

Strategic Paper „Conservation and Development of Inland Waterway Transport“

Christian Baumgartner, Nationalpark Donau-Auen

Orth, September 3rd 2011



DANUBEPARKS



1. Project Identification

1.1 Project Title (max 200 characters)

Danube River Network of Protected Areas - Development and Implementation of Transnational Strategies for the Conservation of the Natural Heritage at the Danube River

act 3.2	starting month	ending month	description	role of each partner	geographical location (if relevant)	total amount
	03	2009	12	2011		
			<p>STRATEGIC PAPER „CONSERVATION AND DEVELOPMENT OF INLAND WATERWAY TRANSPORT“</p> <p>Based on expert knowledge, additional primary research and regular discussion within the task force, a joint strategic paper will be prepared which will define on a basin-wide scale the ecological needs, limits and potential for a sustainable development of Danube inland waterway transport.</p>	<ul style="list-style-type: none"> • NPDA: coordination and editing of strategic paper, cooperation with external experts, ICPDR, ETC "NEWADA" • PP: collaboration in task force, involvement of national experts, water authorities and ministries 	transnational	52.750,00 EUR

ETC-SEE DANUBEPARKS WP 3

Questionnaire on Inland Waterway Transport (IWT) projects (ETC-SEE DANUBEPARKS WP 3)

Please fill in the following boxes for each navigation project according to your knowledge (providing no more than 1-10 lines per box). It may be that the current status of the navigation project you are confronted with does not allow to respond to certain questions (i.e. some boxes may remain empty).

Introduction
Overall objective of the ETC-SEE WP 3 that serves the Danube basin

DANUBEPARKS
Danube basin
He already gained

Prior to drafting the questionnaire, both a direct questionnaire that the parks navigation but

Please fill in the space at this stage your local situation

Please return

Name and number of subject	Description of the information to be provided	Your information
0. DANUBEPARKS MEMBER	Contact	Park name and contact person (e-m, phone) for this Questionnaire and navigation issues
1. IWT PROJECT	1.1 Title (English)	Insert title of the IWT project in English.
	1.2 Title (local)	Insert title of the IWT project in your local language.
2. NAVIGATION PROJECT	2.1 Type of project	Indicate the type of the project from the categories given below (reflecting the primary project objective): - Improvement of existing fairway / navigation channels; - Lock (construction or overhaul); - Port or transshipment sites; - Telematics (River Information Services, Vessel Traffic Management Services, etc.); - Multipurpose (missing links, power plants, etc.); - Bridge (construction and overhaul); - Other.
	2.2 Status	Indicate the current status of the project: - Definition phase (proposal, idea, pre-feasibility study, strategic impact assessment SEA); - Preparatory phase (feasibility study, technical design, environmental impact assessment EIA);
		Current status: Comment:



Ingolstadt, 2010 01 12



Orth,
2011 05 27

DANUBEPARKS

Joint Strategy on Conservation and Navigation



Photo: © Baumgartner, NP DonauAuen

Draft 6 (final)

Table of contents

1. Introduction	4
2. Assessment of the river situation	5
2.1. Current status of IWT development along the Danube	10
2.2. Current status of protected areas along the Danube	13
2.3. Other user interests connected with the exploitation of rivers	16
3. Development needs of the altered Danube river	17
4. Opportunities and available tools to integrate conservation and navigation	28
4.1 Joint Statement on Inland Navigation and Environmental Protection	28
4.2. The PLATINA Manual	28
4.3 New guidance on IWT development related to Birds & Habitats Directives	30
4.4 Stepping from conflict to opportunity	30
5. Positioning of the Danube protected areas	31
5.1 Protected areas as essential stakeholders	31
5.2 River management positions	31
6. Implementing the Joint Strategy	33
References	35
Annexes	
Annex 1. Current status of IWT projects along the Danube	36
Annex 2. Current status of DANUBEPARKS in relation to IWT projects	46
Annex 3. First assessment of how the ecological problems of Danube protected areas could be affected by the planned local IWT project	57

Danube rkm	Protected area (protection status)	State	Site administrator (DanubePark) to be involved in the planning	IWT project (river sector)	IWT project status (end of 2010)
1876 - 1708	Danube floodplains (SPA, Protected landscape area at rkm 1863-1730, Ramsar site at rkm 1865-1780 and 9 SCLs fragmented between 1879 and 1708)	SK	Dunajske Luhy Protected Landscape Area BROZ - Regional Association f. Nature Conservation and Sustain. Developmt.	NAVIGABILITY OF THE JOINT SLOVAK-HUNGARIAN SECTION OF THE DANUBE (Sap - Szob: rkm 1810-1708)	Preparatory phase
1714 - 1658 (i.e. section 1700 - 1692 plus single spots)	Danube-Ipoly NP (Danube from Esztergom to Budapest)	HU	Danube-Ipoly NP	TEN-T Priority Project 18 Improvement of the navigability of the HU section of the Danube between Szob and the southern state border (rkm 1708 - 1433)	Detail feasibility study and EIA procedure (2008 - Nov. 2011) for some 20 small sites: Environmental licencing in progress - first environmental permits granted by Local Environmental Inspectorates in autumn 2010
1788 - 1566 (except 1657-1644)	Duna és ártere (Danube and its floodplain) (pSCI)	HU			
1642 - 1586	Ráckevei Dunaág (Ráckeve side-arm: 58 km long) (pSCI)	HU			
1565.5 - 1499	Tolnai Duna (SCI)	HU	Danube-Drava NP and Kiskunság NP Directorates,		
1499 - 1433	Danube-Drava National Park, at Gemenc, Béda, Karapancsa (SCI, SPA, NP, Ramsar site)	HU	Danube-Drava NP		
1433 - 1382.5	Kopacki Rit Nature Park (Ramsar site, scientific reserve)	HR	Kopacki Rit Nature Park	REHABILITATION OF THE DANUBE SECTOR AT APATIN (rkm 1410 - 1400)	Verification / definition phase
1433 - 1367	Gornje Podunavlje (IBA)	RS	Special Nature Reserve Gornje Podunavlje; Institute for Nature Conservation and Vojvodina Sumo, Serbia		
1433 - 1170		RS		River training and dredging works along the Serbian Danube upstream Belgrade (18 critical sectors at rkm 1428-1198)	IPA tender for 2 years feasibility study and EIA for 5 critical sectors (based on Master Plan 2006 and prelim. designs)
943 - 863	Djerdap NP / Porțile de Fier NP	RS/RO	Djerdap NP / Porțile de Fier NP	Re-opening fish migration at the Iron Gate I & II dams (note: This is not IWT project but could be linked with)	Preparation of feasibility study (planned measure in Danube RB District MP by 2015)
943 - 0	Lower Danube Green Corridor	RO, BG, MD, UA		TEN-T Priority Project 18 IWT project at the common RO-BG sector - ISPA 2 (rkm 863 - 375)	Feasibility study and EIA preparatory process since 2008
823	Gruia - Garia Mare (SPA)	RO			

DANUBE PARKS Joint Strategy on Conservation and Navigation - Draft 6 - final (July 2011)

3. Development needs of the altered Danube river

In general, most parts of the Danube (nature sites, water bodies) are in a good ecological status. Based on the assessments indicating that nearly all stretches of the Danube are somehow (some seriously, others very little) altered and that the EU legal norms require to prevent further deterioration or to restore the good status (achieving Good Ecological Status or Good Ecological Potential), the main question for future management of Danube nature sites is which key development issues and processes have to be addressed in local sites.

According to the findings of *DANUBEPARKS*, the **main Danube development issues** are:

➤ **Sediment dynamics / bed stability**

Over-arching problem is the lack of bed load that can be observed in all rivers downstream of lateral barriers (dams, weirs etc.). In a natural sediment balance, bed load transport is in a dynamic equilibrium between erosion and sedimentation; lack of bed load results in a dominance of erosive processes, i.e. an incision of the river bed, leading to a lowering of water tables and a disconnection of the main bed from the floodplain. Further alterations of the sediment balance are created from sediment extractions, be it for the exploitation of construction material or for the maintenance of the fairway (notably in case that the dredged material is not returned back into the river bed).

➤ **Longitudinal continuity**

The unhindered flow of water and the related migration of fish and other species constitute the core character of every river system. The "taming" of rivers and its wildest sections is usually achieved by dams and weirs: They not only block fish migration but also sediment transport (thus causing sedimentation upstream a dam and bed incision downstream) and alter the physico-chemical water quality. Still free-flowing rivers with white-water sections are exceptions in Europe and notably on the Danube. Restoring the longitudinal continuity across these barriers is an essential goal but difficult to achieve, as many badly functioning fish ladders show.

➤ **Lateral connectivity**

The river-floodplain system is an open network of habitats with different and changing conditions. In- and outflow of water connects the river with the diverse floodplain water bodies (channels, oxbows of various dimension and connectivity), also moving nutrients, sediments and species across a large space extending sometimes far away from the river bed. Flood waves are softened, flattened and delayed in the floodplain, groundwater bodies supplied and emptied in related intervals. Barriers at the side-arm entrances and exits (dikes, bottom sills) limit or even fully block this important exchange, thus substantially deteriorating the dynamics and qualities of floodplain habitats. Removing obsolete bank revetments is another objective to restore the lateral connectivity.

➤ **River and floodplain habitats**

Natural habitat development in riverine areas is subject to continuous dynamics, i.e. firstly hydromorphological processes which lead to repeated habitat changes (e.g. inundation and drying up periods; forming of steep banks, sand dunes, gravel bars, still waters) that create living conditions for many specialised and rare species and their varying life stages. Here, shore lines are characterised by rather young, short-living habitats, while deep water and forested zones offer more stable habitats. Many river and floodplain species depend on this geographical and seasonal habitat changes, but any habitat stabilisation worsens these living conditions.

3. Development needs of the altered Danube river

In general, most parts of the Danube (nature sites, water bodies) are in a good ecological status. Based on the assessments indicating that nearly all stretches of the Danube are somehow (some seriously, others very little) altered and that the EU legal norms require to prevent further deterioration or to restore the good status (achieving Good Ecological Status or Good Ecological Potential), the main question for future management of Danube nature sites is which key development issues and processes have to be addressed in local sites.

According to the findings of *DANUBEPARKS*, the **main Danube development issues** are:

➤ **Sediment dynamics / bed stability**

Over-arching problem is the lack of bed load that can be observed in all rivers downstream of lateral barriers (dams, weirs etc.). In a natural sediment balance, bed load transport is in a dynamic equilibrium between erosion and sedimentation; lack of bed load results in a dominance of erosive processes, i.e. an incision of the river bed, leading to a lowering of water tables and a disconnection of the main bed from the floodplain. Further alterations of the sediment balance are created from sediment extractions, be it for the exploitation of construction material or for the maintenance of the fairway (notably in case that the dredged material is not returned back into the river bed).

➤ **Longitudinal continuity**

The unhindered flow of water and the related migration of fish and other species constitute the core character of every river system.

The "taming" of rivers and its wildest sections is usually achieved by dams and weirs: They not only block fish migration but also sediment transport (thus causing sedimentation upstream a dam and bed incision downstream) and alter the physico-chemical water quality. Still free-flowing rivers with white-water sections are exceptions in Europe and notably on the Danube.

Restoring the longitudinal continuity across these barriers is an essential goal but difficult to achieve, as many badly functioning fish ladders show.

➤ **Lateral connectivity**

The river-floodplain system is an open network of habitats with different and changing conditions. In- and outflow of water connects the river with the diverse floodplain water bodies (channels, oxbows of various dimension and connectivity), also moving nutrients, sediments and species across a large space extending sometimes far away from the river bed. Flood waves are softened, flattened and delayed in the floodplain, groundwater bodies supplied and emptied in related intervals.

Barriers at the side-arm entrances and exits (dikes, bottom sills) limit or even fully block this important exchange, thus substantially deteriorating the dynamics and qualities of floodplain habitats. Removing obsolete bank revetments is another objective to restore the lateral connectivity.

➤ **River and floodplain habitats**

Natural habitat development in riverine areas is subject to continuous dynamics, i.e. firstly hydromorphological processes which lead to repeated habitat changes (e.g. inundation and drying up periods; forming of steep banks, sand dunes, gravel bars, still waters) that create living conditions for many specialised and rare species and their varying life stages. Here, shore lines are characterised by rather young, short-living habitats, while deep water and forested zones offer more stable habitats. Many river and floodplain species depend on this geographical and seasonal habitat changes, but any habitat stabilisation worsens these living conditions.

➤ **Waterway-related impacts**

○ **Fairway adaptation** according to river conditions

The provision of one continuous, fixed fairway dimension for the entire navigable route, such as the 2400 km of the Danube, is a goal that ignores the natural variety of riverine landscapes and of hydro-morphological conditions to be protected and maintained under EU law (WFD, Natura2000). While it may be economically important for a competitive IWT to dispose of a reliable waterway, it is also true that no transport route offers 100% perfect conditions.

Fairway adaptation to local conditions can mean several dimensions of damage to river ecology:

- regulating / rectifying / cross-cutting a naturally meandering or braided river bed into one straight fairway channel;
- deepening the natural river bed by capital and maintenance dredging to provide a stable fairway depth;
- ecology-oriented adaptation of the traffic at difficult fairway conditions (during fog or ice periods; in shallow sections with rocks and sand) adapts transport to the natural availability: A narrower fairway or one-way traffic in certain sections or a reduced navigability (as is the case during low water periods or in sections such as the Middle Rhine) can be balanced by shippers who are using RIS (River Information Services), GPS and radar to still move their goods.

○ **Establishing low and middle water regulations**

This navigation-support tool uses groynes and lateral walls to maintain a deep fairway even during low water periods that pose problems especially in upstream sections. Today, these fairway-maintaining structures can be ecologically optimised (e.g. built in new design, reduced dimension and number) and then support ecological restoration efforts.

○ **Reduction of vessel-related impacts** (wave splash)

Beside a desired reduction of air and water emissions from the ship engine and a careful disposal of ship waste (e.g. bilge oil, solid waste), vessels trigger with their waves during their travel a major problem for the survival of species living in a splash zone of river banks.

Certain types of ships cause more waves than others and should therefore be subject of ecological traffic regulations (e.g. access and speed limits in certain river areas).

Table 2: Main Danube development issues of selected protected areas (DANUBE-PARKS)

Key nature process	DANUBE-PARK	Problem	Planned nature project	Result
Sediment dynamics / bed stability	Straubing-Vilshofen * (Isar mouth)	Bed incision downstream of the Straubing dam; strongly altered sediment dynamics at entire section	Unclear if and how much the current IWT planning process will address these issues and restore river ecology	Depends on IWT planning process (expected to end in 2013)
Longitudinal continuity		Up- and downstream migration hindered by dams		
Lateral connectivity		Bank revetments; disconnected side-arms		
Natural habitats and species		Valuable communities are isolated; lack of pioneer habitats		
Waterway-related impacts		Bank revetments and groynes alter the riparian zones		
Leitbild / vision		Long-years conflict to be resolved in an integrated planning process		
Sediment dynamics / bed stability	NP Donau-Auen	Upstream dams cause bed incision + dropped water-tables	IREP (granulometric bed stabilisation)	Problem mitigated (innovative method to be tested and benefits to be confirmed)
Longitudinal continuity		Up- and down-stream migration hindered by dams	Bypasses at the Freudenau and Cunovo dams to be improved	To be seen!
Lateral connectivity		Bank revetments; disconnected side-arms	LIFE, IREP	Excellent effects
Natural habitats and species		Hybrid poplar forests, lack of pioneer habitats	N2000 MP, RBMP-PoM	Continuous improvement. To be seen!
Waterway-related impacts		Re-building and reduction of groynes	LIFE, IREP	First results: excellent!
Leitbild / vision		Long-years conflict to be resolved in an integrated planning team	MP, IREP	Good results on paper
Sediment dynamics / bed stability	Dunajske luhy - upstream Cunovo	Excessive sedimentation in the impounded river bed: Coarse sediments (gravel) are continuously dredged (and sold), fine fractions settle in the Hrusov water reservoir		
Longitudinal continuity		Migration hindered across the Cunovo diversion weir (rkm 1852) and along the old main river branches	LIFE - creating of fishways at Cunovo and Dunakiliti	

5. Positioning of the Danube's protected areas

Purpose of this strategy is to strengthen the identity of the *DANUBEPARKS* network and its members. On a general level *DANUBEPARKS* and other protected areas have the following position:

5.1 Protected areas as essential stakeholders

- ✓ Protected areas along the Danube and its tributaries are placed in prominent and strategic locations. They have a clear **mandate**, specified in management tasks, **that requires** protected area managers **to become engaged** in any plans, projects or works that interfere with their protected area responsibilities.
- ✓ Parks are local **stakeholders with legitimate interests** and obligations that have to be involved in nature intervention plans directly or indirectly affecting them.
- ✓ This engagement implies **pro-active communication** with those institutions responsible for the given plans, projects or works but also with other key stakeholders (resource managers, authorities) which are also affected.
- ✓ **Protected areas** are committed to extend their capacities and competence. Related weaknesses and gaps are assessed with the objective to reduce or eliminate them.
- ✓ *DANUBEPARKS* as a network disposes of a wide knowledge and experience that is available to each member and will be activated when needed, such as a resource for a local member but also as a supporting and advisory body that will be involved in local cases that are of network importance.

5.2 River management positions

River infrastructure works and new development projects can be supported by **protected areas** if the following conditions are observed:

- ✓ **Hydromorphology is the natural backbone** of every protected river area and it is disturbed and must be restored along the entire Danube. **Every infrastructure project at the Danube must address this issue and aim at improving and restoring the hydromorphological balance** (i.e. stop or even revert bed erosion; dredged sediments must remain in the river bed; extraction must remain below the natural supply and be strictly controlled). Hydromorphological processes at the Upper Danube must be restored, where-ever possible, while they must be maintained at the Middle and Lower Danube.
- ✓ **Longitudinal continuity and lateral connectivity are the essential elements of the Danube's ecological integrity.** Where-ever possible and ecologically reasonable, the river-floodplain connections must be maintained and restored (e.g. prevent resp. remove dams, underwater sills, blocked/disconnected side-arms and bank revetments). Fish habitats and migration routes (e.g. for sturgeon) are good indicators for the quality of these connections.
- ✓ **The Danube's protected areas host the last remnants of typical and highly valuable river ecosystem** (*European natural heritage*), including many rare and endangered species and habitats. Their long-term protection and non-deterioration is required under EU law and the local responsibility of protected area management. Because many habitats, species and water bodies require improvement and restoration, related management plans (FFH-D, B-D) and programmes of measures (WFD) have to be realised in the coming years. These plans and works have to be taken into account in and may not be undermined by other river development plans.
- ✓ **Nature protection aims are legal requirements that cannot be compromised.** Any other intervention into the Danube river system must respect the non-deterioration principles of EU law (WFD, FFH-D). The early integration of ecological objectives into planning eases the way to achieve win-win solutions and receive environmental and water permits (i.e. pass the EIA procedures).
- ✓ **Navigation fairway interests cannot overrule nature protection needs:** The dimension (depth, width) and use (traffic rules) must respect and sustain the natural character of rivers. IWT improvements must result from the least amount of ecosystem disturbance. There is no obligation to provide continuous two-way traffic: Existing fairway narrows combined with waiting areas constitute no real bottlenecks. One-way sections in rocky fords or river bends can be good traffic solutions. Where possible, fairways should be shifted to the least conflicting bed areas. There should be no further impoundments of the Danube. Low water and mean water regulations may not disconnect side-arms and backwaters. Artificial structures (groynes, guiding walls, chevrons etc.) must be kept to a minimum; obsolete structures be removed and useless dimensions be built back. Those fairway-improving interventions that are easy to achieve should be done first.
- ✓ **Protected area administrations** support plans to **restore the Danube's natural flood retention capacities.** Restoring and regularly inundating floodplains (i.e. no "dry polder") will mitigate the flood risk and revive the former ecosystem.
- ✓ Rivers are often sites of **political borderlines** but river ecosystems are cross-border landscapes. Political borderline debates should orient towards good neighbourhood and must respect and sustain the natural dynamics (e.g. prevent fixing of banks, allow the development of islands).
- ✓ **Integrated planning**, as stipulated in the *Joint Statement* and as illustrated in the *PLATINA Manual*, is the fair, pro-active and future-oriented process to find and implement balanced solutions. This entails **interdisciplinary planning teams involving protected area administrations**, jointly defined planning objectives for IWT and ecology, multi-criteria evaluation of various options, alternatives and variants (including non-structural ones) as well as support from comprehensive monitoring.
- ✓ Consequently, the execution of **river engineering and waterway maintenance** must be well targeted and apply case-by-case approach, 'working with nature' wherever possible, an integrated design of regulation structures, the adaptive implementation of measures, and an optimal use of the potential for river restoration. This is also the most cost-efficient method.
- ✓ Every river engineering project should be based on **regular, updated and detailed surveys** (bathymetric / topographic / hydraulic / hydrologic / sediment / ecological and other, as necessary) as well as on a calibrated and validated hydromorphologic **model** to work out the technical design.
- ✓ Improved navigability must also be based on an preferred use of non-structural measures, as the most economic and least environment-impacting tool. All transport ships and fairway maintenance vessels must be equipped with **modern information systems**: The ECDIS system displays the information from electronic navigational charts (ENC) and integrates position information from the Global Positioning System (GPS) and other navigational sensors, such as radar and automatic identification systems (AIS). Every **waterway administration** must dispose of well-equipped and modern monitoring vessels with trained staff producing fresh (i.e. close to real-time) and **reliable fairway information**.
- ✓ **ECDIS maps** (Electronic Chart Display and Information System for navigation) should indicate all skippers also the sensitive ecological river bed zones (derived e.g. from Natura 2000 mapping) to be observed during sailing and fairway maintenance.

ANNEXES

Annex 1 Current status of IWT projects along the Danube

A1.1 German IWT project Straubing – Vilshofen

While the rest of the German Danube waterway has been adapted to 2.5 m water depth, the Straubing-Vilshofen section's water depth only reaches 1.6 m at low water levels. A water depth of 2.50 m can be reached only 165 days a year on average.

After many years of interdisciplinary studies and intensive public debates on the needs and options for improving shipping conditions, including flood control and implementation of a regional planning procedure, there is no agreement about the variant to be used.

In 2002 the German Bundestag (Federal Parliament) decided to build Variant A (only river engineering measures without a dam). The Bavarian Free State (federal province), however, continues to examine building Variant C 280 (with one dam).

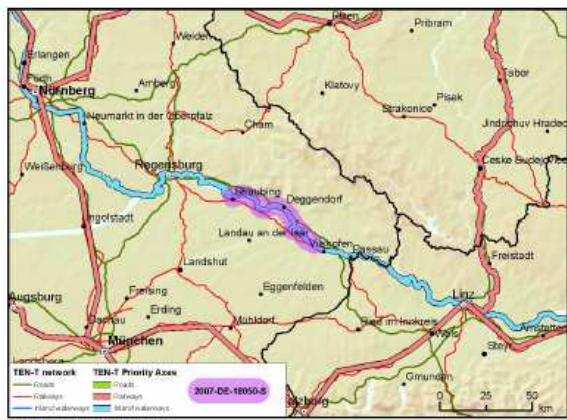
Affected river section: rkm 2319 - 2250

Project owner: Federal Government of Germany, Government of Bavaria (State Ministry for Economic Affairs, Infrastructure, Transport and Technology)

Project coordinator/planner: RMD AG

Current status of the fairway structures: Groynes provide sufficient fairway depth, though not during the entire year.

The IWT project



The TEN-T project no. 2007-DE-18050-S (€ 33 M in total – EU support of 50% for the period Oct. 2008 to Dec. 2012) “Variant-independent research on the development of the Danube between Straubing and Vilshofen” aims to make a concrete and independent assessment on the influence of different measures on navigation, as well as on the environment. Regional environmental impacts and the benefits of an effective inland waterway network (the potential of shifting goods from road to waterways, pollution reduction) will also be taken into account. In addition, the Federal Ministry of Transport, Building and Urban Affairs (BMVBS) has set up a so-called “Monitoring Group” consisting of transport, economic and environmental experts in connection with the execution of the study. This group, however, cannot affect the scope of planned examinations by the RMD.

This project is based on many years of planning and public discussion since 1987. The new feasibility study (“Variant-independent studies”) shall review previously proposed solutions (variant A and variant C280). Variant A pre-supposes river engineering works (groynes, dredging a/o). Variant C280 presupposes building of one river weir. Costs for variant A amount to 364 mEUR and for variant C280, 495 mEUR. Both variants include measures for improving environmental issues.

Even if both development variants aim at compensation measures to improve the ecological status, they constitute significant interventions into the last remaining free-flowing Danube section in Bavaria (different to Variant C280, Variant A is expected to result in minor negative alterations only in terms of hydromorphology and aquatic habitats).

Annex 2. Current status of DANUBEPARKS in relation to IWT projects

The individual situation for the DANUBEPARKS can be summarised as follows.

A2.1 Floodplains Institute Neuburg (Germany)

This Danube stretch became impounded in 1969 - 1971 for the purpose of a chain of hydropower plants (running mode). Because of the two barrages navigation on this part of the Danube is impossible and there is no major navigation purpose in this river section.

Protected areas: The „Riparian Forest Between Neuburg And Ingolstadt“ consists of 3,686 ha of Protected Landscape Area, including Natura 2000 sites (2,889 ha SAC und 2,954 ha SPA).

Ecosystem Quality: Partially highly degraded by dikes; river banks by riprap; side arms degraded due to the disconnection from the main river. Due to hydropower plants, the longitudinal connectivity of the river is completely blocked. The whole ecosystem is degraded by bed erosion (downstream of the power plant) and aggradation (upstream of the dam) compared to the natural water table: The river is disconnected from its floodplain, only floods above 1300 m³/s (once in 7 years!) enter the floodplains.

Management objectives by implementing the project “Dynamisation of the Danube floodplains”

The project management objectives include:

- a new side-arm-system of 9 km (connecting upstream and downstream from the Bergheim HPP)
- Reconnection of a side-arm
- Ecological floodings (3-5 times per year at 30 m³/s)
- Raising and lowering the water table to allow larger fluctuation of the water table.

A related FFH management plan is in process.

Along the German Danube waterway, there is one heavily disputed section:

Straubing and Vilshofen (rkm 2330 - 2250)*

Protected area status:

As a result of intensive river exploitation for hydropower and navigation, this river section constitutes the last free-flowing section of the entire German Danube. This river section is still rich in its biodiversity (e.g. dynamic floodplain forests, rare fish, snails, mussels).

There are several Natura 2000 sites along this stretch. Presently, there is one SCI “Danube floodplains between Straubing and Vilshofen” at rkm 2331-2242) and two Special Protection Areas (SPA) along the stretch (“Danube between Straubing and Vilshofen” at rkm 2330 – 2242 and “Isar mouth” at rkm 2284-2278); they include two State Nature Reserves (“Kleinschwarzach” and “Isar Mouth”).

On top a are seven Protected Landscape Areas between rkm 2318 and 2258.

Affected river section (rkm 2330-2250):

It is expected that river works for improving navigation, especially ensuring greater depth, will have serious impacts on habitats, fauna, and flood control. Alternatives that include one or two dams would totally destroy the river and floodplain dynamics.

Annex 3

First assessment of how the ecological problems of Danube protected areas could be affected by the planned local IWT project

(i.e. if the ecological problems at protected Danube areas could be reduced or get worse if the IWT project in this section will be executed as currently planned)

Legend: high, medium or low conflict ☹☹☹ resp. reconciliation ***

* indicates that the information received was complemented by the consultant

Key nature process	DANUBE-PARK	Ecological problem to be resolved	Planned IWT project	Current IWT project has POTENTIAL for conflict or for reconciliation?
Sediment dynamics / bed stability	Straubing-Vilshofen* (Isar mouth)	Up- and downstream dams strongly altered sediment dynamics	TEN-T priority project Straubing – Vilshofen (rkm 2319 - 2250)	☹☹☹
Longitudinal continuity		Up- and downstream migration hindered by dams		Variant A: ☹☹ Variant C: ☹☹☹
Lateral connectivity		Bank revetments; disconnected side-arms		☹
Natural habitats and species		Valuable communities are isolated; lack of pioneer habitats		☹☹
Waterway-related impacts		Bank revetments and groynes alter the riparian zones		☹
Sediment dynamics / bed stability	NP Donau-Auen	Upstream dams cause bed incision + dropped water-tables	TEN-T Priority Project 18 Integrated river engineering project on the Danube east of Vienna (rkm 1921 – 1873)	**
Longitudinal continuity		Up- and down-stream migration hindered by dams		*
Lateral connectivity		Bank revetments; disconnected side-arms		**
Natural habitats and species		Hybrid poplar forests, lack of pioneer habitats		**
Waterway-related impacts		Re-building and reduction of groynes		* (☹)
Sediment dynamics / bed stability	Dunajske luhy - upstream Cunovo	Excessive sedimentation in the impounded river bed: Coarse sediments (gravel) are continuously dredged (and sold), fine fractions settle in the Hrusov water reservoir		**
Longitudinal continuity		Migration hindered across the Cunovo diversion weir (rkm 1852) and along the old river branches Maly Dunaj (rkm 1865) and Moson Danube (rkm 1852).		**
Lateral connectivity		Bank revetments; disconnected side-arms		**
Natural habitats and		Lack of erosion / sedi-		**

2nd Steering Committee, 3rd September 2011, Orth an der Donau (Austria)

Statement concerning the DANUBEPARKS Strategy on Conservation & Navigation

As a consequence of the recent enlargement of the EU, now embracing Danube countries from the source to the delta, Danube waterway development has come in the focus of new EU transport policy (Corridor VII, TEN-T priority project no.18, NAIADES, EU Danube Region Strategy). The removal of so-called fairway “bottlenecks” has been identified as key issue to improve inland waterway transport along the Danube. In the last years several new large-scale infrastructure projects are being discussed and prepared for all parts of the Danube.

Not surprisingly these projects tend to affect the most natural, valuable and sensitive parts of the Danube river ecosystem, in particular the remaining free flowing river sections. Despite the severe alterations the Danube has undergone over some 150 years, these parts of the river and their adjacent floodplains are recognised today as an indispensable part of Europe’s natural heritage. Most are protected under national law (as national parks, nature reserves etc.) and are all subject to EU legislation such as the Habitats, Birds and Water Framework directives, requiring no further deterioration or restoration of the local ecological status.

Conflict between Inland Waterway Transport (IWT) development and conservation requirements has to be resolved and decided “case by case” for each specific river stretch and specific project. But every single project is also to be seen and reviewed in a Danube wide context. To provide this wider context DANUBEPARKS experts supported by external expertise have developed the

DANUBEPARKS Strategy on Conservation and Navigation.

This strategy

- assesses and communicates the overall situation of Danube waterway development and nature conservation, providing concrete and tangible information on navigation projects and conservation issues with a focus on the *DANUBEPARKS* PA;
- defines concrete nature conservation demands and requirements in the context of current IWT development planning;
- aims to strengthen the capacity and commitment of protected area managers in order to properly fulfil their stakeholder role in the planning and decision-making process of IWT development projects;
- gives guidance to protected area and waterway managers on available tools and opportunities to integrate conservation and navigation;
- presents common positions and actions to involve *DANUBEPARKS* as a distinct interest group and relevant stakeholder in river development.

There is a growing awareness and a common consensus within DANUBEPARKS that river hydrology and river morphology are probably the most determining and important parameters for the long-lasting development of river and floodplain ecosystems. They are the key factors to reach and maintain a favourable ecological status and will need much more attention than in the past.

Thanks for your attention!

