



Ecological Connectivity in the Croatia's Spatial Planning Framework: Tools and Approaches

Vesna Marohnić-Kuzmanović, mag.ing.arch.





Basic Legal and Policy Framework

Nature protection legislation

Nature Protection Act (OG 80/13, 15/18, 14/19, 127/19, 155/23)

- Provides basis for protected areas and ecological network concepts
- Establishes ecological network (Natura 2000) and mandates Ecological Network Impact Assessments (ENIA) for spatial plans and projects

Physical planning legislation

Physical Planning Act (OG 153/13, 65/17, 114/18, 39/19, 98/19, 67/23)

- Requires spatial plans to consider and integrate both natural values / restrictions and development demands / opportunities

EU acquis

Habitats and Birds Directives (Natura 2000), EIA/SEA Directives

Green Infrastructure Strategy

other EU nature/environment policy shaping national priorities and practice

National and county-level strategies and sector plans

(biodiversity strategies, green infrastructure/landscape strategic documents)



Planning Instruments

Nature Protection Instruments

Nature protection designations:

- Ecological network concept, mapping of core areas and corridors used in planning and conservation measures (Natura 2000 sites - SCIs/SACs and SPAs)
- Nationally protected areas (national parks, nature parks, strict reserves, protected landscapes) providing linked habitat patches

Expert Basis for Nature Protection – identifying values of the areas for protection and defining guidelines for management

Ecological Network Impact Assessment (ENIA) for NATURA 2000

- ENIA evaluates the impacts of spatial plans on the ecological network
- It is a crucial tool for identifying and addressing potential harm to the ecological network, and includes binding requirements for avoiding or mitigating fragmentation

Strategic Environmental Assessment (SEA)

- Ensures that biodiversity and connectivity are considered during plan preparation

Environmental Impact Assessment (EIA)

- EIA is a crucial process for projects, as it enforces the mitigation hierarchy of avoiding, minimizing, restoring, and offsetting potential environmental impacts.

Protected Area and Natura 2000 Management Plans,- defining conservation objectives and management measures for core sites and their buffer zones



Planning Instruments

Other Sectors

Sectoral Strategies and Plans

- Primarily encompass the areas of: transport, water management, forestry, and agriculture
- Influence on connectivity through infrastructure siting, floodplain management, agri-environment schemes, maintenance of forest cover etc.

Spatial Planning

- Integrates all the tools and instruments in one place
- Designates areas with special usage conditions (i.e. ecologically significant areas) where only sustainable activities are permitted, with restrictions or bans on construction
- Ensures continuity between local plans through higher-level planning
- Integrates green infrastructure as a mandatory element of planning

Sectoral documents are undergoing their initial spatial review as part of the development process of the spatial plans.



Basics



Physical planning system:

- the legal framework for implementing spatial planning as a multidisciplinary profession
- provides the **conditions for use/governance/protection/management** of the territory of the Republic of Croatia

The system relies on:

- essential principles, settings, and rules of spatial planning
- over 60 years of planning experience
- promotion of the vertical: **spatial plan** → **design** → **construction**
- **an integrative approach** as the basic principle
- commitment to **sustainable spatial development** (economic-social-environmental)
- the overall national legal framework, comprising the following components:
 - territorial-political organization
 - a system of horizontal and vertical cooperation
- EU acquis
 - commitments from EU legislation (directives, protocols...); all of which are incorporated into Physical Planning Act and other regulations





Basic Structure

STRATEGIC DOCUMENTS

1

SPATIAL DEVELOPMENT STRATEGY
basic document directing spatial development

IMPLEMENTATION DOCUMENTS

2

SPATIAL PLANS
by-laws

STATE LEVEL

- State plan for spatial development
- Spatial Plan of the Exclusive Economic Zone (EEZ)
- Spatial plans of areas with special features
- Urban development plans of state significance

REGIONAL LEVEL

- Spatial plans of counties / Spatial plan of the City of Zagreb
- Urban development plans of county significance

LOCAL LEVEL

- Spatial development plans of cities / municipalities
- General urban plans
- Urban development plans

MONITORING DOCUMENTS

3

TERRITORIAL STATUS REPORTS
state / regional / local level

DATA PLATFORM

4

PHYSICAL PLANNING INFORMATION SYSTEM - ISPU

5

location/building permits



Spatial Development Strategy of the Republic of Croatia (OG 106/17)

MEDITERRANEAN COAST
AND MACRO-REGIONAL
STRATEGIES WEEK

Izola, Slovenia
15 – 17 September 2025

<https://mpgi.gov.hr/o-ministarstvu/djelokrug-50/zavod-za-prostorni-razvoj-4276/publikacije-strucne-podloge-i-dogadjanja/4383>

Physical Planning System

Strategija prostornog razvoja Republike Hrvatske

“The strategy encourages spatial planning beyond administrative and territorial boundaries by addressing common issues and processing spatial units of common characteristics”.

Zagreb

2017.

Spatial Development Strategy of the Republic of Croatia

Zagreb

2017

mpgi.gov.hr



The screenshot displays the Geoportal ISPU interface. The top navigation bar includes the ISPU logo, the text 'Informacijski sustav prostornog uređenja', and 'Geoportal'. It also features the European Union flag and 'Your Europe' logo, along with 'E-SERVICES' and 'LOG IN' buttons. The main content area shows a map of the Mediterranean coast of Croatia, overlaid with various spatial data layers in green, blue, and brown. A search bar is located at the top center. On the left, a menu is open, showing options for 'Basemaps' (including State Geodetic Administration and Hydrographic Institute of the Republic of Croatia) and 'NSDI' (National Spatial Data Infrastructure). Below the menu, there are 'External Layers' and 'Network Services' (WMS, WFS) sections. The map area includes a scale bar (1:2,500,000), a scale indicator (50 km), and a 'Lokacijska informacija' button. The bottom right corner contains navigation controls like a home button, a search icon, and a scale bar.

- allows public access to spatial plans
 - ▶ allows overview (WMS) of selected maps of spatial plans of all levels as well as overlay of spatial data of the different sectors

<https://bioportal.hr/gis/>

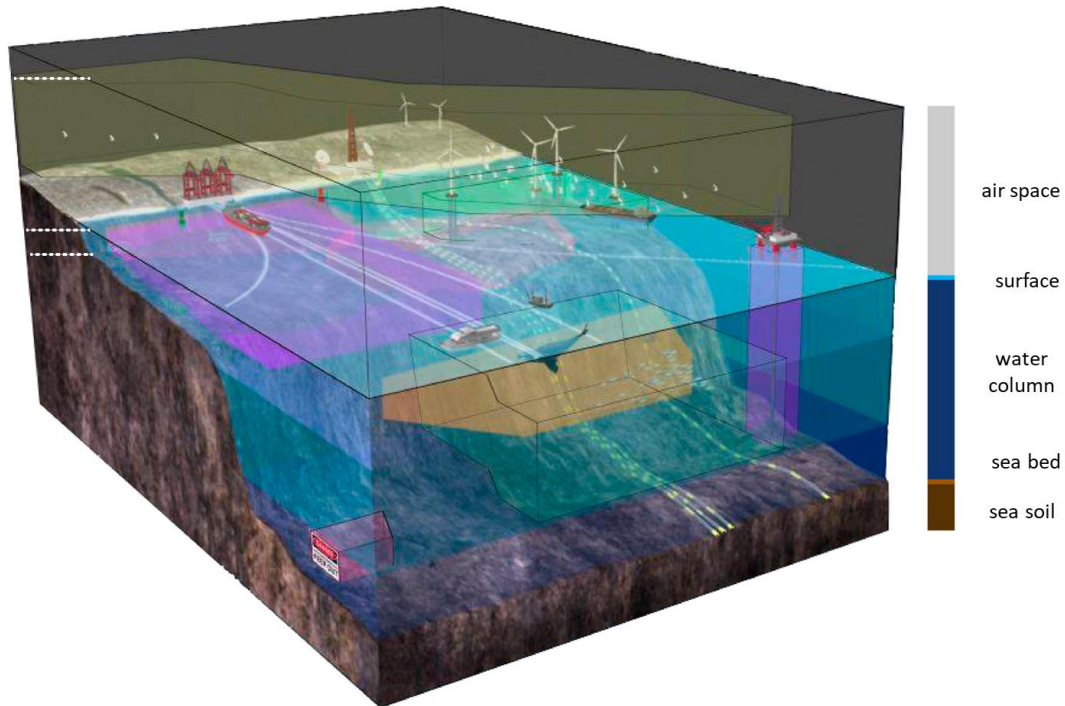




Urban areas

Urban areas occupy less than 1 per cent of the Earth's land surface but house more than half of its people.

<https://www.decadeonrestoration.org/>



Spatial-planning tools and levels of application



Spatial plans:

- Incorporate ecological network maps
- Establish land-use regulations to maintain or restore connectivity
- Prevent fragmentation in certain areas

Spatial planning tools

- **Corridor and buffer zoning**, along with legal restrictions on development in these zones
- **Green infrastructure (GI) planning**, involving elements to enhance ecological permeability
- **Landscape planning measures**
- **Transport and infrastructure measures**, by integrating elements, such as the ecoducts, culverts and fencing, in the planning of the transport routes
- **Land/sea-use zoning and restrictions**, such as:
limitting urban sprawl, restricting certain activities (both on land and maritime area),
setting bans on constructing in critical areas



Practical Examples



Gorski Kotar – large carnivore corridors

- Spatial plans consider ecological corridors to connect Gorski Kotar, Velebit and Slovenia
- Ecoducts and underpasses have been introduced on the motorway Zg–Ri

Sava Valley - ecological corridor vital for bird migrations within the Natura 2000 network

- Spatial planning considers the preservation of wetland and floodplain habitats, such as Lonjsko Polje and Ormoško Jezero

Velebit and Lika - UNESCO biosphere reserve linking mountain and karst ecosystems

- Spatial planning aims to ensure connectivity between Paklenica National Park, Northern Velebit National Park, and Velebit Nature Park

Zagreb and Medvednica Area - urban green spaces and nearby natural areas connection

- Spatial planning promotes connection of urban green infrastructure of Zagreb with the Medvednica mountain
- The Zagreb Spatial Plan includes the protection of the Sava River as the city's green-blue axis

Kopački rit and Drava–Mura rivers area - a part of the Transboundary Biosphere Reserve

- Spatial planning includes preserving river ecosystems and floodplain forests to support connecting the continental habitats of Croatia with Hungary, Austria, and Slovenia



Landscape basis of the Republic of Croatia



The Council of Europe Landscape Convention: *"Landscape is an area, **as perceived by people**, whose character is the result of the action and interaction of natural and/or human factors."*



- Completed at the end of 2024
- The first comprehensive document to systematically identify, analyse and evaluate landscapes
- Treating landscape as a key element of spatial identity and quality of life, as well as an important resource for sustainable development



Concept of Cross-border Landscapes



Landscapes are cross-border phenomena, often located along the political borders within Europe.

The Landscape Convention of the Council of Europe encourages cross-border cooperation at local and regional level, and the development and implementation of joint landscape programs wherever necessary or possible.

Cross-border landscapes often represent unique ecosystems (such as river or mountain landscapes), posing specific challenges for parties involved in their management.

The implementation of the **concept of cross-border landscapes (CBL)** presupposes cross-border cooperation between the MSs

The discussions contribute to theoretical and conceptual aspects, as well as to the practical challenges and opportunities facing individual countries and explore:

- methods of identification, interpretation, management and protection of CBL
- ordinary peripheral and degraded landscapes
- relationship between borders and landscape identity
- possibilities of using landscape planning methods as a means to address the socio-economic challenges we face today



Potential Areas for Cross-Border Connectivity between Croatia (HR) and Slovenia (SLO)



LANDSCAPE UNIT in HR	TRANSFRONTIER LANDSCAPES		
	HR	SLO	PROTECTED AREAS
Međimurje, Slavonsko Podunavlje i Podravina	Valleys of the rivers Mura and Drava	Valleys of the rivers Mura and Drava	UNESCO MAB TBR reservation of biosphere Mura-Drava-Dunav
Hrvatsko zagorje	Hrvatsko Zagorje	Kozjanski park (SLO)	Regional Park Kozjanski (SLO)
	Valley of the river Sutla – Bijela Gorica	Jovski (SLO)	Nature Park Jovski (SLO)
Žumberak i Samoborsko mountains with Ozalj hilly areas	Žumberak and Samoborsko gorje	Gorjanc (SLO)	Nature Park Žumberak – Samoborsko gorje (HR)
Gorski kotar	Pogranična brda/ Border hills	Notranjska - Veliki Snežnik i Bukova Gora (SLO)	
Siva Istra/ Grey Istria	Grey Istria	Kopraska Brda i Brda u Slovenian Istria	
Bijela Istra/ White Istria	Croatian part of Čićarija (Slavniško Podgorje)	Slovenian part of Čićarije- Slavniško Podgorje	



Conclusion and Implementation Challenges



In Croatia, ecological connectivity plays a crucial role in biodiversity conservation due to the country's high biodiversity value and extensive Natura 2000 network designations.

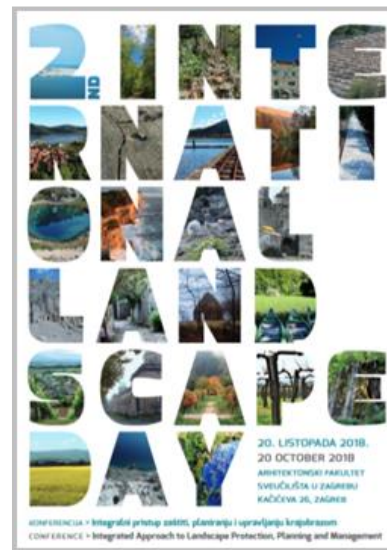
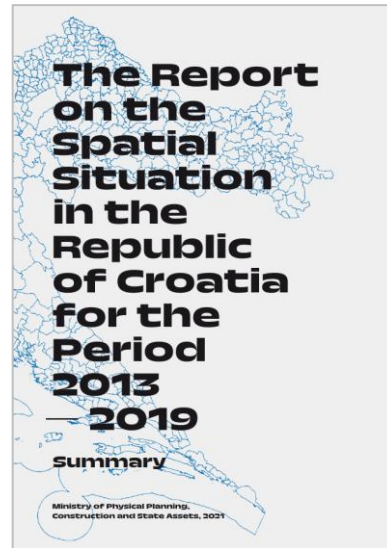
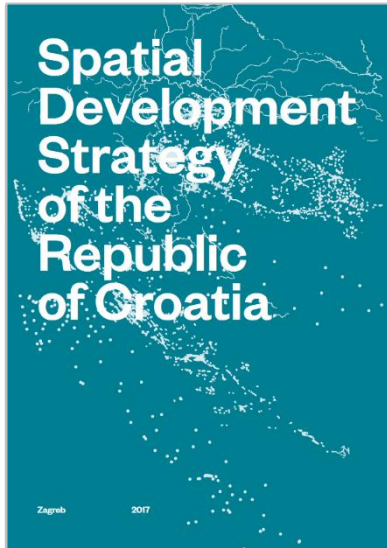
The Croatian spatial planning system has tools in place to promote ecological connectivity by involving:

- The effective implementation through regulations
- Intersectoral coordination
- Further integration of connectivity principles into the physical planning system.



Publications with Relevance to the Topic

<https://mpgi.gov.hr/o-ministarstvu/djelokrug-50/zavod-za-prostorni-razvoj-4276/publikacije-strucne-podloge-i-dogadjanja/4383>





TEDEN SREDOZEMSKJE OBALE IN MAKROREGIONALNIH STRATEGIJ

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Thank you



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