Integrated River Engineering Project
Danube East of Vienna

Vienna, April 5th, 2011

www.via-donau.org
Integrated River Engineering Project on the Danube East of Vienna

- is a project of via donau, realized on behalf of the Austrian Ministry of Transport, Innovation and Technology.
- is a priority project of the European Commission (Trans-European Transport Network, PP18).
- With this project via donau is fulfilling the statutory mandate to provide for better environmental and navigational conditions.

Project area: river-km 1.921,0 - 1.872,7 from the Freudenau Power Plant to the Austrian-Slovak border
Ecological Deficits (1)
Deficits caused by river bed degradation

the most demanding task is the minimization of the continuous river bed degradation (2 - 3.5 cm per year)

The river bed degradation leads to:
→ decoupling of river and floodplains
→ falling groundwater levels

**Aim**: sustainable stabilization of the mean bed level maintaining the character of a free flowing river

Today’s river bed is approx. 1 m lower than 50 years ago!
Ecological Deficits (2)
Heavily regulated river in a National Park region

- **Sidebarms are cutted-off** or have discharge only for a few days a year and slowly fall dry
- **Heavily protected river banks**

→ the habitats of typical local fauna and flora are at risk

**Aim**: Improvement of ecological functions of the river, the river banks and the floodplain
Deficits for Inland Navigation

- **Inadequate water depth** - during low-water periods the Danube river is too shallow for navigation;
- average utilization of ship capacity of only approx. 60%

→ limited competitiveness of inland navigation

- **high maintenance costs**

**Aims:** Better minimum fairway depths during low-water periods; reduction of maintenance costs
AIMS

River Bank Restoration

Granulometric River Bed Improvement

Optimisation Low Water Regulation

Improvement ecological conditions

Improvement nautical conditions

River Bed Adjustments (dredging & dumping)

“Hinterrinner” / Creating Islands

River bed stability

Side Arm Reconnection

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Granulometric River Bed Improvement

Reduce river bed erosion by adding larger gravel sizes approx. 40 – 70 mm) within the natural grain size spectrum.

Reducing bed load transport capacity from 300,000 to 400,000 m³/a to 30,000 to 50,000 m³/a.
Status Global Project / Main Works

- Establishment of an interdisciplinary steering committee: 2002
- Examination of alternative and variant solutions: 2002 – 2004
- Moderation procedure to ensure public participation: 2003 –2004


- Environmental Impact Assessment (EIA General Authorization):
  - Submission of the EIS: March 2006
  - Public hearing: October 2008
  - Summarizing Assessment of the experts of the authorities: June 2009

- Main works: start of construction works after the EIA procedure (general and detail authorization). Construction period: 8-9 years

Results of the pilot projects will be implemented
Pilot projects east of Vienna

- **2004 - LIFE**
  - Side Arm Reconnection
  - Schönau

- **2002 - LIFE**
  - Side Arm Reconnection
  - Orth

- **2006 - LIFE**
  - River Bank Restoration
  - Thurnhaufen

- **2009 - TEN-T**
  - River Bank Restoration
  - Groyne Optimisation
  - Witzelsdorf

- **1998**
  - Side Arm Reconnection
  - Haslau-Regelsbrunn

- **In preparation - TEN-T**
  - River Bed Stabilization
  - River Bank Restoration
  - Side Arm Reconnection
  - Groyne Optimisation
  - Bad Deutsch-Altenburg
Pilot Project Witzelsdorf

Project Area
• approx. 1.7 km long stretch (stream-km 1893.4 to 1891.7, left river bank)

Aims
• testing innovative groynes
• increasing dynamics at the riverbank
• gaining experience for the Integrated River Engineering Project

Status
✓ construction works: late 2007 to mid 2009
• post-monitoring ongoing
Pilot Project Witzelsdorf
Measures

- 1,2 km river bank restoration
- By-pass route for young fish and for reducing sedimentation in the groyne field
- Removal of the existing 8 groynes
- 4 new downstream-facing groynes lead to higher dynamics along the river bank
- Lowering of the training wall to 0.3 m over LNWL

Innovative groyne shapes – advantages for ecology and navigation by interdisciplinary planning

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Pilot Project Witzelsdorf
Reconstruction of Groynes
Pilot Project Witzelsdorf
River Bank Restoration
Pilot Project Witzelsdorf
Gravel bank, flat water zone and steep face

September 2009
Pilot Project Witzelsdorf
Island and protected side channel

September 2009
Pilot Project Witzelsdorf
Natural river bank

November 2010
Pilot Project Bad Deutsch-Altenburg
Pilot Project Bad Deutsch-Altenburg

Project Area
• approx. 3 km long stretch (stream-km 1887.5 – 1884.5)

Aims
• testing the Granulometric River Bed Improvement to counteract river bed degradation
• realizing all measures foreseen in the Integrated River Engineering Project in one stretch for the first time
• gaining experience and reducing technical and economical risks for the Integrated River Engineering Project
Pilot Project Bad Deutsch-Altenburg
Measures

- **Optimisation of Low Water Regulation**
  - 19 old +10 new groynes, new shapes

- **Granulometric River Bed Improvement**
  - 100,000 m³ coarse gravel

- **River Bank Restoration**
  - total 1.2 kilometer

- **Side Arm Reconnection**
  - Johler Side Arm

River Bed Adjustments

- Removal of old groynes and river bank restoration
- Construction of new groynes
Pilot Project Bad Deutsch-Altenburg

The approx. 1.4 km long Johler side arm will be the first permanently reconnected side arm in the National Park. Planned discharge: approx. 10 m³/s at low water level.
Pilot Project Bad Deutsch-Altenburg
Project Status

Approval process
✓ Environmental Impact Assessment – not necessary
✓ Natura 2000 – 2 assessments finalised: no significant negative impact on protected natural habitats, fauna and flora
✓ already approved after water law, navigation law, national park law (nature conservation law) and forestry law
  • The enlargement of reconstruction works (hidden stone armouring was found) forces to adapt allowances - ongoing

Monitoring
• Interdisciplinary monitoring since 2005

Construction works
✓ preparation works finalised
✓ tender procedure for the main works finalised
  • start of the main works is foreseen in low water season 2011/2012
  • construction period: approx. 2 low water seasons
Mag. Robert Tögel
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