	○	○	○	○	○	○	x	x	x	x	○	x	x	x
	Terminal facilities	x	○	x	○	x	○	x	x	x	x	■	x	x	x	■
	Aids to Navigation	○	○	○	○	○	○	○	x	○	○	x	○	○	○	x
	Effective assistance during accidents	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Frequent and reliable lock and bridge operations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Traffic Control	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Waste disposal	○	○	○	○	○	○	○	○	○	x	○	x	■	■	○
Operational Support	Skilled crew	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Dry dock and maintenance facilities	x	○	x	○	x	○	x	x	x	x	■	x	x	x	■
	Water intake and discharge	○	○	○	○	○	○	○	○	○	x	○	x	■	■	○

○: No significant impact; x: Possible impacts, readily minimized or mitigated; ■: Impacts requiring mitigation likely

¹ Measures that increase traffic have several potential indirect impacts (e.g. increased erosion, introduction of non-native species, etc.). This table addresses direct impacts only.

Source: PIANC (2003).

No information was provided on the specific processes used to eliminate these projects. In general, however, projects are abandoned when agreement can not be reached between the parties involved on how environmental impacts will or might be avoided or mitigated. While insufficient economic benefits may have had a role in the failure of the Rhine-Rhône link, given the project's long history it is likely that the main factors were (a) inappropriate and untimely preparation of environmental impact studies, (b) changes in policies and environmental regulations during the long preparation period and (c) changes in societal and political interests during the preparation and decision-making period.

Box 4.1 **Potential Environmental Impacts of IWT Development**

River training works for inland navigation may have significant impacts on the ecological value and water quality of water bodies. The nature and extent of the impacts depend to a large degree on the characteristics of the water body concerned and its status with regard to the WFD definitions of GES/GEP.

Foremost among potential impacts are hydromorphological pressures. Dams, weirs, locks, groyne systems, bank protection, dredging, etc., may induce changes in water levels, discharge regimes and river bed geomorphology, affecting dynamic characteristics of channel systems, sedimentation and erosion. Dredging may have additional impacts related to contamination of sediments and increased turbidity.

Hydromorphological changes can also have far-reaching upstream and downstream effects, significantly affect river system dynamics and interfere with the exchange of water and sediments between the main channel system and its branches and flood plains. Finally, they may create significant disturbance to vulnerable ecosystems and habitats of flood plains and the river bed.

It is essential for EIA to cover all these pressures. As knowledge of the relevant hydromorphological processes and their impacts on river-related ecosystems and habitats is limited in some places, research is required before impacts can be assessed in such cases.

It must also be borne in mind that (a) the significance of changes introduced by development of the IWT system should be assessed with respect to the natural dynamics of the river system, and (b) sometimes geomorphological changes have positive effects on ecosystems and habitats.

Where expected hydromorphological pressures are unavoidable and impacts on habitats and water quality are likely to be substantial, careful design can often mitigate impacts; in several of the case studies examined this approach allayed concern over the environmental impacts of investment in infrastructure for inland navigation.

4.2 **Legislation and Procedures**

EIA Legislation and Procedures

Regarding the requirement for and implementation of EIA procedures, each country has its own rules and regulations.

All EU member states have adopted the EU legislation regarding EIA procedures, adjusting their national laws and regulations accordingly.

In *France* the Code de l'Environnement (2002) provides the legal text and procedures to be respected in the development of inland waterway projects. The code is completely in line with EU legislation and procedures regarding EIA. Moreover, VNF is promoting an innovative approach with respect to environmental issues in waterway development. The approach is characterised by public participation from the beginning and innovative solutions for impact avoidance and mitigation. In 2003 a technical guide was issued regarding ecological protection of navigable river and canal embankments. A 1995 technical circular sets forth procedures for dredging in navigation channels.

The EIA legislation and procedures in *Germany* (Umweltverträglichkeitsprüfungs-gesetz), *Austria* (Wasserrechtgesetz and Naturschutzgesetz) and *Romania* (Environment Act 137/1995 as amended by GD 918/2002) take full account of the recent EU legislation.

EIA legislation is being developed in *Ukraine*. For the moment the legislation and procedures are unclear.

The responses to the questionnaire indicate that, except in a few cases, the rules and regulations generally are strictly followed. In some cases, it is reported, more activities than required by law were undertaken, to obtain stakeholder support.

Although the legislation and procedures in the various countries are similar, the way they are applied may differ. These differences are discussed in section 4.5.

Water Framework Directive

The questionnaire responses and information from the project cases make clear that the provisions of the WFD are being implemented in all countries. IWT authorities are reported to be involved in the process, if rather passively in some countries.

PIANC, ESPO, EFIP, CEDA, INE and IADC (2004), in a task group report, identified the following as key issues for the port and navigation sector regarding WFD implementation and recommended that they be further elaborated:

- Proper consideration of other environmental issues (e.g. air quality, noise) and of EU transport policy.
- Clarity, consistency and transparency in applying WFD regulations.
- Early consideration of practical and economic consequences for the sector.
- Sediment management.

The designation of water bodies under the WFD is nearing completion. The designation of water bodies as AWB or HMWB and particularly the definition of GES/GEP in specific terms are important for the future development of navigation. In general, shipping and IWT appear to have been recognised, during the designation of waterways, as being of pressing interest, and IWT authorities have been involved in the designation process, although again somewhat passively in some countries.

For the near future, active participation by the IWT sector in the drawing up of river basin management plans under the WFD is of utmost importance.

Box 4.2 Status of WFD Water Body Designation

The WFD states that countries had to carry out water body designation as part of their analysis of the characteristics of the river basin districts, and to submit the first such analysis and provisional designations by 22 March 2005. The analysis is to be reviewed and, where necessary, updated by 22 December 2013, and then every six years. However, providing an accurate description of the status of surface water and groundwater requires some information (under Article 5 on Analyses and Reviews, and Article 8 on Monitoring Programs) that was not yet available. The available information is likely to be updated and improved before publication of the RBMPs. While all waters must be assigned to water bodies and their status must be described for the first RBMP, practical approaches may be required, in particular for pristine waters in remote areas where it can be demonstrated that no significant pressures exist. Verification and refinement of water body identification should be expected in the implementation process.

Birds and Habitat Directives

The EU Birds and Habitats Directives have a major impact on the development of IWT infrastructure when Natura 2000 sites are designated, and the objectives for protected areas under these directives are, *de facto*, also objectives under the WFD.

4.3 Public Consultation and Participation

Introduction

Evaluation of the project cases regarding the involvement of stakeholders and beneficiaries leads to the conclusion that, while strictly respecting official rules and regulations is essential, it is no guarantee of success.

Principle 10 of the Rio Declaration (1992) recognises that public involvement in environmental issues is a prerequisite for ensuring that development supports the principles of sustainability.

Although the importance of providing environmental information to the public is generally recognised, as is public consultation, EU legislation (the SEA, EIA, Water Framework, Birds and Habitats Directives) is not very specific about arrangements for public consultation and participation. Nor do the Aarhus Convention and related 2003/4/EC and 2003/35/EC directives make more than general provisions.

Despite recommendations to involve the public early in the decision making process, the EU directives and procedures envisage formal steps for public consultation only after completion of environmental studies and submission of a project for approval. Countries are free to make more specific arrangements for public consultation as they see fit.

Box 4.3 Conclusion Regarding Public Participation

Early consultation with environmental and other stakeholders is important in ensuring that solutions are found. It is equally important to reach a common understanding of the issues and foster a co-operative search for solutions where the environmental impacts of a project prove not to be amenable to conventional mitigation approaches. In the case studies examined, all conflicts identified originated in failure to involve environmental stakeholders early enough in the planning. Expensive procedures were then required to seek compromises after lengthy and costly delays.

Identifying relevant interest groups

Identification of the relevant interest groups or stakeholders is critical to successful public involvement, whether it concerns a policy, plan, program (e.g. sectoral or regional) or project. Analysis of the social composition of the society in which the project is planned will help ensure that all relevant social actors or stakeholders are identified and included in consultation. In addition, social analysis will identify local values, organisational structures and approaches to communication, negotiation and decision making.

Box 4.4 Defining the Public

The term *public* refers to a complex mix of people and interest groups with varying degrees of interest in and relevance to any individual project. Best practice suggests that people commonly included in public consultation and participation include:

- ***Members of directly affected groups***
Individuals or groups from the local community who live near the project or may be directly affected in some other way.
- ***Representatives of affected groups***
Generally individuals and organisations representing affected people.
- ***Other interested parties***
A wide variety of groups not directly affected may still have an interest in the project. They may be able to provide useful and important information and can help identify key issues and concerns, although they should not be used as a means of avoiding or bypassing local people. Examples include:
 - Government environmental agencies or departments, with whom consultation may be required in EIA regulations.
 - National and international NGOs and pressure groups, typically with an interest in specific issues or broader environmental concerns.
 - Universities and research institutions with specialist knowledge relevant to the locality or the project.

Timing of public participation

Public involvement should begin in the earliest stages of a project so that environmental information can be used in the consideration of alternatives for design, location and financial arrangements. Public involvement should continue throughout the environmental assessment process and project cycle (Figure 4.2).

The history of the Straubing-Vilshofen, Vienna East and Bistroye Canal projects shows that the risks of frustrating the decision-making process is high if beneficiaries and stakeholders are not involved in the early stages of project preparation. In all three projects, preparation has been or is being reinitiated – with early involvement by the public – after the first plans met strong opposition from stakeholders.

In France, the CNDP was established in 1997 to organise the public consultation and participation process. The information received on the Seine-Nord Europe project indicates that public participation has been incorporated from the early preparation stage.

“Ownership” and Commitment

Early consultations with potentially affected groups can improve the environmental information supplied to decision makers (e.g. through identification of unforeseen environmental impacts or the design of suitable mitigation measures), thus minimising conflict and delay. In addition, genuine efforts to provide the public with information and respond to suggestions or concerns prevents misconceptions and can result in more widely accepted projects with a greater sense of local ownership. Undoubtedly, public consultation and participation can be time-consuming and demanding, but when used positively they improve a project, reduce antagonism and enhance the potential for long-term success.

4.4 Transboundary Impacts

The SEA and EIA Directives give general provisions for informing and consulting with government authorities and stakeholders in neighbouring countries that are or may be affected by infrastructure projects. These regulations are in agreement with the Espoo Convention and require that the authorities and stakeholders in the neighbouring countries be informed the same way, and at the same moment, as those in the home country.





As with the legislation and regulations on public consultation, this consultation process is not required to be formally initiated until after completion of environmental studies and submission of the project for approval.

In the Seine-Nord Europe project, authorities and experts from the neighbouring countries are on the *Comité Scientifique et Technique*, thus assuring involvement of these countries' authorities and stakeholders early in the project preparation.

In the Vienna East project, the Austrian Government consulted with the Slovak Government at an early stage. The same is true for the Călărași-Brăila project in Romania with respect to the Bulgarian authorities.

Despite Ukrainian ratification of the Espoo Convention, the Romanian Government appears not to have been fully informed so far about the Bistroye Canal project.

Figure 4.2 Public Involvement in Environmental Assessment and Relationship with the Project Cycle

Public involvement	Project Cycle Phase	Environmental Assessment
Identify relevant stakeholder groups and determine appropriate ways to disseminate information	Identification 	Environmental screening
<p>Early consideration of mode of public consultation and as appropriate participation</p> <p>Release preliminary information on proposal and potential environmental effects</p> <p>Extent and mode of consultation and participation finalised</p> <p>Draft EA report made available to stakeholders, including effected parties and local NGO's</p> <p>Consultation about draft EA</p> <p>Outcomes from consultations recorded in final EA report</p> <p>EA team ensures concerns Identified are addressed in project design and mitigation plans</p> <p>Participation plans developed – as appropriate – for implementation and evaluation</p>	Formulation (appraisal) 	<p>Determine ToR and scheduling of EA</p> <p>Scoping</p> <p>Draft EA submitted (additional information requested if necessary)</p> <p>EA submitted and reviewed (results integrated into project design)</p>
Findings from consultation and participation reflected – as appropriate – in financing agreement	Financing 	Environmental requirements, based on EA findings, included in financing proposal
Implementation of participation measures/suitable short-term and long-term monitoring indicators (Attitude survey)	Implementation 	Implementation and monitoring of agreed mitigation. Adapt project as necessary
Post-hoc evaluation, including consideration of effected peoples views about project impact	Evaluation	Evaluation of environmental aspects in completion and evaluation reports

Source: European Commission (2000b), based on World Bank (1993).

4.5 Key Issues

Vision, Policy and Strategy

The first key issue for success is the need for government to develop a clear vision and strategy for IWT development, taking account of the associated environmental issues and other interests.

The vision and strategy may be reflected in a national transport plan for which all interests have been assessed in an integrative and interdisciplinary process. At international level, developing vision and strategy is equally important. For example, at the European level it is needed for the TEN-T program. The international strategy then needs to be adopted by each country involved and taken properly into account in national decision making.

At both national and international level, the vision, policy and strategy for inland waterway development need to be consistent and persistent, and receive the necessary political support. In principle, various parties with different interests cannot be expected to reach agreement if official policy is not consistent and persistent but changes with each government.

Even given policy consistency and durability, however, project preparation and decision making may take so long that knowledge of the underlying processes increases and/or societal appreciation, valuation and prioritisation of environmental and other interests change to such an extent that the originally supported vision, policy and strategy alter. To some extent this happened with the Rhine-Rhône, Vienna East and Straubing-Vilshofen projects.

Rules and Regulations

While it should again be stressed that strict adherence to rules and regulations, however essential, does not guarantee success, practice in several of the cases reported shows that the EIA process is adversely affected by failure to carry out all necessary studies, covering all project aspects, in a balanced way and on time. Sequential preparation of sector studies can easily lead to polarisation of the discussion and hold up the decision-making process.

An integrated approach from the very beginning, in which all interests are addressed in a balanced way, enables timely preparation and implementation of the project and helps in avoiding unnecessary delays. Such delays only increase the risk of rules, regulations and/or environmental policies changing while the project is still under preparation.

Viability of Alternative Solutions

Achieving agreement on the development of IWT or other infrastructure requires identifying and elaborating alternative solutions that meet at least the minimum needs of all parties involved. Where such alternative solutions cannot be identified, parties with differing interests will not reach agreement.

The development of the Vienna East project has benefited from the fact that the alternative of a free-flowing river can meet the minimum requirements for both navigation and nature development. In the Straubing-Vilshofen project, by contrast, the state of Bavaria has concluded that such an alternative is not viable but the federal government does not necessarily agree.

If stakeholders fail to reach an accord on the design of a project, the best approach is to get all interested parties to agree a process and procedures by which a decision can be made. The experience in Austria shows that an independent facilitator or moderator can play an important role, not only in achieving consensus on the approach and methodology of the decision-making process, but also in managing the process and ensuring that proper communication takes place.

If both approaches fail, the competent authority is usually in a position to impose a solution on parties opposing the project, but at the risk of time-consuming and expensive legal procedures challenging implementation.

Overriding Public Interest

All regulations and procedures may be superseded by an overriding public interest. Many countries have developed jurisprudence, procedures and criteria for assessing whether to apply this principle. In the development of an international transport network, however, international interests play a role. Yet, despite the existence of a variety of international treaties and conventions, no general procedures or criteria have as yet been developed to deal with the international aspects of the overriding public interest principle.

Harmonisation of EU Directives and Regulations

EU legislation is more harmonised and detailed in some fields than in others. Environmental laws, regulations and enforcement are considered stricter and less flexible than, for example, the rules regarding the development of TEN-T. Some feel that this asymmetry may prejudice the development of inland waterways and the associated socio-economic interests in the future.

In this respect, it is important for the IWT sector to be involved in the further elaboration and application of the Birds, Habitats and Water Framework Directives. For instance, the sector should ensure that international IWT interests are considered and respected in the drafting of the RBMPs.

Another example of a confluence of international interests is the suggestion from various parties (e.g. Austria, Romania, WWF) that an international, basin-wide development strategy for the Danube River be developed, with planning principles and guidelines to be accepted by and respected in all countries in the basin. Such a strategy would need to provide a balanced framework for accommodation of environmental protection and socio-economic development (navigation, hydropower, irrigation, drainage, flood control, etc.).

Perceptual, Procedural and Cultural Differences

As long as the nature and extent of environmental impacts are minimum, development of inland waterways should meet no major obstacles. It needs to be acknowledged, however, that the perception of environmental values and problems is not the same everywhere.

It is interesting to investigate not only how much EIA legislation and procedures differ from one country to the other but also to what extent EU rules and regulations are similarly perceived and applied in various countries.

Perception and application of the same or similar set of rules and regulations may differ among countries, and these differences lead to variance in perception of, and approaches to, decision-making processes. The differences may be of the following types:

Box 4.5 Levels of Public Involvement

Public involvement can range from simple dissemination of information to consultation and through to full participation in decision making:

- *Informing*: one-way flow of information from proponent to public.
- *Consulting*: two-way flow of information between proponent and public, giving the latter an opportunity to express views.
- *Participating*: two-way flow of information and ideas in which proponent and public are involved in shared analysis and agenda setting and the public is voluntarily involved in decision making on project design and management through consensus on the main elements.

The level of public involvement required for a specific project will vary according to the social and political context. A participation matrix can be drawn up for each of the main stakeholder groups as an aid to determining the appropriate degree of participation.

Project Stage	Inform	Consult	Partnership	Control
Identification				
Planning and Formulation				
Implementation and Monitoring				
Evaluation				

Source DFID (1995)

The matrix can be used as a systematic tool for defining roles and responsibilities of a stakeholder and identifying areas of potential disagreement between groups.

- *Cultural differences* lead to variation in appreciation and perception of legislation and regulations. In some countries strict enforcement of rules and regulations is considered sufficient, whereas in others the same or similar rules and regulations are taken more as guidelines for preparing and implementing projects.
- *Differences in levels of socio-economic development* influence the appreciation and valuation of social, economic and environmental interests, values and priorities.
- *Differences in democratic tradition* affect the way societal groups are organised and empowered, and the way they are involved in and have an impact on the decision-making process.
- *Differences in stakeholder organisation* determine to what extent stakeholders and beneficiaries develop as a driving force in the decision-making process, with both the level of socio-economic development and the constitutional and political setting strongly determining how much stakeholders and beneficiaries may organise and exercise democratic rights.

Box 4.6 **Timing of Public Involvement**

Public involvement should begin in the earliest stages, whether for strategic planning or preparation of a specific project, so that environmental information can be used in the consideration of alternatives for design, location and financial arrangements. Public involvement should continue throughout the environmental assessment process and project cycle:

- *Screening* - Consultation with potentially affected parties during the identification or screening phase of EIA will improve understanding of the nature and significance of potential impacts, and aid in determining the level of assessment required.
- *Scoping* - Public involvement ensures that all significant issues are identified, local knowledge about the area is incorporated and alternatives are identified and considered. Any scoping or draft EIA reports should be made available for public scrutiny and comment.
- *Impact assessment/mitigation* - Public involvement can ensure that the analysis and mitigation are relevant to local concerns and accurately reflect local values and preferences.
- *Review* - Involving the public in the review of any EIA report can assure the quality and comprehensiveness of the assessment and help reduce any bias in the analysis.
- *Implementation and monitoring* - Participation of local representatives or agencies in monitoring the operational impacts of a project can lead to the early identification of problems, help promote good relations with project proponents and foster a sense of public partnership and control.

Perception and appreciation of environmental issues thus determine the outcome of public debate and decision-making processes, regardless of how similar the rules and regulations are. This should be borne in mind when assessing the decision-making processes in selected countries.

Public Consultation and Participation

A key factor in a prompt and successful decision-making process is how and when beneficiaries and stakeholders become involved, not only as regards the preparation of specific projects but also when it comes to strategic planning.

The SEA and EIA procedures at both EU and national level require public consultation, but not necessarily public participation. The Aarhus Convention and the associated EU directives deal with the right of the public to be informed, to have an opportunity to make comments and to have access to justice, but confer no right to participate in the process of defining objectives, alternative solutions, boundary conditions, priorities, etc.

Moreover, the SEA and EIA procedures require formal public consultation only after preparation of the project, completion of associated environmental studies and submission of the project for approval to the competent authority. Experience and practice in several projects show, however, that

the progress of SEA and EIA procedures and the probability of a workable solution being agreed upon reasonably quickly are greatly increased by early involvement of beneficiaries and stakeholders that gives them problem ownership and makes them accountable for and committed to finding integrated solutions.

Accordingly, a highly participative and integrated approach is called for, an open planning process in which all stakeholders (government agencies, private sector, NGOs, public, etc.), from the early stages of preparation onwards, play an active role and jointly develop commitment to and ownership of the project.

The Austrian experience shows that the services of an independent facilitator, responsible for managing the process and communication among participants, significantly contributes to the success of the approach. The French experience shows that making an independent body responsible for organising public information, consultation and participation has a similarly positive impact on project preparation.

Box 4.7 Techniques for Public Involvement

A range of methods and techniques can be used to promote public involvement. During the early stages of a project, when the intention is to maximise public contact, mass media and public displays or leaflets describing the project and its objectives and potential positive and negative impacts may be the most appropriate mode of involvement. As the proposal progresses, workshops and small group meetings may be the best way of identifying problems relevant to specific interests.

Identifying which possible representatives of affected groups of local people will be most effective in communicating these groups' views can be a useful strategy. Representatives can advise and help organise public involvement and reduce the risk of a breakdown in communications between stakeholders.

Other good practice principles that help ensure successful public involvement:

- Develop a public involvement framework as early as possible to establish the scope, timing and resource requirements necessary to support the process.
- Identify the participants or stakeholders and establish their legitimacy and representativeness (using social analysis). It should be noted that not all social actors can or should be consulted on every detail of the proposed project.
- Identify appropriate techniques of public participation/communication and provide relevant information in an easily understood form (e.g. using a combination of seminars, simple written materials, visual aids and scale models) to help to make technical material accessible to non-specialists.
- Hold events at a time and venue that will encourage maximum attendance and free exchange of views by all interested groups. Money may be allocated to facilitate community involvement (e.g. to pay travel expenses or costs involved in hosting meetings and inquiries).

Box 4.7 Techniques for Public Involvement *(continued)*

- Allow stakeholders sufficient time to assimilate the information provided, consider the implications and present their views.
- Identify mechanisms to ensure that decision makers consider stakeholder views and suggestions, e.g. by integrating findings and recommendations into the environmental assessment report, financing proposal and agreement.
- Ensure that responses and feedback are given on any issues or concerns raised.

NOTES

1. The focus of the responses to the questionnaire on this point are limited to concerns from the navigation point of view and concentrate on handling of polluted sediments. ICPDR rightly points out that other impacts have to be considered. Dredging can cause changes in turbidity, destroy spawning, nesting and resting sites, and disturb the hydromorphological structure of the river bed and its ecosystems.
2. See Terra et Aqua (2004).

Chapter 5

OUTSTANDING ISSUES

Based on the above assessment of legislation and procedures, the lessons learned from the cases reported in the questionnaire and, above all, the practice and experience of the project cases, the following issues are suggested for further elaboration and discussion at the 2006 Pan-European Inland Waterway Transport Conference in Bucharest.

5.1 Integrated European IWT Vision, Policy, Strategy and Planning

Anticipating the need to develop river basin management plans as part of WFD implementation, the IWT sector could take the initiative to develop basin-wide strategies incorporating the demands of inland navigation.

A study on an integrated development and environmental protection strategy for the Danube River would be particularly useful. Most of the planning problems identified in this report concern the Danube. Assessment procedures are weak in some Danube basin countries, and a strategy study could provide a useful basis for ensuring that environmental issues are addressed more systematically and for identifying the scope of conflicting interests that need to be covered at project level. The study should be undertaken in an international context through an integrated participative approach (open planning process), in which the various government agencies, together with the major stakeholders, co-operate and in which all social, economic and environmental interests are considered in a balanced way.

Box 5.1 Strategic Development Plans

Strategic plans for the development of river basins that integrate to the extent possible economic, social and environmental imperatives should facilitate consensus building on individual development projects. The WFD provides a basis for this in terms of water quality objectives, and has created a valuable tool through the establishment of river basin management plans. The Birds and Habitats Directives and Natura 2000 sites use the strategic imperative to preserve sites of international importance to wildlife. For inland navigation a formal strategy is missing.

In general the shipping industry favours providing the largest standard channel for navigation along the entire length of all potentially “major” waterways. This aspiration, however, may not always be backed by a clear idea of the economic rationale or the market’s demand for the services that such standardisation would accommodate. Water management requires a river basin focus, and this might also be a more appropriate basis for inland navigation market development than a uniform pan-European approach.

The WFD requires river basin management plans to be drawn up. Development of inland navigation strategies at an international or European level would be a logical parallel and provide the missing strategic basis for addressing conflicts between the interests of navigation and the environment. Integrated strategy plans would be ideal.

The ICPDR is developing a RBMP for the Danube basin, meeting WFD deadlines and obligations. The management plan will be adopted at the beginning of 2009. Together with the Danube Commission, the ICPDR has expressed willingness to develop the suggested integrated strategy study for waterway development and environmental protection in the Danube basin. Proposals are being prepared as follow-up to the present report, with a view to completing a strategy study by the

end of 2007 so that its findings can be taken properly into account in finalising the WFD river basin management plan.

5.2 Legislation and Procedures

Overriding Public Interest

All regulations and procedures may be superseded by an overriding public interest, but existing treaties and conventions do not provide general procedures or criteria to deal with the international aspects of this principle. It might be useful to determine whether this principle can be elaborated in terms specific to development of international IWT networks.

Harmonisation

Without implying that EU policy or regulation in one field is superior to that in another, it has been observed that EU policy and legislation in various fields are not balanced and often contradictory. In general, EU policy and legislation regarding environmental protection (e.g. Birds, Habitats, Water Framework, Water Quality Directives) is detailed and binding. Regulation regarding the development of TEN-T is less specific. In the absence of EU guidance on which interests might be balanced and/or prioritised, organisations such as CCNR, ICPR, the Danube Commission and ICPDR could be instrumental in achieving balance among the various economic, social and environmental imperatives. Specific elaboration on this issue might be included in the development of a basin-wide strategy for the Danube River as suggested in section 5.1.

Differentiation

Application of the same or similar legislation and procedures can differ from one country to another depending on differences in (a) national culture, (b) level of socio-economic development, (c) democratic tradition and d) organisation of stakeholders. It might be useful to investigate whether these differences need to be made explicit in guidelines for application of legislation and procedures.

5.3 Public Consultation and Participation

It would be useful to review existing guidelines for public consultation and participation,¹ and elaborate on them with a view to ensuring that stakeholders play a more active and participative role in the decision-making process from the early stages of both strategic planning and project preparation, promoting an open planning process. Relevant guidelines cover the following aspects of project development:

- Stakeholder analysis as an integrated part of project formulation.
- Development of a communication plan as an integrated part of project formulation.
- Agreement on the decision-making process and procedures; in this respect aspects to consider include (a) the role and responsibilities of any independent facilitator/mediator and (b) methods for quality control and certification of studies.
- Identification of the interests of other waterway users and stakeholders in the preparation of IWT projects.
- Identification of environmental and other impacts affecting the different waterway users and stakeholders.

- Development of commitment and ownership of integrated solutions by all stakeholders.
- Identification of alternative solutions that respect all stakeholder interests.

5.4 Other Issues

Based on the results of the workshops and the responses of the key experts interviewed, the following additional issues have been identified as important to consider in a European context.

Technical Issues

Dredging

Waterway and port authorities become responsible for problems of polluted sediments when they are not responsible for causing the contamination. A study should be undertaken on how to ensure that dredging to excavate and maintain channels for inland waterway development can be planned and executed while (a) respecting the strict national and EU regulations on polluted sediments and (b) applying the polluter pays principle.

Ecological design of IWT projects

It would be useful to review international experience in applying ecological principles in the preparation and design of inland waterway projects. Such a review would focus on the development of guidelines for:

- Design of ecological river bank protection.
- Development of a system of valuation for environmental costs and benefits to be included in economic and financial cost-benefit analysis.
- An integrated approach to IWT studies in which technical, economic, financial, environmental, social and institutional aspects are taken into account in a balanced way.

Quality and Risk Control

An international system should be developed to harmonise procedures of quality and risk control regarding, among other issues:

- Real-time monitoring of water quality and international exchange of information.
- Real-time monitoring of the transport and handling of dangerous cargo.
- Control of deliberate spills (oil and bilge water).
- Establishment of waste and waste water reception facilities in river ports.

Promotion

All of the studies recommended above would help promote IWT as an environment-friendly and responsible mode of transport. This in turn would support the case for developing adequate infrastructure.

A Specific EIA

The draft EIA for the Călărăi-Brăila project in Romania omitted some relevant impacts from its scope. A full EIA procedure was being launched in 2005 with support from ISPA funds. It might be appropriate to report on the outcome at the 2006 Pan-European Inland Waterway Transport Conference in Bucharest. There may be further opportunities as well for the international community to contribute to the completion of this EIA.

NOTES

1. Not only UN and EU guidelines but also such guidelines as are presented in EMCT (2004).

BIBLIOGRAPHY

Publications

- CIS Working Group 2.2 (2003a)**, *Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Policy Summary to Guidance Document No. 4: Identification and Designation of Heavily Modified and Artificial Water Bodies*, Office for Official Publications of the European Communities, Luxembourg.
- CIS Working Group 2.2 (2003b)**, *Toolbox on Identification and Designation of Artificial and Heavily Modified Water Bodies*, Office for Official Publications of the European Communities, Luxembourg.
- CIS Working Group on Water Bodies (2003)**, *Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance Document No. 2: Identification of Water Bodies*, Office for Official Publications of the European Communities, Luxembourg.
- DFID (1995)**, *Note on Enhancing Stakeholder Participation in Aid Activities*, Overseas Development Administration (now Department for International Development), London.
- ECMT (2000)**, *Strategic Environmental Assessment*, OECD/ECMT, Paris.
- EMCT (2004)**, *Assessment and Decision Making for Sustainable Transport*, OECD/ECMT, Paris.
- ECMT (2000)**, *Sustainable Transport Policies*, OECD/ECMT, Paris.
- Environment Agency (2003)**, *Artificial and Heavily Modified Water Bodies (AWBs & HMWBs) and the Water Framework Directive*, Version 1, July, UK Environment Agency, London and Bristol.
- European Commission (2000a)**, *Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, Office for Official Publications of the European Communities, Luxembourg.
- European Commission (2000b)**, *Towards Sustainable Economic and Development Co-operation, Environmental Integration Manual: Sector Guide - Inland waterways*, October, version 1.0, prepared by GIBB Ltd for European Commission, Development Directorate-General, Brussels.
- European Commission (2001a)**, *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*, Office for Official Publications of the European Communities, Luxembourg.
- European Commission (2001b)**, *Guidance on EIA: EIS Review*, Office for Official Publications of the European Communities, Luxembourg.

- European Commission (2001c)**, *Guidance on EIA: Scoping*, Office for Official Publications of the European Communities, Luxembourg.
- European Commission (2001d)**, *Guidance on EIA: Screening*, Office for Official Publications of the European Communities, Luxembourg.
- European Commission and International Conventions (2004)**, Joint Mission of the Expert Team to the “Bystroe Project” in the Ukrainian Part of the Danube Delta (6-8 October 2004), European Commission, Environment Directorate-General, Brussels.
- European Commission Expert Group on Transport and Environment (2000)**, *Defining an Environmentally Sustainable Transport System*, Working Group I, 6 September, European Commission, Brussels.
- ICPDR (2005)**, *The Danube River Basin District*, ICPDR, Vienna.
- German Federal Ministry for Economic Cooperation and Development (1993)**, *Environmental Handbook*: 20, River and Canal Engineering; 23, Inland Ports; 24, Shipping on Inland Waterways; 26, Shipping, BMZ, Berlin.
- Life for the Danube, Oder and Elbe Rivers Coalition (2003)**, *Danube-Oder-Elbe Canal. An Opportunity or a Threat?*, available at www.bankwatch.org/project.shtml?apc=-409271---1&x=193310&d=n or www.priateliazeme.sk/cepa/pdf/danub_oder_elbe_canal.pdf
- Ministerie van Verkeer en Waterstaat – Directoraat-Generaal Rijkswaterstaat (2003)**, *Handleiding voor de m.e.r.-procedure voor “natte” RWS-projecten*, Ministerie van Verkeer en Waterstaat, The Hague.
- PIANC (2003)**, *Guidelines for Sustainable Inland Waterways and Navigation*, Report of Working Group 6 of the Environmental Commission (ENVICOM), PIANC, Brussels.
- PIANC (2005)**, *Bird Habitat Management in Ports and Waterways*, Report of Working Group 2 of the Environmental Commission (ENVICOM), PIANC, Brussels.
- PIANC, ESPO, EFIP, CEDA, INE and IADC (2004)**, *Potential Implications for Navigation (Including Ports, Harbours, Waterways and Dredging) of EU Water Framework Directive Articles 16(1) and 16(7)*, position paper, 24 November, www.pianc-aipecn.org/docs/wfd/wfd-01.doc.
- Schramm, C. (2005)**, *The Integrated River Engineering Project on the Danube to the East of Vienna – Strengthening the environmentally friendly transport alternative Danube*, abstract from Czech-Slovak Navigation Congress, Via Donau, Vienna.
- Terra et Aqua (2004)**, “Sediment Management in the Context of the EU Water Framework Directive, from the Point of View of Waterways Maintenance for Shipping”, No. 97, December 2004, IADC, The Hague.
- UNECE (2001)**, *Study of the Current Situation and Trends in Inland Water Transport in Member Countries*, TRANS/SC.3/2001/8, United Nations Economic Commission for Europe, Inland Transport Committee, Working Party on Inland Water Transport, Geneva.

UNECE (2004), *Consideration of Measures Aimed at Prevention of Air Pollution from Inland Navigation Vessels*, TRANS/SC.3/104/Add.6, United Nations Economic Commission for Europe, Inland Transport Committee, Working Party on Inland Water Transport, Geneva.

World Bank (1993), *Public Involvement in Environmental Assessment: Requirements, Opportunities and Issues*, Environmental Assessment Sourcebook Update, No. 5, World Bank, Washington D.C.

WWF (2002), *Waterway Transport on Europe's Lifeline, The Danube: Impacts, Threats and Opportunities*, World Wide Fund for Nature, Vienna.

Websites

AVV	www.rws-avv.nl
Birds and Habitats Directive	www.europa.eu.int/comm/environment/nature
Central Commission for Navigation of the Rhine (CCNR)	www.ccr-zkr.org
Danube – Austria	www.donau.bmvit.gv.at
Danube Channel – Ukraine	www.delta-pilot.mk.ua
Danube Navigation Convention	http://ksh.fgg.uni-lj.si/danube/belgconv
DGG	www.minvenw.nl/dgg/dgg/nl/index.shtml
ECMT	www.cemt.org
EIA Support, EU	www.europa.eu.int/comm/environment/eia/eia-support.htm
Environmental Integration Manual	http://www.europa.eu.int/comm/development/body/themes/environment/env_integ/envintegration/index1.html
ESPO	www.espo.be
EU Water Policy and WFD	www.europa.eu.int/comm/environment/water
Europa (EU portal)	www.europa.eu.int
ICPDR	www.icpdr.org
ICPR	www.iksr.org
InterNat	www.wwwim.nl
OECD	www.oecd.org
PIANC	www.pianc-aipcn.org
Ramsar Convention	www.ramsar.org
Seine-Nord Europe – France	www.seine-nord-europe.com
Straubing-Vilshofen – Germany	www.donauforum.de and www.do-gis.de
Summaries of EU Legislation	www.europa.eu.int/scadplus/leg/en/s15000.htm
UK Environment Agency	www.environment-agency.gov.uk
UNECE Transport Division	www.unece.org/trans/Welcome.html
VNF	www.vnf.fr
Weser – Germany	www.wsa-bremerhaven.de and www.weseranpassung.de

MAPS

Map 1. Location of the fifteen main project cases



Source: UN/ECE and Voies Navigables de France.

Map 2. Corridor of the Seine-Nord Europe Canal



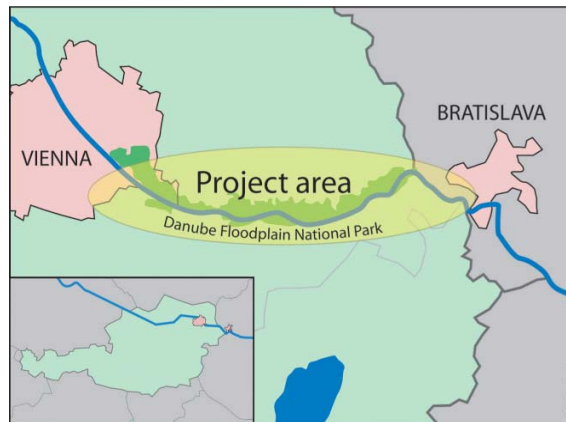
Source : Voies Navigables de France (VNF).

Map 3. Straubing-Vilshofen Project



Source: RMD Wasserstraßen GmbH.

Map 4. Danube Vienna East Project



Source: Via donau - Österreichische Wasserstraßen-Gesellschaft mbH, www.donau.bmvit.gv.at

Map 5. Bistroye Canal



Source: © Google Earth 2005.

Map 6. Bistroye Canal Project



Source: WWF Germany, Institute for Floodplains Ecology, Rastatt, 2005.



Source: Russian satellite image, KFA 1000. 3 July 1989, resolution 5 m.

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(75 2006 14 1 P) ISBN 92-821-1346-9 – No. 55209 2006

INLAND WATERWAYS & ENVIRONMENTAL PROTECTION

This report reviews experience in mitigating the environmental impacts of inland waterway development. It examines effective consultation and planning procedures across Europe. In particular it assesses the ways in which the EU Water Framework Directive affects the planning environment for international waterways and sets a new agenda for improving the ecological value of waterways. The report makes recommendations on good practice and identifies the Danube river basin as the critical area for improvement. This is where the efforts of international governmental organisations and NGOs could most usefully be combined to develop a basin-wide environmental protection and waterway development strategy.

