Hydro-ecology and river habitats

Implementation of the EU Water Framework Directive

Case Study Hungary/Austria

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The Blue Planet
MAJOR RIVERS
and
MAJOR RIVER BASINS
in
EUROPE
Rhine Danube catchment area, the main navigation corridor

Szigetköz

1848-1795 fkm.
12 District Environment and Water Directorates
Responsible for implementation of WFD
Central concept of the WFD is integration

of environmental objectives
of all water resources
of all water uses, functions and values
of disciplines
of water legislation
of all significant management and ecological aspects
of a wide range of measures
of stakeholders and civil society
of different decision-making levels
of water management by different MemberStates
The biggest Challenge!

• We have to decrease the mistrust between the experts!
Technicians vs. Naturalists in implementation process?

Ecology
chemistry
engineering
hydrology,
• hydraulics,
• soil sciences,
• technology,

Who has the philosopher's stone?
Participants and Partners

Two countries, different organizations
(state, local authorities, universities, privat
sector and civil organizations)

North-transdanubian Environment and Water Directorate
Fertő-Hanság National Park Directorate
Hungarian Academy of Science Danube Researche Station
Budapest University of Technology and Economics
City of Győr
City of Mosonmagyaróvár
Hullámvonal Engineer Ltd.
City of Vienna
University of Vienna
Water management cross border cooperation between H-A

Cross border tradition
Back to the 19th. century
1873 Rába River Regulation Association
1955 Austria neutral state
1956 Hungarian-Austrian Water Commission

Since 2000 based on River Basins and Common implementation of the EU Water Framework Directive
First phase/First meeting
The mistrust between disciplines
Second phase
Common measurements
Flows measurements

- Gauging stations: level and temperature
- Flow measurements ADCP instrument
- Expeditional surveys – water balance
45 types of habitats
Naturalness of the area
- 25% natural
- 50% natural-like
- 25% non natural
Native fish fauna species 49
Adventive species 13
New fauna element: Neogobius fluviatilis
Disappeared:
Huso huso
Acipenser gueldenstaedti
Acipenser nudiventris
Numerical modelling 2D modell

2 D modell Fast and slow zones
- Sallow and deep zones
- Whirling

Results:
- Habitat qualification
- Species distribution in space
- Flow conditions
- Residence times
- Hydraulic impact of riverbed regulation
3D modell
- Space dimension
- Full current characterisation
- Whirling and twisting
- Turbulence conditions

Results:
- Ecological potential backgrounds
- Movement of particles
- Current conditions of wiers
- Turbulence conditions and flora/fauna
Physical modelling

Results:
- Dredging activities
- Fish-pass
- Reconstruction works
- Sediment trap
- Services needs
Public participation
Third phase common thinking programme of measures
Utilization of the results by the partners

- Designation of the water bodies according to the WFD
- Planning of the monitoring systems
- Mosoni Danube HMWB verification
- Reference sites for HMWB
- Background data to rehabilitation
- Data to the operation of the Mosoni Danube
- Background to the river basin management planning
- Experience in international cooperation
- Coordination of different professional fields
- Public involvement
Lesson learned

Multidisciplinary tasks need common understandings.

International river basin needs trusts between parties.

Successful cooperation between civil engineers and naturalist results sustainable river basin planning.

Participation of civil society is fundamental.
Technical science – Natural science

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Thank you for your attention