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# water management, environmental protection and spatial planning reconciliation - “accommodating” the danube and the tisa river in serbia

MSc Vladimir Pihler - [pihlervladimir@yahoo.com](mailto:pihlervladimir@yahoo.com)  
PhD Tamara Zelenović Vasiljević,  
MSc Dragana Duncić  
**PE Urban and Spatial Planning Institute of Vojvodina  
Novi Sad, Serbia**

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issues of this study

the **water-land** relationship for spatial planning

**water system** as a subject of:

- hydraulic engineering and
- nature protection

**challenges**

related to the Tisa and the Danube river environments

**analysis** done on the bases of:

- the planning documents collection,
- extensive fieldwork,

Development **context** of the river plains in Vojvodina – brief overview



Development **context** of the river plains in Vojvodina – brief overview

- disturbances via **reclamation, alteration** and **pollution** due to the increasing pressures from urban expansion and **land use change**
- disordered or wrongly conceived **land use development**
- linkage** between land and water resource management in the urban area has long been **ignored**.



Development **context** of the river plains in Vojvodina – brief overview

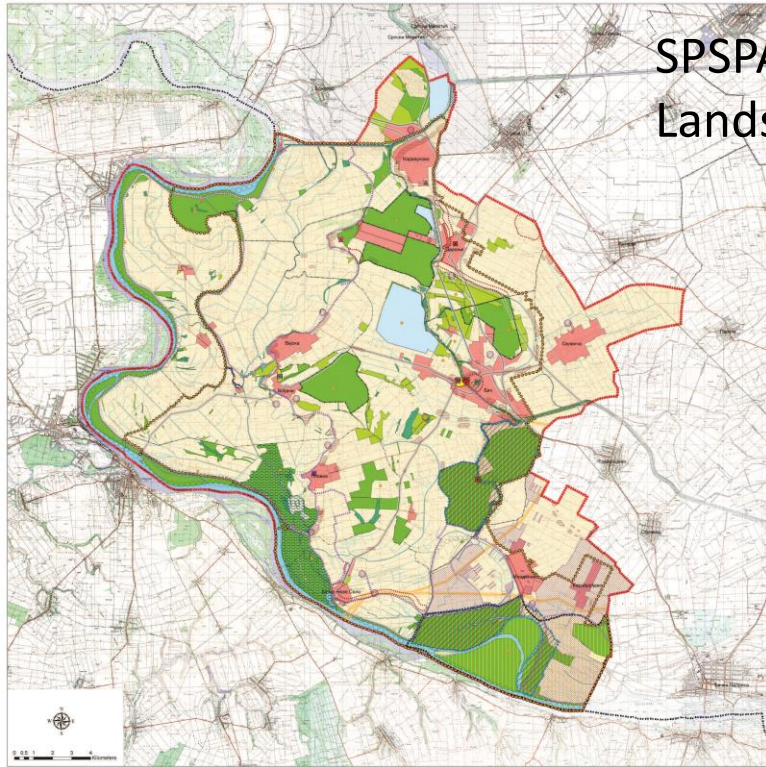
surface water systems possess **three spatial** forms:

- surface water bodies,
- riparian buffers and
- watersheds

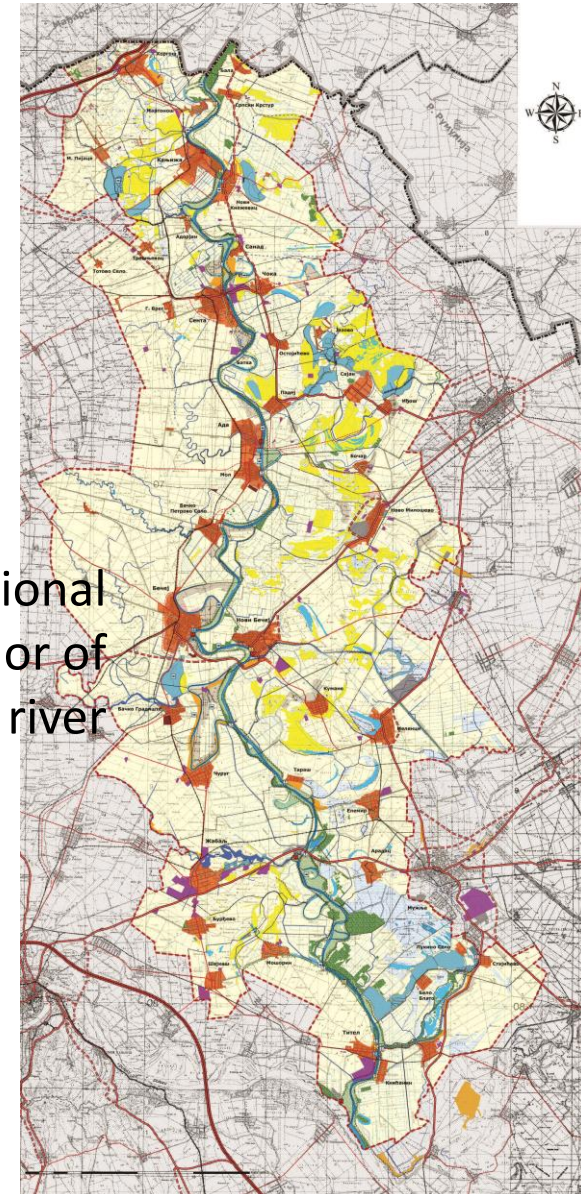
all of which **need to be integrated** into spatial planning.

The status of surface water bodies is closely related with the land use conditions of riparian buffer zones and watersheds.

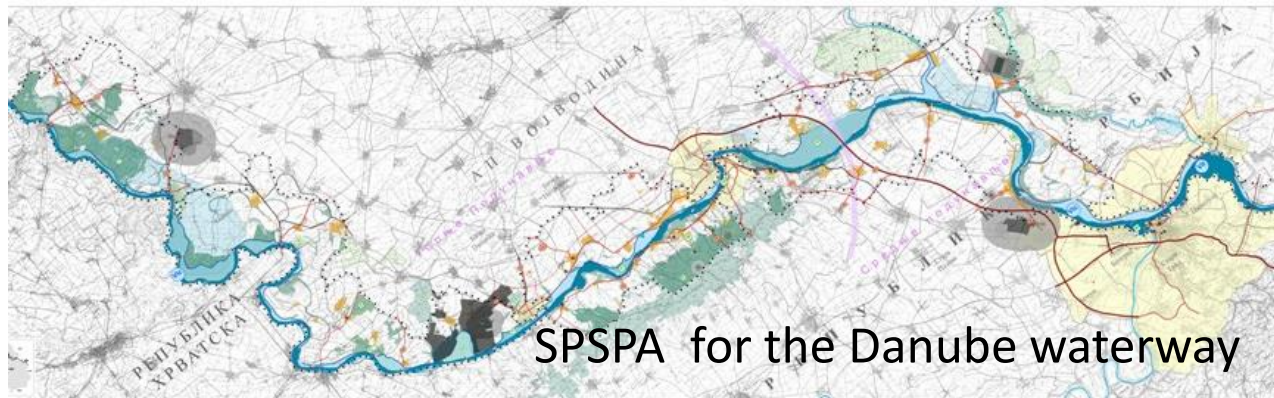
development **context** of the river plains in Vojvodina – brief overview



SPSPA Cultural  
Landscape of Bac



SPSPA Multifunctional  
ecological corridor of  
the Tisa river

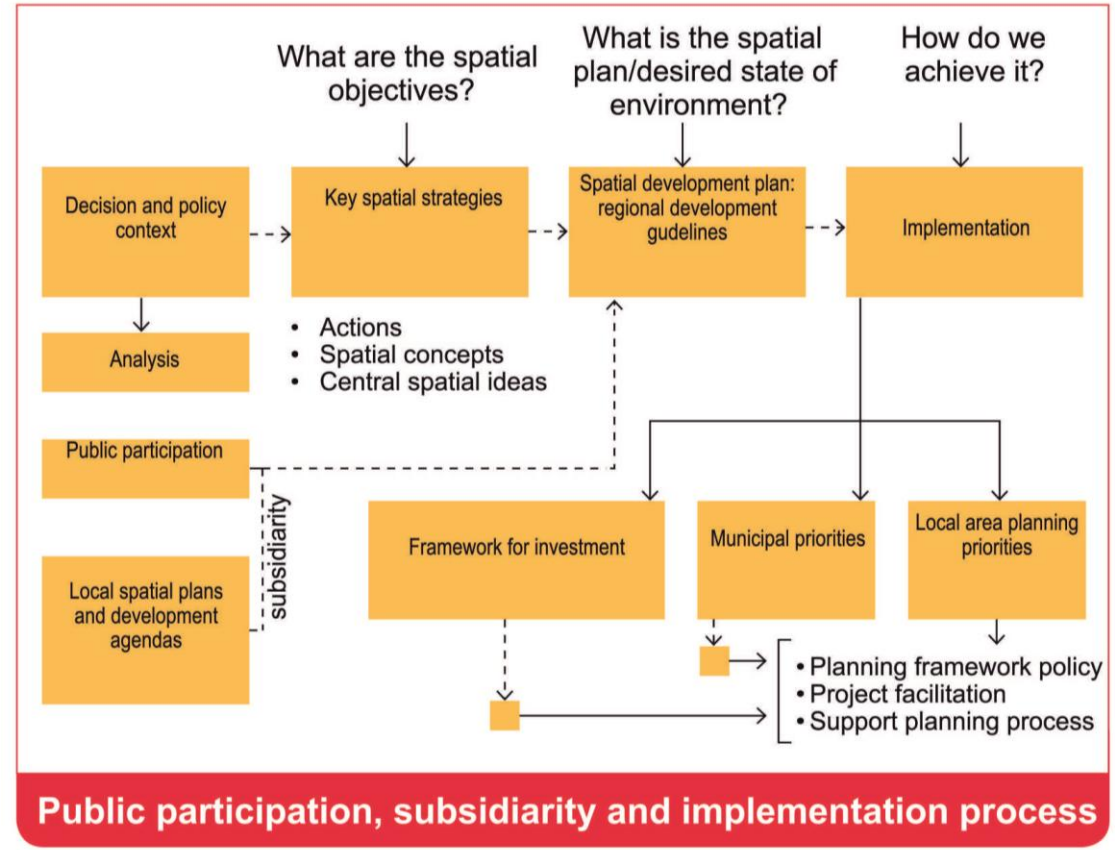


SPSPA for the Danube waterway

# what is “the spatial plan for special-purpose area” ?

## SPSPA as a **tool**:

- Spatial planning document between national (provincial) and local level
- concerning the areas of protected nature, water accumulations, coal basins or infrastructure corridors



# The **Tisa** river as the main **case study**

THE SPATIAL PLAN FOR SPECIAL-PURPOSE AREA

**MULTIFUNCTIONAL ECOLOGICAL CORRIDOR OF THE TISA RIVER**

**INTRODUCTION, PROCESS & KEY SPATIAL STRATEGIES**

## WHAT ARE THE CENTRAL SPATIAL IDEAS?

PLAN TO IMPROVE NATURE PROTECTION AND ECONOMIC OPPORTUNITIES

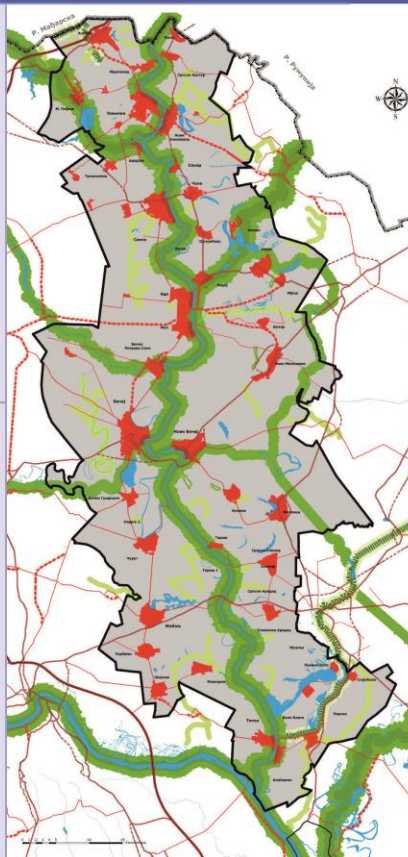
ENHANCE URBAN GROWTH AND CREATE BALANCE BETWEEN URBAN DEVELOPMENT AND ENVIRONMENTAL PROTECTION

CREATE AN INCLUSIVE, INTEGRATED AND VIBRANT SETTLEMENT NETWORK



# The Tisa river as the main **case study**

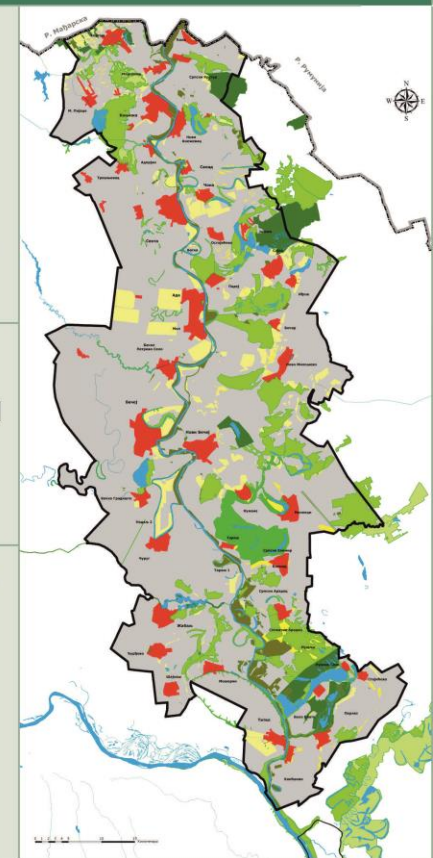
## PLAN TO IMPROVE NATURE PROTECTION AND ECONOMIC OPPORTUNITIES

SPATIAL CONCEPT	CENTRAL SPATIAL IDEAS	
<p><b>Ecological grid:</b> The network of ecological routes that enable convenient coexistence of natural habitats with other land uses.</p>	<ul style="list-style-type: none"> <li>• <b>Establishing the main Ecological corridor:</b> Creating a system of continuous north-south international corridor along the Tisa river.</li> <li>• <b>Development of east-west links:</b> Creating a system of continuous east-west links to improve consistency and movements on the regional and local level.</li> </ul>	
<p><b>Areas for intensification:</b> Areas identified for intensified economic activity and where urban growth should be promoted.</p>	<ul style="list-style-type: none"> <li>• <b>Main economic intensification areas:</b> 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.</li> <li>• <b>A system of urban nodes:</b> 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.</li> <li>• <b>Urban nodes in 'village context':</b> Promotion of more multi-functional, vibrant and characterful, contained rural area nodes.</li> </ul>	

# The Tisa river as the main case study

## ENHANCE URBAN GROWTH AND CREATE BALANCE BETWEEN URBAN DEVELOPMENT AND ENVIRONMENTAL PROTECTION

SPATIAL CONCEPT	CENTRAL SPATIAL IDEAS
<p><b>Natural assets:</b> Significant cultural and natural resources and biodiversity areas</p>	<ul style="list-style-type: none"> <li>• <b>Water system and green linkages:</b> 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.</li> <li>• <b>Productive landscapes:</b> Protect Vojvodina's cultural heritage and productive agriculture, aquaculture, viticulture and promote them as tourism attraction.</li> <li>• <b>River banks:</b> 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.</li> </ul>
<p><b>Development edges:</b> Lines used to manage urban growth and steer environmental protection</p>	<ul style="list-style-type: none"> <li>• <b>Urban edge lines:</b> A long-term edge lines has been demarcated to protect natural resources and scenic landscapes, and limit urban sprawl.</li> <li>• <b>The river edge line:</b> An edge line demarcated along the river banks to mitigate natural disasters, protect ecological processes and maintain the riverside as a public amenity.</li> </ul>
<p><b>Future urban growth areas:</b> New development areas</p>	<ul style="list-style-type: none"> <li>• <b>Main regional road corridor M-24:</b> This is considered as future growth corridor of the province providing significant opportunity for new residential and commercial development</li> <li>• <b>The cross-river twin-towns ('enclaves')</b>: Becej-Novi Becej, Ada-Padej, Senta-Coka, Kanjiza-Novi Knezevac and the far south Titel-Knicanin are considered future urban growth areas.</li> </ul>



# The Tisa river as the main case study

## CREATE AN INCLUSIVE, INTEGRATED AND VIBRANT SETTLEMENT NETWORK

SPATIAL CONCEPT	CENTRAL SPATIAL IDEAS	
<p><b>Public services:</b> A local area where public facilities are concentrated.</p>	<ul style="list-style-type: none"> <li>• <b>Reinforcing the Twin-towns as the civic centers:</b> Where there are already high schools, sport centers, courts, libraries, hospital etc.</li> <li>• <b>Local civic services to support pockets of need:</b> To meet increasing local area needs in rural areas and lower density areas.</li> </ul>	<p>The map illustrates the spatial layout of the Tisa river region. It features a network of roads (red lines) and public services (red dots) distributed across the area. The river is shown in blue, and various settlement pockets are highlighted in grey. A north-south chain link is visible, along with nature attraction areas and open spaces. A scale bar and a north arrow are also present.</p>
<p><b>Destination places:</b> Significant landmarks that have scenic, natural, cultural or historical value.</p>	<ul style="list-style-type: none"> <li>• <b>The river jewels:</b> Access points to the river that can accommodate large numbers of people and associated recreational and economic activities.</li> <li>• <b>Nature attraction areas:</b> Nature areas that support recreation and tourism.</li> </ul>	
<p><b>Structuring open spaces and critical public links:</b> An interlinking network of nature parks, sports fields and green links for cycling and walking</p>	<ul style="list-style-type: none"> <li>• <b>Structuring open space:</b> Green links, sports facilities, golf course (Zabalj), cemeteries and linear open spaces contribute to the open space system of the area.</li> <li>• <b>Critical public links:</b> The north-south chain link (scenic bicycle route link), and nature protection areas links (walking and boat routes).</li> </ul>	
<p><b>Integrated settlement patterns:</b> Settlement structures that support a mix of different residential options, income groups and related social and economic opportunities.</p>	<p><b>Infill pockets:</b> 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.</p>	

## Planning **challenges** for territorial integration

Based on the **awareness of processes** in spatial planning practice in Serbia:

- physical and functional **communication channels** between areas managed by different sectors - enhancement of the **strategic communication links** by networking interests, capacities, data and general resources of the sectors.
- land use planning in watersheds must consider proper spatial organization and measures to **integrate water as a determinant of good quality of space**.
- **proactive-integrated policy** and approaches need to be promoted in order to gain enough capacity to organize and preserve the space for water systems and nature protection along with spatial requirement of urban development.
- **paradigm shift** both in water management, nature protection and spatial planning.

## conclusion

- the scope of integrated planning of river basins has not been clearly defined
- comprehensive planning in Serbia depends on how the **collaborative approach** could be integrated in the evolution of current planning system
- applying **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
- 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”.*

thank you.

