SUSTAINABLE INLAND WATERWAY TRANSPORT AND EUROPEAN DEVELOPMENT GUIDE LINES ON DANUBEAN NAVIGABLE NETWORK

by

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The river Danube is the backbone of Serbian inland waterway system and together with Trans-European inland waterway Rhine-Main-Danube represents a main communication in the network of the European inland waterways.

The river Danube, as big river, is distinguished from all other river systems by its particularity. The Danube is not specific for its natural properties, such as total length of some 2,680 km or catchments area of 817,000 km², but for its strategic and economic position in Europe. That is the only river on the planet passing ten countries being fully navigable.

Serbia is central Danubian country where the Danube navigable flow splits up into two parts, considering its total length from the mouth of Sulina and a town of Kelheim in Germany near by the entry to Danube-Main canal. Three significant and large tributaries flows into Danube in the Serbian part of river Danube, and that are rivers Sava and Tisa, two fully navigable rivers by their total length (Sava – 207 km and Tisa – 164 km), and river Velika Morava partly navigable in tributary sector, for smaller vessels only.

In addition to the natural inland waterways, the Serbian navigable network includes the system of artificial navigable inland waterways, i.e. canalized system Danube-Tisa-Danube in Vojvodina area in the length of 600 km. Vessels and tows having capacity of 500 to 1000 tones can use this system.

According to the European classification of the system of inland waterways, the Serbian part of river Danube is ranked in the highest class international waterway, as VI and VII class, permitting the navigation of large pushers barge tows with carrying capacities over 20,000 tones and river-sea and sea-river ships with carrying capacities of 5,000 tones.

Unfortunately, according to the available data, the current used transport capacity of entire river Danube is 10% only, in Serbia even less than that, especially after NATO bombing and destruction of bridges in Novi Sad in 1999. The international transport on River Danube was than virtually stopped, and the inner national river transport was carried out in restricted and dangerous safety conditions.
In the relation to developing policy and strategy of inland waterway transport in Europe and the participation riparian countries on Danubean navigable network, we must firstly perform detailed and multi disciplinary researches to the basic subsystems of inland waterway transport: inland waterways, ports and fleet, passenger and cargo flows, and so on, as exogenous and endogenous conditions of operating in the inland waterway and the other transport modes. We must examine as the exogenous conditions, for instance, the market of transport service with the restrictions.

The strategic development of inland waterway transport on the Danube navigable network depends on the impact of general objectives which define the state, the natural, economic and technological variables as exogenous variables to the transport sector and instrumental variables which are defined by the international and national institutions. In planning it will be necessary to take into account the dynamic relationship existing between the transportation of commodities and land use planning and other performances.

According to present researches the road system in Europe that would be necessary to satisfy future demand is unacceptable by the reason of the land taken up and undesirable impact on natural resources and cultural environments. This is real advantage of water transport because the inland waterways are “natural communications”.

The inland waterway transport has the important role in regard to the promotion of combined, multimodal and intermodal transport. It means the use of inland waterway transport mode reduces the environmental pollutions, land using and energy consumptions per transported unit.

However, European transport system is depending on global cooperation between all transport modes in the future with new quality measures and performances. It means we can plan the total transport chains with a modal split, leaving the trunk haul to the inland waterway vessels and further distribution to road or other traffic modes. In this sense, the development of information and communication technology must help integrated system from small regions to the Europe as the continent.

In relation to the current assessments the intensive development of inland waterway transport in Danube corridor may be expected. Existing research of the widely use of river Danube as key European transport resource confirms dramatic increase of inland waterway transport and improves the integration of inland waterway system to integral, intermodal and multimodal transport. In that sense, we are expecting the fast development of container and Ro-Ro transport and direct connections between river and sea transport in the directions Danube-East and Danube-West across Serbia.

The inland waterway network in Serbia is presented in the next Figure.
Inland waterway network in Serbia

*Source: Master plan for Inland Waterway Transports – Serbia Witteveen Bos 2005