THE DANCING BOUNDARY

Towards regional development of the border lands between Bratislava and Vienna
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Landscape is an important concept within humanities, social sciences as well as natural sciences.

---Forman 1995
At the border land...
At the border land...

The Dancing Boundary -- Towards regional development of the border lands in Bratislava

At the border land...
The Dancing Boundary -- Towards regional development of the border lands in Bratislava

At the border land...
A cross-border region (CBR) is a territorial entity that is made of several local or regional authorities that are co-located yet belong to different nation states.

There are 70 crossborder regions in Europe today under the name of “euroregions”.

The number of cross-border co-operation is gradually increasing from economic points to sociology, yet the spatial planning is still a relatively new area.
Question: How to use landscape approach to facilitate the spatial development and social interactions in a cross border region?
The Danube river basin
Length (km): 2885 km
Drainage Area (km²): 817 000
Discharge (m³/s): 6 500
Countries: 19
Population: 80 000 000
Sea at Mouth: Black Sea

Danube river basin in Slovakia
River length: 1869 km, area: 131338 km²
old Meander belt
Increased precipitation and irregular flows
Connectivity:
- International Bicycle path
- Twin City water line
- High way
- Road
- Train

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Historical connections

Austrian

- 12 crossing bridges

Railroads & Waterways

Austro-Hungarian Empire

A direct tram (1848-1968)

Bratislava
Historical connections

Austrian

12 crossing bridges
Railroads & Waterways
Austro-Hungarian Empire
A direct tram (1848-1968)

Bratislava

40 years separation after world war II
(the Iron Curtain, 1945-1989)
Fall of Iron Curtain, 1989. only 2 crossings

Individul growing

Defense position
afraid of ecological problems
inundation of cheap products

Automotive industries

Individual growing

offense position
decline of production/unemployment/social degradation

member of EU, 2004
The need for land

Spatial Development?
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Urban-rural recreation network
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Problem Statement I- Transnational water management

Historical flooding events
- Sep, 1899
- July, 1954
- June, 1965
- August 2002

River Danube: 11000 m³·s⁻¹
River Morava: 1040 m³·s⁻¹
Problem Statement II - No man's land

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Problem Statement III - Fast transit
Problem Statement IV- Regional identity

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
No Man's Land
Hydrological Border

The Dancing Boundary — Towards regional development of the border lands in Bratislava.

Fast Transit
Regional Identity
RESEARCH GOAL

To facilitate the spatial, social and ecological development in Bratislava-Vienna cross border region by an integral regional design perspective.

Sub-questions:

How does Landscape system work in the CBR?

What are the potential aspects for redevelopment?

How can I use design approaches and tools to give it in a spatial expression?

What can I learn from the above process?
Case Study

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- Urban-rural recreation network
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Landscape as *Entity*  

Landscape as *Process*  

Landscape as *Infrastructure*
Theoretical Structure

Landscape as **Entity**

- Natural system
  - geomorphology
  - water
  - soil
  - wetland
  - forest
  - species...

- Urban system
  - urban fabric
  - transportation
  - park
  - cultural land
  - history...

Landscape as **Process**

Landscape as **Infrastructure**
Theoretical Structure

Landscape as Entity  Layer approach  Landscape as Process  Landscape as Infrastructure

Natural system
- geomorphology
- water
- soil
- wetland
- forest
- species...

Low Dynamic
- Land use/function with long-term development

Urban system
- urban fabric
- transportation
- park
- cultural land
- history...

High Dynamic
- Land use/functions with short-term development

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Theoretical Structure

Landscape as **Entity**

Layer approach

Landscape as **Process**

The framework concept

Landscape as **Infrastructure**

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Natural system
geomorphology
water
soil
wetland
forest
species...

Urban system
urban fabric
transportation
park
cultural land
history...

Low Dynamic
Land use/function with long-term development

High Dynamic
Land use/functions with short-term development

Blue
river
pond

Green
wetland
meadow
forest
urban green space

Transport
rail
road
port
bicycle path

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Wetland Reserve
Natural System - Geomorphology
confluence of two rivers, two mountains
Two natural phenomena forms the main open space of this region

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Natural System - Hydrology

The water comes from the mountain and higher part of the field, flowing into the canal, finally into the river. The lower floodplain is vulnerable to be flooded when it is rain season.
People built up dikes and levees along the floodplain to protect inland settlements. In some parts it is not efficient so that they built more dikes and temporary levee in case of heavy rains.
The areas of wetlands and marshlands are mainly located in the north part of the River Morava. This is due to the long period regulation of the old Danube.

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The main green structure are designated as bird directive habitat. The most sensitive part is at the edge of the mountain and river. The Dancing Boundary -- Towards regional development of the border lands in Bratislava
The water absorptive capacity from upstream determines the flexibility of downstream. The wetland is fragmented but has the potential to reconnect with the surrounding green structure. The small green patches can be connected as ecological corridors for ecotypes.
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Urban System - Fabrics

Compact urban area in Bratislava. Low density in Austria

Devín is the most vulnerable part to be affected by floods. Devinska Nova Ves is in suburbanization process.

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Urban System – Fabrics

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Historical castles are highly protected as cultural heritage attracting lots of tourists.

The old elements left by the Iron Curtain are gradually faded away.

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The Dancing Boundary -- Towards regional development of the Border lands in Bratislava

Urban System - Green Structure

Green open space is very little in the rural area near the border line. Heritage-based open space and sports are the main recreational programme in rural area.
Urban System - Rural pattern

Rural pattern: main public open space is based on churches and memorial places.
Less open space is connected to the surrounding environment.

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Urban System - Cultural Landscape

Bratislava: collective farmland, traditional vineyards
Vienna: open field with sunflowers, peanuts etc.

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Urban System - Mobility

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no circle (return) route between two countries.

Fast mobility only passes through the rural centre, no chance for seeing the surroundings.

S-Bahn to Vienna

In insufficient of the bicycle path

Few stops of commercial waterway

Less waste programmes for the local communities
The Dancing Boundary — Towards regional development of the border lands in Bratislava
The transportation mobility limits people connecting with surrounding environment. Regional transportation system needed.

Few public space is offered for social communication. More activities could be projected with its surroundings.

The need for land from Bratislava's side is crucial. The solution from its neighbouring countries should be a radical suburbanization.

Urban System - High Dynamic Conclusion

The transportation mobility limits people connecting with surrounding environment. Regional transportation system needed. Few public space is offered for social communication. More activities could be projected with its surroundings. The need for land from Bratislava's side is crucial. The solution from its neighbouring countries should be a radical suburbanization.
When overlapping two dynamic systems, in some parts, the high dynamic and low dynamic separate from each other, in some parts they come to one place. Therefore the regional development should make a balance between these two dynamic systems: one the one hand, make room for individual development; on the other hand, determine strategies for the overlapping parts.
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**Low dynamic**
- border location
- well preserved landscape
- high aesthetic potential
- capacity of unbuilt areas for other uses

**High dynamic**
- short distance between two cities
- stable population
- international bicycle path
- good condition for agriculture
- tradition of vine

**Low dynamic**
- embedded in the mountains
- irregular water flow
- discontinuous ecotype habitat

**High dynamic**
- mutual transportation limited
- low quality infrastructure
- bad services
- absence of car bypass
- industrial left-over land

**Low dynamic**
- regulation of old Danube river belt
- preserve more ecotype habitat
- ecological flow along the border land

**High dynamic**
- improve settlement structure
- improve regional transportation system
- development of green open spaces
- agriculture transformation
- development of traditional products
- restoration of historical attraction

- the fear of ecological problems
- the fear of economic problems
- cultural barriers
- decrease of traditional characteristics
The Dancing Boundary -- Towards regional development of the border lands in Bratislava
"The job of landscape architect is to provide constantly pleasing movement patterns such that our lives can be given the continuous sense of dance." -- Lawence Halprin
Design Principles

- **Splash water**
  Enhance the hydrological Structure

- **Land**
  Develop green structure

- **Spin around**
  Regulation of fast and slow mobility

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**The Dancing Boundary**

Towards regional development of the border lands in Bratislava
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Increase water storage capacity
Wetland retention
built area
water inlet
dike

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Design Principles

- Splash water
  Enhance the hydrological structure

- Land
  Develop green structure

Wetland retention
Increase water storage capacity
Integrate water into urban tissue
Enhance water infrastructure

Protect and develop ecological area
Develop regional park structure
Enhance water-edge green open space
Ecological sound agriculture development

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ecological area
-green open space
-main social interaction space
-farmland
-ecological corridor
-vine yards
-wetland sponge
-new urbazation
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  Enhance the hydrological Structure

- Land
  Develop green structure

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  Regulation of fast and slow mobility

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Wetland Reserve
1. Develop Urban-Rural recreation Network

2. Wetland Reserve Transformation

3A. Devinska Waterfront Construction

3B. Petralka Waterfront Construction

4A. Eco-agriculture Transformation

4B. Industrial quarry Transformation

5. Water Adaptive Suburbanization

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Develop Rural-Urban Recreational Network

Wetland Reserve Transformation

Wolfsthal Water Adaptive Suburbanization

Eco-agriculture Tourism Transformation

Devinška Waterfront

Petržalka Waterfront

Industrial quarry Transformation

YEAR 2016 2020 2025 2030 2035 2040 2045
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Project Elaboration
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Existing recreation attractions

Proposed recreation attractions

Devinska Kobyla
Bratislava old city centre
Hainburg Roman town
Wolfsthal Castle
Devin Castle
Schlobhog Castle
Nation Park

The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Existing recreation attractions
- Vineyard adventure
- Bunker Museum and Camping Site
- Iron Curtain routine
- Bird observatory
- Devin's Kobyla
- Bratislava old city centre
- Hainburg Roman town
- Wolfsthal Castle
- Devin Castle
- Schlobhog Castle
- Nation Park

Proposed recreation attractions
- Devinska Waterfront
- The Dancing Boundary

Towards regional development of the border lands in Bratislava
The Dancing Boundary — Towards regional development of the border lands in Bratislava

half-day routine
distance: 16-18km
One-day bicycle routine
distance: 35-38 km
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two or three-day bicycle routine
distance: 50-55km
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The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Regulation of the ditches
Water-adaptive plant
Holiday cottages

Agriculture zone
Ecological zone
Naturalized buffer zone
Agriculture recreation
The Dancing Boundary -- Towards regional development of the border lands in Bratislava
Naturalized buffer zone

Agriculture recreation

Ecological zone

Naturalized buffer zone

reintroduce wetland structure

reintroduce grazing animals

renaturalised morava island
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dry period
persistent wetland
non-persistent wetland
rain period
dry period
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Outdoor classroom

- wooden lifted path
- bird observatory

Dry period
Rain period

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Reflection

1. Regional design as a strategy for spatial development in the cross border region.
2. The relation between landscape concepts and Regional design.
3. The relation between regional design and small scale elaboration.
4. The relationship between the project and the wider social context.
5. Feasibility