

Landscape protection and planning at the hydrological “Roof of Europe” (Danube-Odra-Elbe river catchments)

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ABSTRACT

The Danube-Odra-Elbe navigation canal might cause various environmental problems. Its planned part crossing of the area of Českomoravské mezihorí-Hills is treated from the landscape-ecological point of view in this paper. Tributaries of the Elbe river (Orlice, Třebovka), Svitava and Morava rivers on the top of the “bridge territory” (as a part of the Roof of Europe) represent ecological axes for the channel to bind a series of reserves and patches of valuable nature. The suggested D-O-E project will decrease the natural value of areas, change the water regime and lead to lost biodiversity and irreversible ecological change.

Key words: Ecosystem protection, hydrological Roof of Europe, landscape planning Danube-Odra-Elbe (D-O-E) river catchments

INTRODUCTION

Ecological data series at the higher temporal scale are strongly needed, in general, for prediction of further development of an ecosystem type or an ecosystem within global climate change (e.g., Cole et al. 1991, Bakker et al. 1996, Gosz 1999). The time order measured in decades is relevant to change/existence of water-retained habitats in Central-European landscapes. A heterogeneous belt of ecosystems placed along the curved and undulated line of the main European watershed which is delineated (from southwest to northeast) between Bohemia/Moravia (Czech Republic)/Slovakia/Austria has a special function in the wider landscape context in this part of Europe: hydrology, determined by water retention capacity of plant communities, represents a limiting factor for life in this (semi)cultural area. Data of a long-term character may serve as a valuable basis for assessment of developmental trends in a hydrologically important landscape (called “Roof of Europe”; terrestrial space dividing waters into the Elbe catchment – Northern Sea, Odra catchment – Baltic Sea, and Danube catchment – Black Sea).

History of the trilateral catchment-connecting canal project

Several times during the 20th century the idea to revitalize a project on the channel construction on the Danube-Odra-Elbe (D-O-E) river catchments across the main European hydrological boundaries has appeared. In the 1980s, plans were

prepared to construct a navigation canal with an industrial port on the Morava River. The plan was initiated by the former Slovak government with the support of huge industrial companies and agricultural firms in Slusovice. In 1994, on elaboration of the physical plan was re-initiated by the government.

The route of the project runs across several protected areas of Europe, including protected landscape in Zahorie; a proposed national park and international park in the Danube basin; the Thaya national park in Austria; reserves Soutok, Ranspuk and Cahnov on the confluence of Thaya and Morava rivers; Ramsar wetlands; and Alluvium Moravy – part of the designed protected area of Dolne Pomoravie. Two large-scale projects would cause substantial changes in the land use: (1) The Bratislava dam and power station would destroy an approximately 30 km section of the Morava River flood plains, and (2) The Danube-Odra-Elbe navigation canal might cause problems in the self-purification of the Morava River, which is in the fourth (worst) class of cleanness.

The situation from the Czech side is similar. Tributaries of the Elbe river (Orlice, Třebovka), Svitava and Morava rivers on the top at the „bridge territory” are among three catchments potentially functioning as axes for the channel which bind a series of reserves and culturally valuable localities. All this belt with its undulated geomorphology of plateaux and hilly landscapes plays a key hydrological role for all the Europe because of waters run only off but do no run into Central European territory. In the early nineties of the 20th century the construction of the Danube-Mohan-Rhine canal was completed which has comparable parameters with the Danube-Odra-Elbe canal – see the following table:

	D-M-R canal	D-O-E canal	Ratio D-O-E/D-M-R
Length (km)	171	510	2.98
Total elevation balanced by lock chambers (m)	243	626	2.57
Number of navigation chambers	16	49	3.06

Thus, the proposed D-O-E would have:

- a length three times higher than the D-M-R canal,
- a total elevation overcome by lock chambers 2.6 times higher,
- and three times more lock chambers.

It is not sure that Poland will participate in the canal on its territory (the Odra river catchment) which means the risk of the Odra-branch ending in Ostrava (Northern Moravia).

The Elbe, Morava and Vltava rivers have a high slope elevation in the Czech area, low water capacity and fluctuating water-flow discharges. Transport capabi-

lity of any water way depends on the size and capacity of water chambers. Water transport with lock chambers of the size 190 × 12 m is comparable with single-track railway line. Water traffic is 3.5 times less energy demanding than road transportation. The D-O-E canal could be potentially profitable (in a strictly economic sense) only if all European countries use it. However, this is an unrealistic assumption, due to the recent existence of the D-M-R canal.

Landscape development evaluation

The landscape planning framework of the model area consists in the phytogeographical regionalisation of Eastern Bohemia – district 63 Českomoravské mezihorí-Hills with its subdistricts of recorded Flora of Czech Republic (Skalický et al. 1982, Hejný & Slavík 1988). Regional ecosystem surveillance ensures a good knowledge of vegetation and flora and their migratory aspects (Kovář 1972, 1973, 1977, 1978a, 1983). The phenomenons of abandonment and ecosystem fragmentation implying stress on plant behavior and changes in landscape structure can be simply assessed (Budd 1991, Kovář 1999a, Zee 1999). The application of results from long-term landscape-ecological research offers potential or real prospects for ecosystem restoration (mainly in the sense of water retention capacity), and control of expansive species and landscape-ecological implications proper for maintaining biodiversity and sustainable development of valuable countryside (Burch et al. 1999, Kovář 1978b, 1995, 1999b, 2004).

Rivers and floodplain areas represent extraordinary biodiversity and important scientific, recreational and educational potential (e.g., Nilsson et al. 1994). Those areas are often declared as a "wetlands of international importance", as protected by the Ramsar Convention and also shortlisted for Natura 2000 in the Czech and Slovak Republics, and as designated as a Natura 2000 site in Austria. In spite of their high natural value, the above mentioned catchment areas are subject to plans for inappropriate regional development – these plans suggest the inclusion of the Morava river into the transport waterway of Danube-Odra-Elbe canal, construction of four bridges with a transport network between the Austrian and Slovak sides, and reopening the questionable water dam at Wolfstahl. Environmentalists stress that the suggested projects will decrease the natural value of areas, change the water regime, lead to lost biodiversity and irreversible ecological changes. Moreover, the planned constructions will destroy recreational and educational possibilities for inhabitants of adjacent cities and towns or villages. Surprisingly, these construction projects will use funds provided by the European Union, which, together with other international donors, has already invested 8 milion Euros (since 1995) into the revitalisation of the Morava and Dyje floodplains in all of three countries.

The Morava River floodplain area plays a crucial role in flood control. This river has a self-purification process that traps sediment for the recharge and discharge of groundwater. The river also moderates the local climate. The area is important

for fishery production, forestry, water supply, education and scientific research. The problem stems from the damage the construction of a navigation canal with an industrial port on the Morava River might cause. The main effects of this plan would be the destruction of unique natural species, and the need to use the land of private land owners and farmers during construction.

The importance of the construction has not been economically proved. It is highly questionable whether any further industrial development of the overcrowded industrial area of Břeclav-Přerov-Ostrava along the Danube-Odra-Elbe project makes sense since this has nearly reached the limit of its growth (Belčáková 2005).

Landscape planning and voice of public

Physical and/or land use planning in most of European countries has several phases during which there are public hearings. After the first draft and initial comments have been completed, the final version must be determined. This consists of an explanatory, and an executive part. The final version of the plan for the navigation canal has been finished. However, further comments have been made by various ministries, officials and NGOs. Following procedure, the Ministry of Environment issued an amended version of the physical plan. During the process, NGOs used their rights to comment on the draft of the physical plan and successfully lobbied Government to apply the regulations of the Ramsar convention. Because the Morava River wetlands are mentioned in the Ramsar list, construction of the canal is to be excluded from the plan. NGOs are aware of the need to put together all necessary information about the Morava River wetlands to answer any questions asked about its linking in the Ramsar convention. The Convention Related to the Protection of Migratory Fauna and the Convention on the Conservation of European Wildlife and Natural Habitats are also applicable.

STAKEHOLDERS

Government:

- Ministries of Environment
- Ministries of Agriculture

Local:

- Local authorities
- District offices of environment

NGOs:

National and/or international

- Slovak River Network
- Daphne Foundation
- Czech River Network, Austria

Business/industry:

- Ecotrans Morava
- Agricultural and Industrial firms, Slušovice

Other:

- World Bank

As a result of all these efforts, there is now an international biodiversity project on flood plains sponsored by the World Bank. The initiation of conservation measures by NGOs resulted in protected status for the flood plains. The Slovak Ministry of Environment submitted to the government for approval the final version of the physical plan, which did not include the construction of the Morava canal (Belčáková 2005).

CONCLUSIONS

The monitoring and/or long-term ecological research of the exposed areas should be supported (Gosz 1999). In the case of European relevance, a combination of legal and nonformal approaches (NGOs lobbying tools and rights according to rule) should be used.

By using the Ramsar convention, the qualified public can develop a whole chain of conservation measures to achieve the appropriate conservation strategy. Due to the lack of financial aid from international institutions, Ecotrans Moravia – the main company interested in the D-O-E canal building – has not yet started construction. It is obvious this project can only be built if there is funding from international sources. Therefore, this case illustrates clearly that the position of funding institutions is often crucial. The media's involvement has been quite weak and has not supported the efforts to raise public awareness. Lack of public awareness or support could ultimately threaten future landscapes on the "Roof of Europe".

ACKNOWLEDGEMENTS

The work has been supported by the research project no. MSM 113100004 of the Czech Ministry of Education.

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