

WATER MANAGEMENT, ENVIRONMENTAL PROTECTION AND SPATIAL PLANNING RECONCILIATION - “ACCOMMODATING” THE DANUBE AND THE TISA RIVER IN SERBIA

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Water management in Serbia has been mostly operating in a framework of public companies and institutions focused on strictly sectorial and technical expertise on hydraulic engineering, environmental protection and navigable traffic engineering within the highly autonomous legislative framework. On the cross-point of spatial planning and water management there is a growing debate on the important discourses of the policy domains. Seeing rivers as an “accommodated” generator of opportunities is a statement which is opposing the traditional consideration of strict separation of water from the land. Spatial planning as a framework for regulating the land use has an important function in integrating the water management and landscape more closely. In Serbian spatial planning practice there is growing practice of area-specific development planning (reflected through the Spatial plans for the special-purpose areas) which are considered to accommodate new ideas on spatiality better than the traditional, sectorial planning documents. The question is placed as to how these practices could direct new spatial arrangements of integrative collaborative spatial planning and not just merely reflect the framework of the existing planning order. This paper seeks the potential and actual role of spatial planning in addressing challenges related to particular river environments on the Tisa and the Danube rivers. The research is based on the analysis of two Spatial plans for the special-purpose areas which are still in conceptual phase – The Cultural landscape of Bač and Multifunctional ecological corridor of the Tisa river.

Key words: integrated spatial planning, water management, strategic actions.

INTRODUCTION

The land management and design of human settlements has been a harmonious ecological statement between man and the elements of nature, with a special focus on water resources. Management of water systems in Vojvodina was the basis of rationality that dominated the planning of early settlement network. The canals and waterways were part of agriculture, transportation, norms and also had distinct cultural connotations. The water management as an engineering skill brought immeasurable value to the region. It prevented floods, regulates groundwater levels and

formed the irrigation systems which refined the agricultural activities. Over the decades, there has been a tremendous pressure on water resources and its management due to unbridled activities - agriculture, urbanisation and industry, which still remains an important driver of environmental degradation. At the same time there has been rational need of local communities to maximize the use of the granted waterfront potential. Therefore, the common property of waterfronts and canals became systematically difficult to maintain. The need for comprehensive and multi-practice coordinated development, oriented towards mitigation of degradation and preservation of historical use, activities and forms of the waterfronts in Vojvodina became the urgency. (Maksin-Mičić *et al.* 2009)

The Tisa and the Danube river catchment areas in Serbia have been the subject to numerous projects, strategies, development programs and transnational regional cooperation initiatives. Many projects provided wide cooperation framework between local, regional and national governments, planning and research institutions on national and international level. The common characteristic of all these actions has been the integration of relevant sectors. The integrated strategies are meant to help to attain a sustainable economic system on national and regional level, optimal

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use of natural and cultural resources, balanced distribution of competitive development areas and enhancement of the internal and external functional relations in the settlement system. They have also been formulated to serve the implementation of the EU directives, agendas and territorial development objectives (TICAD).

STRATEGIC APPROACH

Based on the awareness of processes in spatial planning practice in Serbia and the land use dynamics, one of the main challenges for reaching the satisfying level of territorial integration remains the improvement of physical and functional communication channels between areas managed by different sectors. The potential role of the Spatial plans for the special-purpose areas² in addressing challenges related to particular water environments on the Tisa and the Danube rivers can actually be seen through enhancement of the strategic communication links. In this case-study, the strategic communication should be established by networking interests, capacities, data³ and general resources of water management, spatial/urban planning and nature/cultural heritage protection sector.

between key actors and not just merely reflect the framework of the existing planning order that equally involves all the stakeholders. It has also been suggested the new formulation of Spatial plans for the special-purpose areas as area-specific spatial plans.

COMMON ACTIONS

The articulation of the common actions for conceptualization of The Cultural landscape of Bac and The Multifunctional ecological corridor of the Tisa river, are reflected through the statement which is opposing the traditional consideration of strict demarcation of water from the land, protected from unprotected areas, cultivated from natural lands and so on. These common actions are supposed to create sustainable conditions that would be generators of future opportunities.

The process of preparation of the common spatial actions initially involved the

communication on how the rivers catchment and their surrounding areas have been seen by each sector. The main groups of spatial development frameworks have been derived from the sectorial agendas with focused on common development perspectives and active environmental protection.

The purpose of the spatial development frameworks was to:

- manage the long term spatial development
- generate the central spatial ideas and align them with relevant national and provincial spatial principles, strategies and policies;
- guide local development spatial initiatives contained in the more detailed municipal spatial plans that cover a shorter planning time

frame (a few years), and the preparation of local regulation plans;

- identify areas that are suitable for construction development, areas where the impacts of development need to be managed, and areas that are not suited for any development;
- identify strategies to prevent degradation of critical landscapes, and to ensure the necessary level of protection for the remaining ones;
- provide policy guidance for local communities to direct decision making on the nature, form, scale levels and location of urban development, land use change, infrastructure development, disaster mitigation and environmental resource protection.

Table 1. Plan to improve nature protection and economic opportunities

Spatial concepts	Central spatial ideas
Ecological grid: Creation of the network of ecological routes that enable convenient coexistence of natural habitats with other land uses.	<ul style="list-style-type: none"> - Establishing the main Ecological corridor: Creating a system of continuous north-south international corridor along the Tisa river - Development of east-west links: Creating a system of continuous east-west links to improve consistency and movements on the regional and local level.
Areas for Intensification: Areas identified for intensified economic activity and where urban growth should be promoted.	<ul style="list-style-type: none"> - Main economic intensification areas: The corridor provides significant opportunity for further commercial and residential developments with the special focus on tourism diversification which supports the regional strategies for decentralized spatial development. - A system of urban nodes: A system of regional, district and local nodes is identified where intensification of services is supported and which are proposed at highly accessible locations on the accessibility grid. - Urban nodes in 'village context': Promotion of more multi-functional, vibrant and characterful, contained rural area nodes.

Table2. Enhanced urban growth and created balance between urban development and environmental protection - Central spatial ideas

Spatial concepts	Central spatial ideas
Natural assets: Significant cultural and natural resources and biodiversity areas	<ul style="list-style-type: none"> - Water system and green linkages: protect the Tisa river corridor, forests, pastures, grass lands, wetlands, estuaries and swamps as the major green anchor in the region which provide habitat protection and recreational opportunities and link various conservation areas. - Productive landscapes: Protect Vojvodina's cultural heritage and productive agriculture, aquaculture, viticulture and promote them as tourism attraction. - River banks: Ensure public access to the riverbanks and associated activities (beaches, fishing, hiking) and ensure appropriate development on the coast is located in identified coastal nodes.
Development edges: Lines used to manage urban growth and steer environmental protection	<ul style="list-style-type: none"> - Urban edge lines: A long-term edge lines has been demarcated to protect natural resources and scenic landscapes, and limit urban sprawl. - The river edge line: An edge line demarcated along the river banks to mitigate natural disasters, protect ecological processes and maintain the riverside as a public amenity.
Future urban growth areas: New development areas	<ul style="list-style-type: none"> - Main regional road corridor M-24: This is considered as future growth corridor of the province providing significant opportunity for new residential and commercial development - The cross-river twin-towns ('enclaves'): Bečej-Novi Bečej, Ada-Padej, Senta-Čoka, Kanjiža-Novi Kneževac and the far south Titel-Knićanin are considered future urban growth areas.

²A type of comprehensive spatial plans that stand between national (provincial) and local level which concern is the most often the areas of protected nature, water accumulations, coal basins or infrastructure corridors. According to the current law, these plans include the determination of the planning starting point, the spatial development objectives and land use, organizations and protection measures within the planning area.

³ Especially GIS data.

The spatial development frameworks generated spatial concepts that were elaborated through number of *central spatial ideas*. Following matrix, presented in Tables 1, 2, 3, illustrate three spatial development frameworks established for the Multifunctional ecological corridor of the Tisa River.

In general, presented discussion and the case study on strategic communication approach to territory management underlines the need to consider water as an important structuring principle for spatial planning. The reconciliation of spatial planning, water management and protection sector in the context of environmental concerns and development pressures in Serbia can be achieved by spatial development choices considered in the light of strategic alliances that reflects the characteristics of specific area. There are some points underlined that are showing how spatial planning can contribute to water management, the protection and enhancement of environmental resources (Healey, 2004).

These include:

- Long term nature of spatial planning - environmental problems and their fixing are often considered over long period of time and broad spatial scale;
- Comprehensiveness of spatial planning policies can integrate environmental protection goals;
- Biding nature of spatial plans brings a powerful influence over the distribution of pollutants;
- Spatial planning statements can offer protection to sensitive environmental areas such as wetlands, habitats and historical landscapes;
- The process of preparation of spatial plans involves a number of stakeholders that provides possibilities of expressing conflicting demands;
- Hierarchy of spatial plans enables environmental problems to be addressed and resolved at an appropriate spatial scale;
- Spatial planning is related to the natural environment and human societies. This is significant as many environmental problems are caused by the way that humans relate to the natural environment, a relationship that spatial planning can influence.

CONCLUSION

More recent attention has been placed on managing the multiple uses of the rivers catchment areas, especially in areas where

Table3: Creation of an inclusive, integrated and vibrant settlement network

Spatial concepts	Central spatial Ideas
Public services: A local area where public facilities are concentrated.	<ul style="list-style-type: none"> - Reinforcing the Twin-towns as the civic centres: Where there are already high schools, sport centres, courts, libraries, hospital etc. - Local civic services to support pockets of need: To meet increasing local area needs in rural areas and lower density areas.
Destination places: Significant landmarks that have scenic, natural, cultural or historical value.	<ul style="list-style-type: none"> - The river jewels: Access points to the river that can accommodate large numbers of people and associated recreational and economic activities. - Nature attraction areas: Nature areas that support recreation and tourism.
Structuring open spaces and critical public links: An interlinking network of nature parks, sports fields and green links for cycling and walking	<ul style="list-style-type: none"> - Structuring open space: Green links, sports facilities, golf course (Zabali), cemeteries and linear open spaces contribute to the open space system of the area. - Critical public links: The north-south chain link (scenic bicycle route link), and nature protection areas links (walking and boat routes).
Integrated settlement patterns: Settlement structures that support a mix of different residential options, income groups and related social and economic opportunities	<ul style="list-style-type: none"> - Infill pockets: Undeveloped land within the urban edges should contribute to increasing overall average residential densities addressing the imbalances in access to civic services and other opportunities.

conflicts among users and the environment are already clear. Even more concern has been focused on the need to conserve nature, especially ecologically sensitive areas, in the context of multi-purpose planning of the Tisa and the Danube river space. Despite institutional efforts and the fact that number of policies has been implemented, the scope of integrated planning of river basins has not been clearly defined.

The future of comprehensive planning in Serbia depends on how the collaborative approach could be integrated in the evolution of current planning system. In the framework of institutionalized planning practice, in this research the effort has been directed in trying to apply innovative communication methods to bridge the gap between sectorial interests, attitudes related, not just to the distribution of powers between sectors, but also the way the space has been evaluated, interpreted and finally directed in sustainable manner.

By opening the rhetorical discussion on policy domains, in this paper, the aim has been to point out the effort put to establish changing arrangements between water management, spatial planning and environmental protection within institutional framework. According to Giddens (1984) institutional change is mostly a process of gradually altering interactions that is resulting in new policy practices with the aim to promote and institutionalize new policy concepts that will lead to the re-articulation of policy arrangements". The challenge for the further analysis would be to overlap presented analysis in a comparative manner, examining practices and

policy arrangements in other countries with similar or different sectors involved.

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