

New manual on integrated planning of waterways as a tool for river management

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Keywords: navigation, planning process, integration, river management, Danube

1 Introduction

Public discussions on the protection versus economic development of European rivers have led in recent years to a growing understanding that there is a strong need to guide future actions to reconcile conflicting interests. Some innovative measures have shown that it is indeed possible to create win-win solutions for environment, transport and other river uses.

Inland waterway transport (IWT) is one of the strongest drivers exerting new pressures on large rivers, notably the Danube (Zinke Environment Consulting 2002; Haskoning 2005; Habersack et al. 2009). While various waterways in Western Europe have been developed in the 20th century into an intensively used network, the Danube and some of its tributaries (Sava, Tisza) are still ecologically largely intact. Beside some well-known conflict cases of the Upper Danube (Straubing-Vilshofen; section east of Vienna), several major IWT projects are currently under preparation (Hungarian Danube, Middle and Lower Sava, Romanian-Bulgarian Danube: Zinke 2007; Birdlife 2008; Weller & Zinke 2009).

Even though waterway transport may be considered a rather environment-friendly transport mode, these plans are conflicting with the EU Water Framework Directive and the growing Natura 2000 network. As a response, the concept of integrated planning was jointly discussed and endorsed in 2007 by Danube Basin governments and various stakeholders in form of the “*Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube River Basin*” (JS 2007), under the lead of the ICPDR (International Commission for the Protection of the Danube River), the Danube Commission for Navigation (DC) and the International Sava Commission (ISRBC).

It was clear that the Joint Statement as a key tool for the planning and implementation of waterway projects needed further illustration and explanation. This became subject of a new “*Manual on Good Practises in Sustainable Waterway Planning*” (ICPDR 2010) within the EU PLATINA project (see www.naiades.info). The manual should explain the needed scope, organisation and implementation of a planning process that aims at providing security for waterway planners and river protection managers at local and international levels of European rivers.

2 Material and methods

The preparation of the Manual was executed in the PLATINA SWP 5.3 project (2008-2010) which included desk studies, expert reflections within the SWP 5.3 team and several stakeholder consultations. The Manual was prepared as a coordinated effort by the PLATINA SWP 5.3 partners, i.e.

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- University of Natural Resources and Applied Life Sciences (BOKU) - Institute of Water Management, Hydrology and Hydraulic Engineering in Vienna;
- Inland Navigation Europe (INE).

Methods applied included:

- a screening of available European references and sources (publications, workshops of other organisations, other manuals etc.);
- the use of the general planning guidelines of the *Joint Statement (2007)*;
- the input from various experts and stakeholders on occasion of Joint Statement meetings on 29-30 January 2009 in Budapest and on 9-10 March 2010 in Zagreb;
- discussions of the early draft Manual by the participants of the two PLATINA SWP 5.3 training workshops on integrated IWT planning (9-10 June 2009 in Zagreb/Croatia; 15-16 September 2009 in Ruse/Bulgaria).
- numerous expert comments and text contributions to the advanced and final draft versions.

3 Results

This extended abstract constitutes a short presentation of the key elements and basic guidance that is provided in detail and with various background information in the manual (ICPDR 2010). The new manual is based on the new legal framework of the EU as well as on available experiences and recommendations from various infrastructure developments. This refers to the EC policy (EC 2006a) and technical papers (EC 2006b), ECMT (2006), to case studies related to WFD implementation (EC 2006c), to the PIANC guidance documents on sustainable inland waterways (PIANC 2003), '*Working with Nature*' (PIANC 2008, 2009), to the planning experiences gained in the IWT projects on the Danube east of Vienna (OIAZDI 2009) and on the Scheldt (its Lys and estuary waterways – Maes et al. 2006) as well as to many engineering projects along waterways aimed at restoring river ecology (notably at the German and Dutch Rhine and the Austrian Danube: BfG 2009, Herpertz & Esser 2009).

As a result, this Manual offers **general advice** on organizing and implementing a balanced and integrated planning process. However, project developers should also consider national, regional and local aspects and requirements when developing an inland waterway transport (IWT) project. The early integration of stakeholders (including those representing environmental interests) and of environmental objectives and a wide communication are essential for a successful planning process.

To develop a **sustainable waterway infrastructure project** that does not (further) damage the river system and may even have a positive impact on the current state of environment, IWT planners need to understand and incorporate the wider environmental aspects and fully respect the legal environmental requirements.

Therefore, general planning objectives and principles should clearly prevent any deterioration of ecology (Natura 2000 and water status) and contribute to the legal needs (nature and water management objectives) to maintain and improve or restore ecological quality. The **River Engineering Criteria** elaborated in the *Joint Statement (2007)* should be taken into consideration as a general guide.

Preparing and executing an integrated planning process requires a more substantial investment into planning than was needed in the past, but it results in a number of **measurable benefits**: greater certainty that the IWT project planning will successfully pass environmental permit hurdles (EIA procedure); development of innovative technical solutions; better financial feasibility; reduced environmental damage costs and better use of the river ecosystem services; an improved public image of the project and the institutions responsible for planning and operating IWT infrastructure.

The **four essential features for integrated planning** are:

- Identify integrated project objectives incorporating IWT aims, environmental needs and the objectives of other uses of the river reach such as nature protection, water management and fisheries;
- Integrate all relevant stakeholders from the initial scoping phase of a project;

- Carry out an integrated planning process to translate the IWT and environment objectives into concrete project measures securing, where possible, win-win results;
- Conduct comprehensive environmental monitoring prior, during and after the project works, enabling an adaptive planning and implementation approach as well as securing an evaluation of project success.

This Manual suggests **five general stages** for preparing, executing and sustaining the integrated approach to be applied and interpreted in each IWT project: Scoping, organising the planning process, executing the integrated planning, monitoring and project implementation (Figure 1). For each stage, two to seven activities and steps are specified.

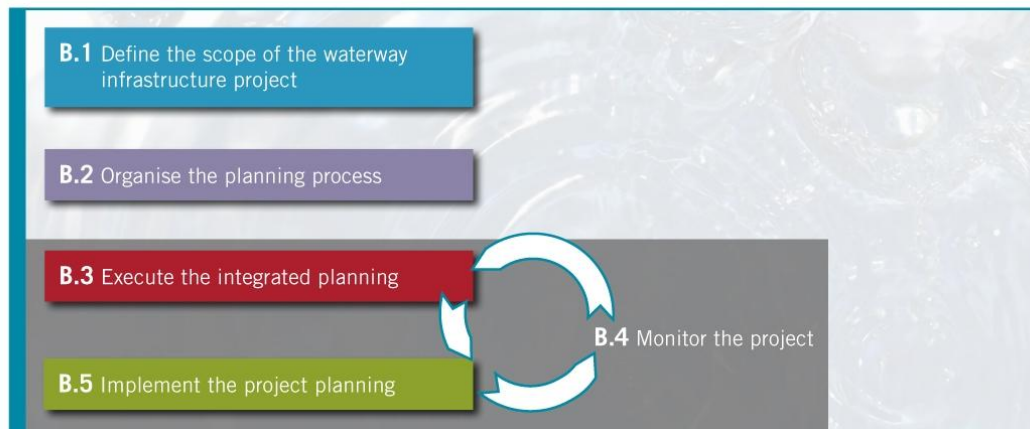


Figure 1. The general stages of an integrated planning process of a waterway project.

Especially the 2nd and 3rd stage require a much more comprehensive approach than taken in many infrastructure projects in the past.

The **integrated planning process** (B.3) itself covers four main planning steps as a *general guide*. There is no strict timeline, and the order of the steps may depend on the specific requirements and progress of a concrete IWT project:

Step 1 Define joint Planning Objectives and Principles

Step 2 Carry out the detailed planning of measures

- technical and ecological *options*
- plan *alternatives*
- *variants* of chosen alternatives
- local *examination* and/or *testing of measures*
- priority *ranking*

Step 3 Conclude the integrated planning process (communicate and adopt results)

Step 4 Execute the EIA process and apply for environmental permits.

Project developers can use these steps to create a dedicated *Road Map* for the entire planning process of their IWT project.

Before beginning the concrete planning work, several organisational activities are recommended to facilitate efficient work and concrete results. The Manual recommends setting up **several types of planning bodies**. Figure 2 presents the role, suggested members and functions of such actors within the integrated planning process:

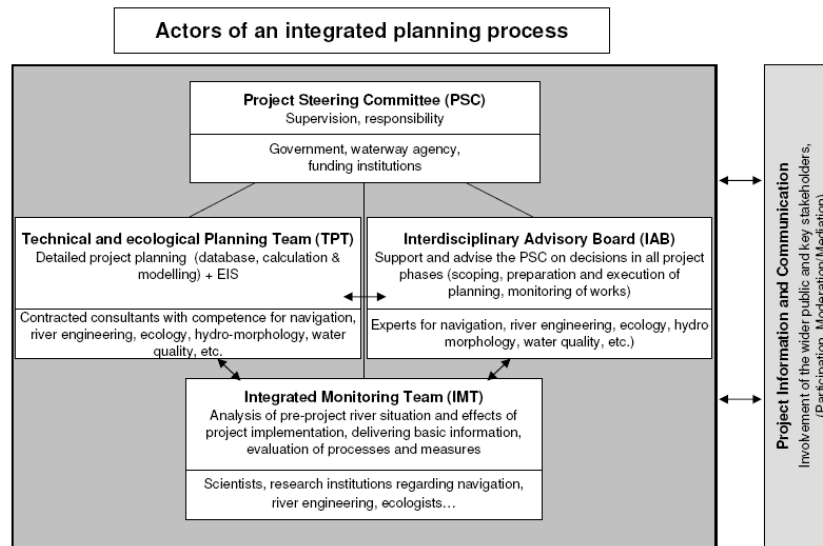


Figure 2. Role, suggested members and their functions within the integrated planning process.

While detailed planning has to be carried out by the *Technical and ecological Planning Team* (TPT), the *Integrated Advisory Board* (IAB) should be closely involved in this process to critically assess and optimise the proposed solutions. The joint planning results should be presented publicly and commented on by other stakeholders before they are finalised and endorsed. The completed set of integrated measures must be submitted to the responsible environmental authorities with all the required information (technical design, environmental aspects) in the Environmental Impact Study (EIS) to receive environmental and other permits.

The *Project Steering Committee* (PSC) executes overall supervision and assures that the planning results are implemented accordingly during further project phases. This may include the need to specify or amend certain details later upon conditions set by the permitting authorities.

The **environmental monitoring** should be executed by an independent *Integrated Monitoring Team* (IMT). This should also be connected to the adaptive planning and implementation of measures to allow for a feedback process, and any new findings have to be assessed by all planning bodies.

If the planning is properly done, the results are fully coordinated and compatible with other development plans, both in the transport sector and with other management affecting the river area (e.g. WFD, Natura 2000, flood control, agricultural and recreation development).

Even though integrated planning and its related implementation are rather new methods, there is already a wide range of experience and practical examples in Europe demonstrating Good Practices, some of which are presented in Part C of the Manual. This section also gives a comprehensive overview of relevant policies and the legal framework to be observed, of modern waterway management concepts and of the new management tasks of waterway administrations in line with EU environmental directives.

4 Conclusions

The *Joint Statement* (2007) has created a new foundation for combining the needs of transport with those of environmental protection. The new Manual provides practical guidance on how to achieve this. Success overall in integrated planning, however, depends on how well these planning tools are applied and interpreted in individual river infrastructure cases by all parties, i.e. governments, waterway agencies and relevant stakeholders. There is no best practice that can be easily copied elsewhere but there is the general understanding that waterway developers should respect multiple interests and requirements beside transport.

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