

# ***Implementing Metropolitan Agriculture***

*in the metropolitan region of Bucharest, Romania*

**P5 presentation**

*Graduation project by Elisabeth Anne Julie van Niekerk*



# BUCHAREST IMPRESSION



CITY WATERFRONT



RECREATION & GREEN SPACE



FOOD PRODUCTION & SALES





TRANSPORT & SALES

SMALL SCALE AGRICULTURE



LANDSCAPE



PRODUCTION





TRANSPORT & SALES

MEDIUM SCALE AGRICULTURE



LANDSCAPE



PRODUCTION





TRANSPORT & SALES

# LARGE SCALE AGRICULTURE



LANDSCAPE

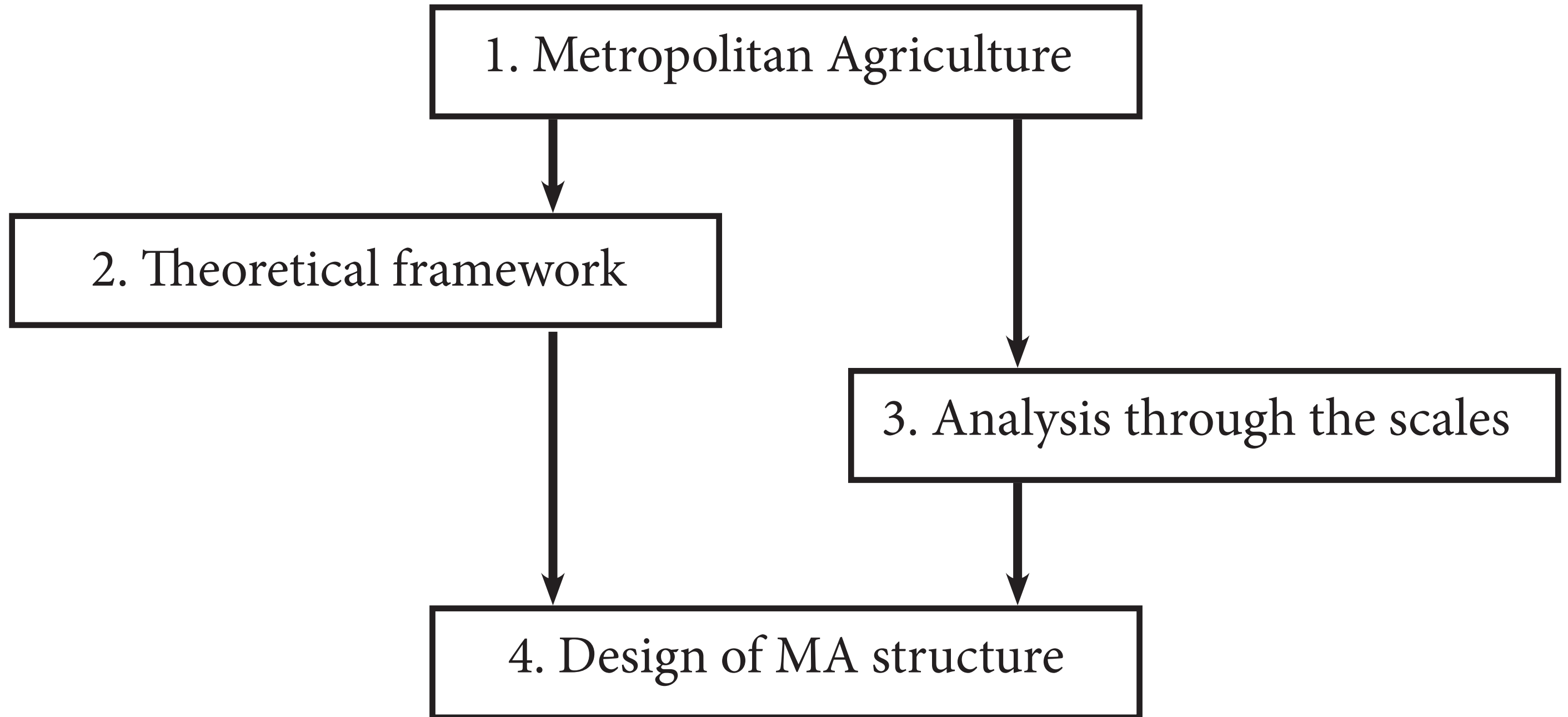


PRODUCTION



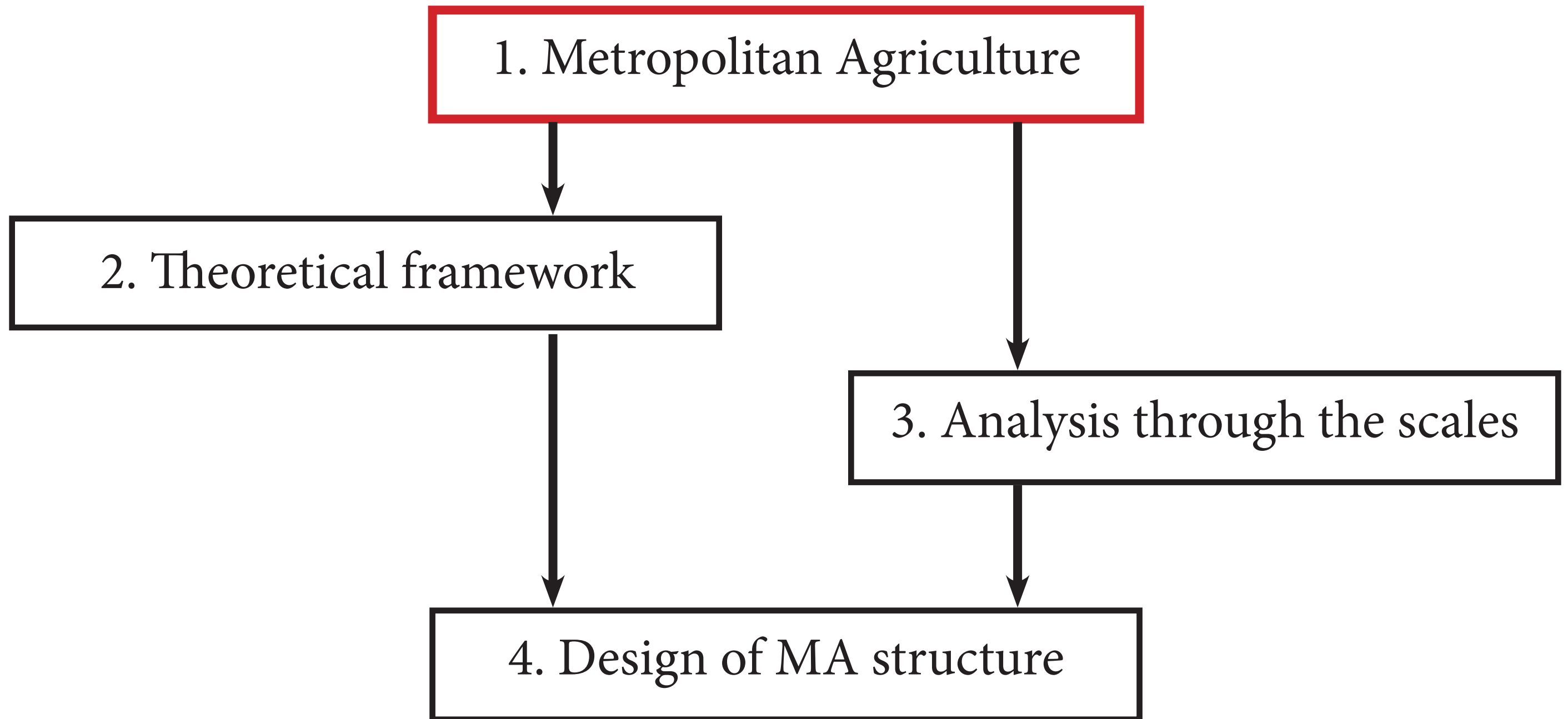


# Presentation Content





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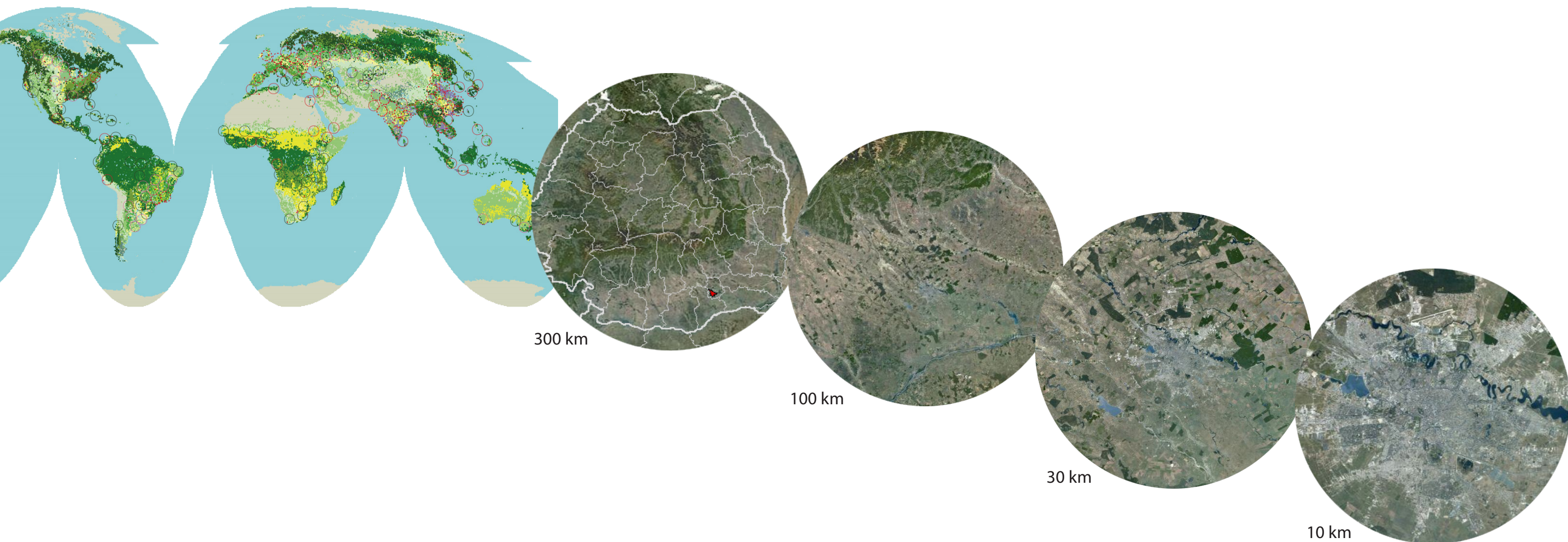




# Metropolitan Agriculture

## Metropolis + Agriculture

**Metropolitan Agriculture** = “a deliberately designed system of intelligently connected agricultural production sites that uses the available resources, conditions and infrastructure in metropolitan areas to produce material and immaterial demands for the same metropolitan area” (van Latesteijn, TransForum)



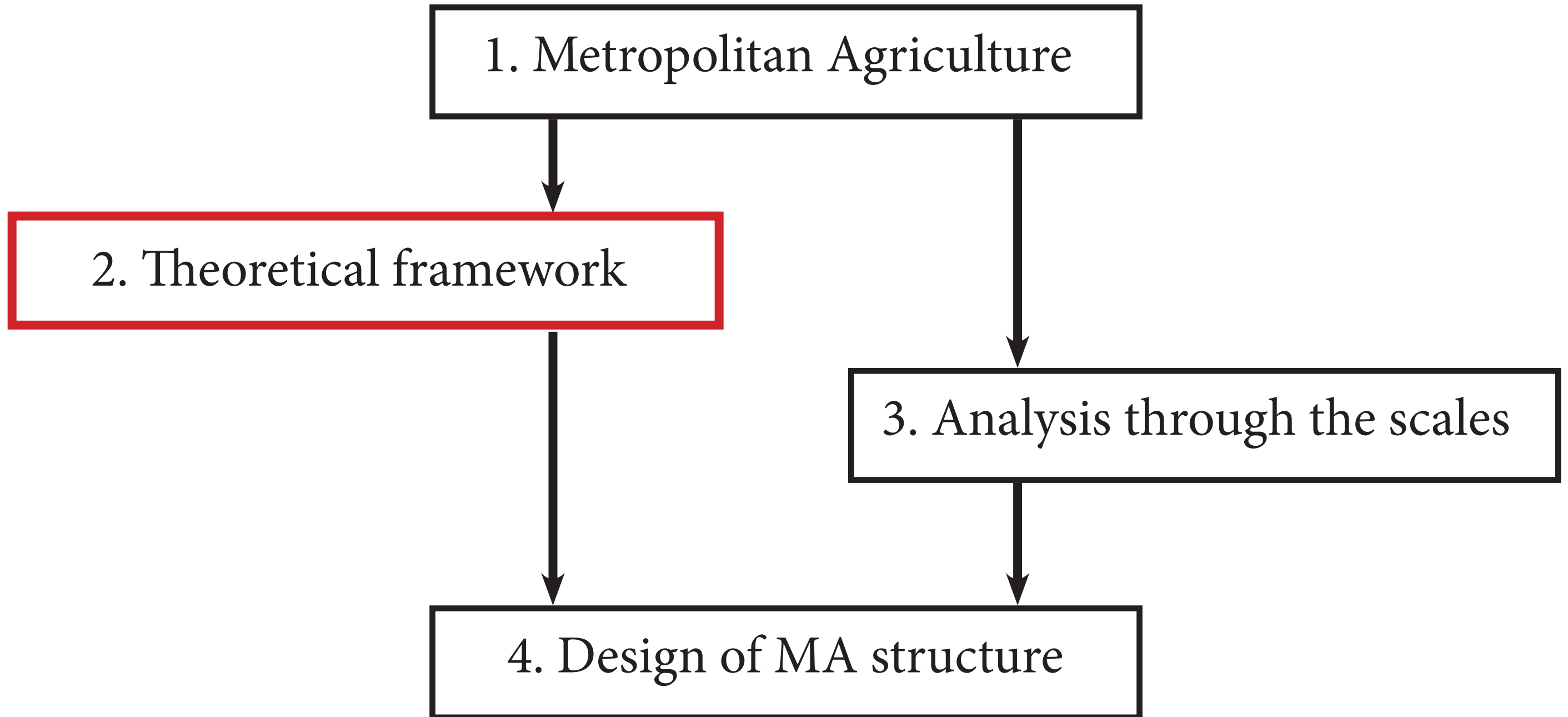


# Research Question:

*‘What is the spatial implication of implementing metropolitan agriculture in the metropolitan region of Bucharest, and how does it respond to the particularities of the place?’*

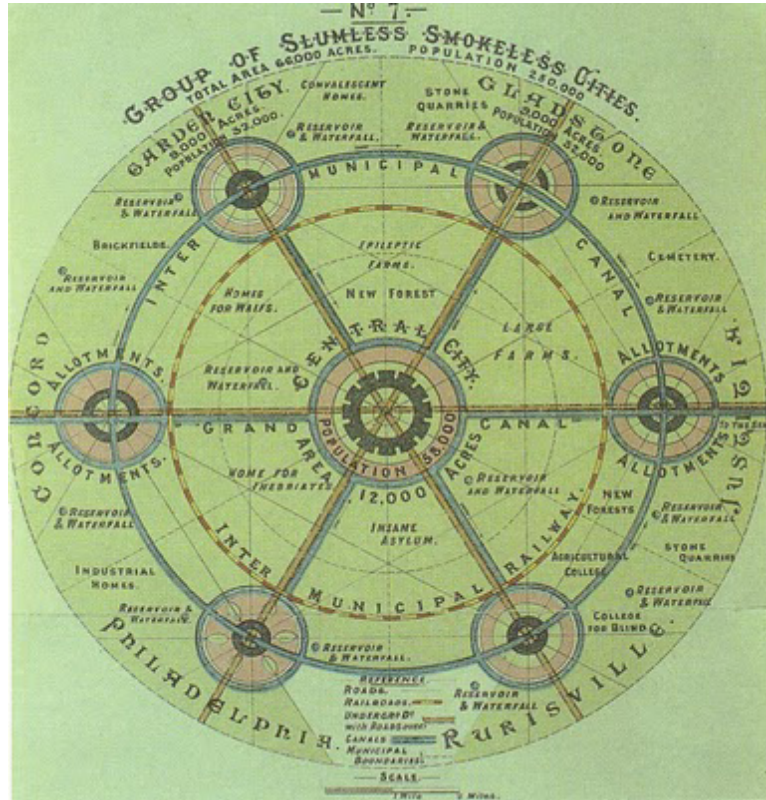


# Presentation Content





# Theoretical Framework - Urban Agriculture Models



"Garden Cities of Tomorrow", Ebenezer Howard, 1902



A square-mile section of Broadacre City, Frank Lloyd Wright, 1934

Generic models

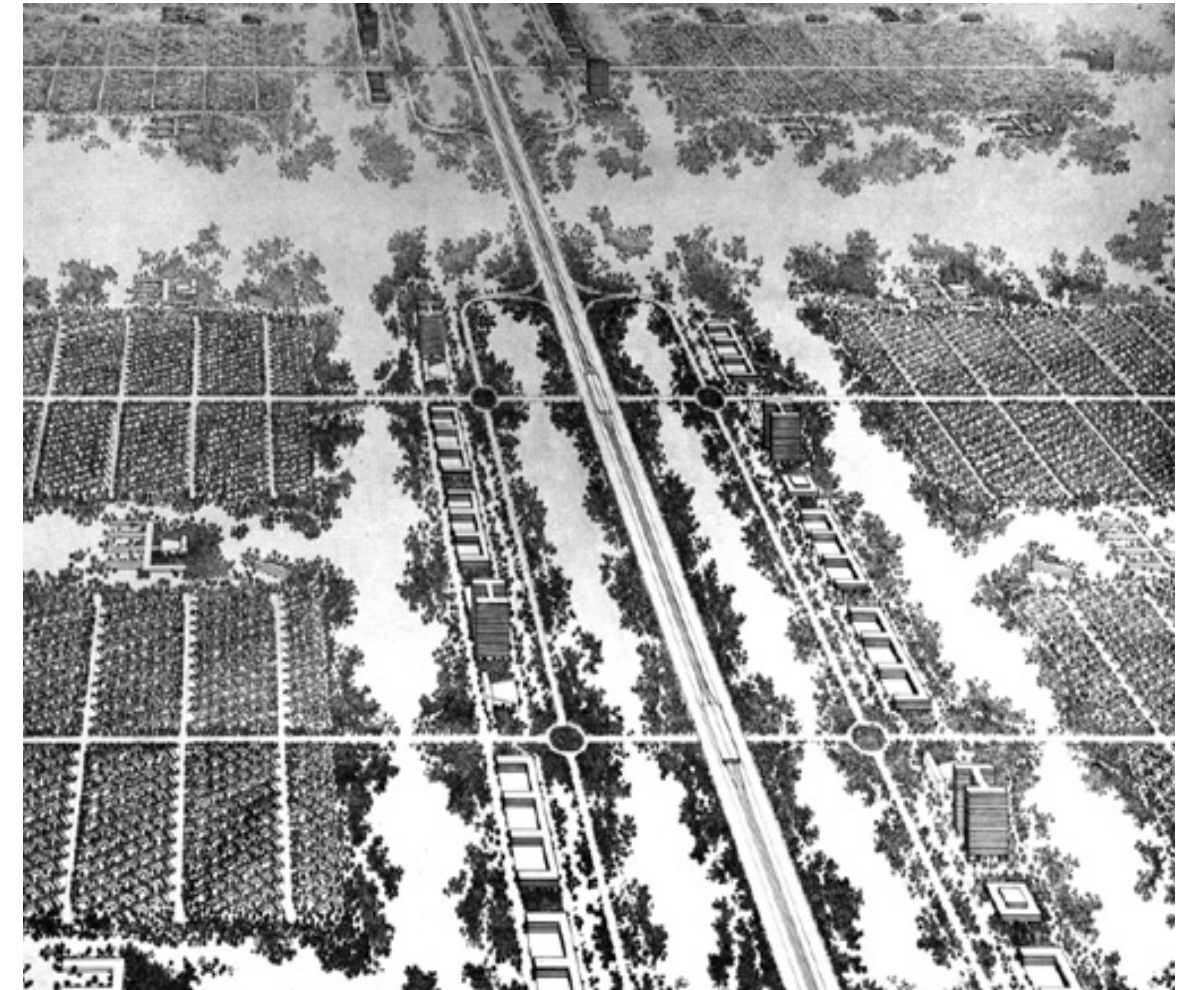
dispersed vs concentrated

zoning

Strong relationship between city and the productive landscape

Infrastructure is the main structuring backbone for these plans

All plans show coherent design through the scales



"Bird's-eye view of commercial area and settlement unit," The New City, Hilbesheimer, 1944

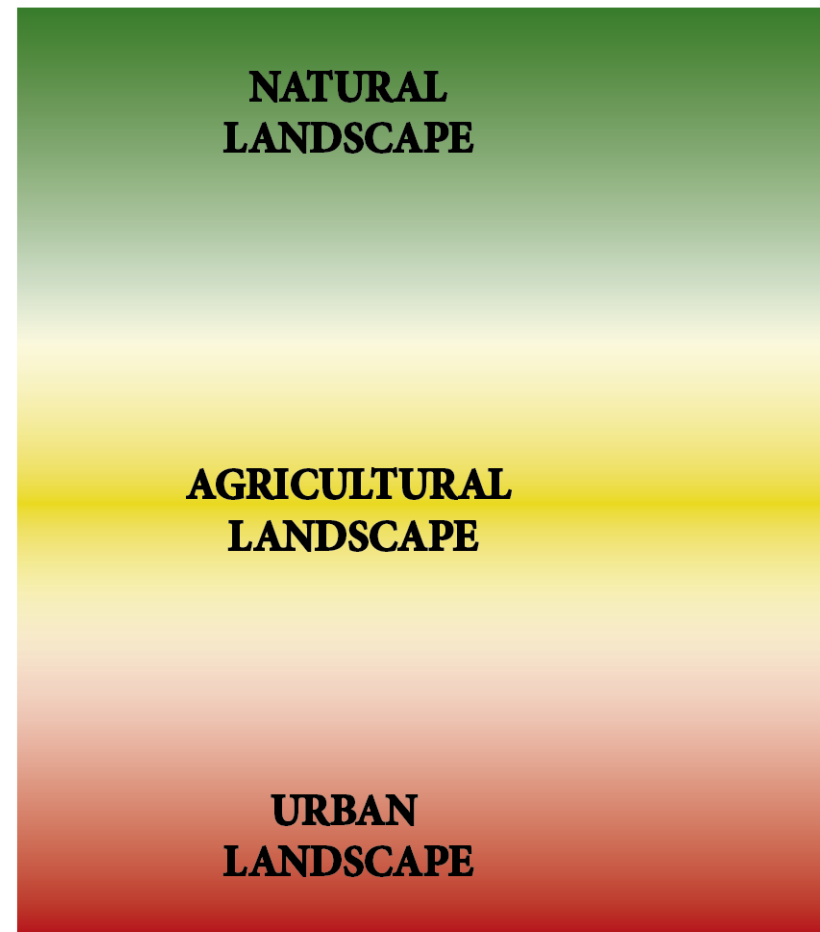


"Masterplan Strijp Philips, Eindhoven," model view, Andrea Branzi, 1999-2000



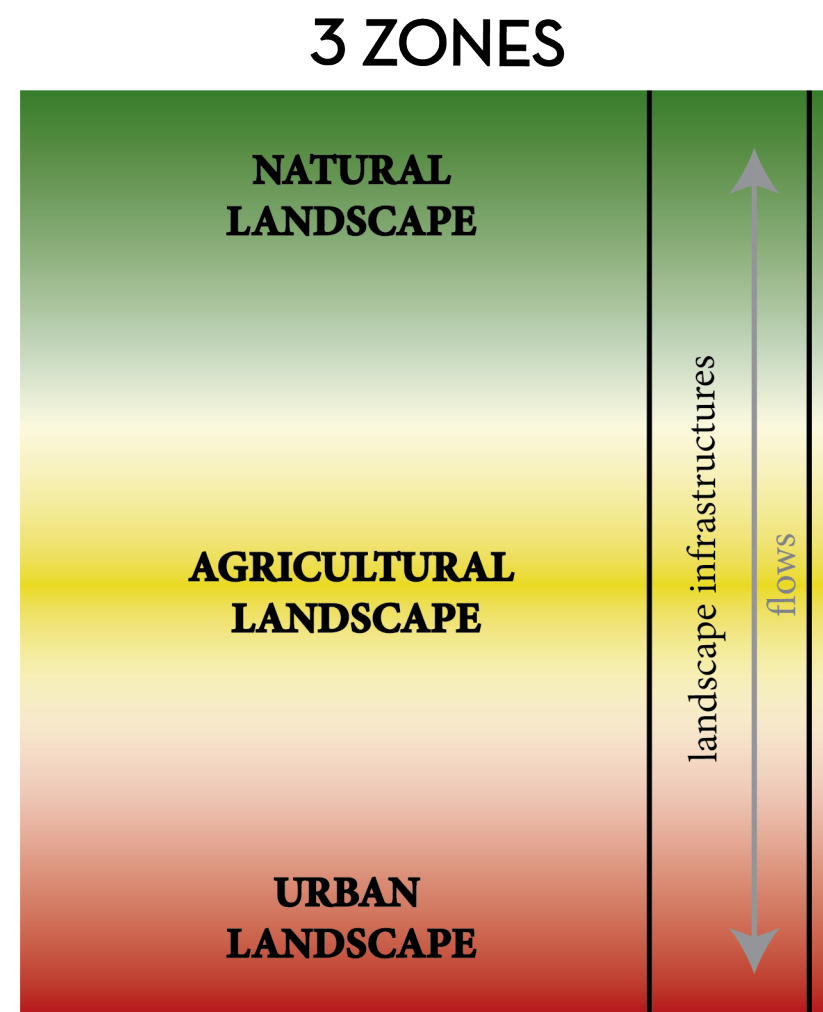
# Theoretical Framework - 3 Zones

## 3 ZONES



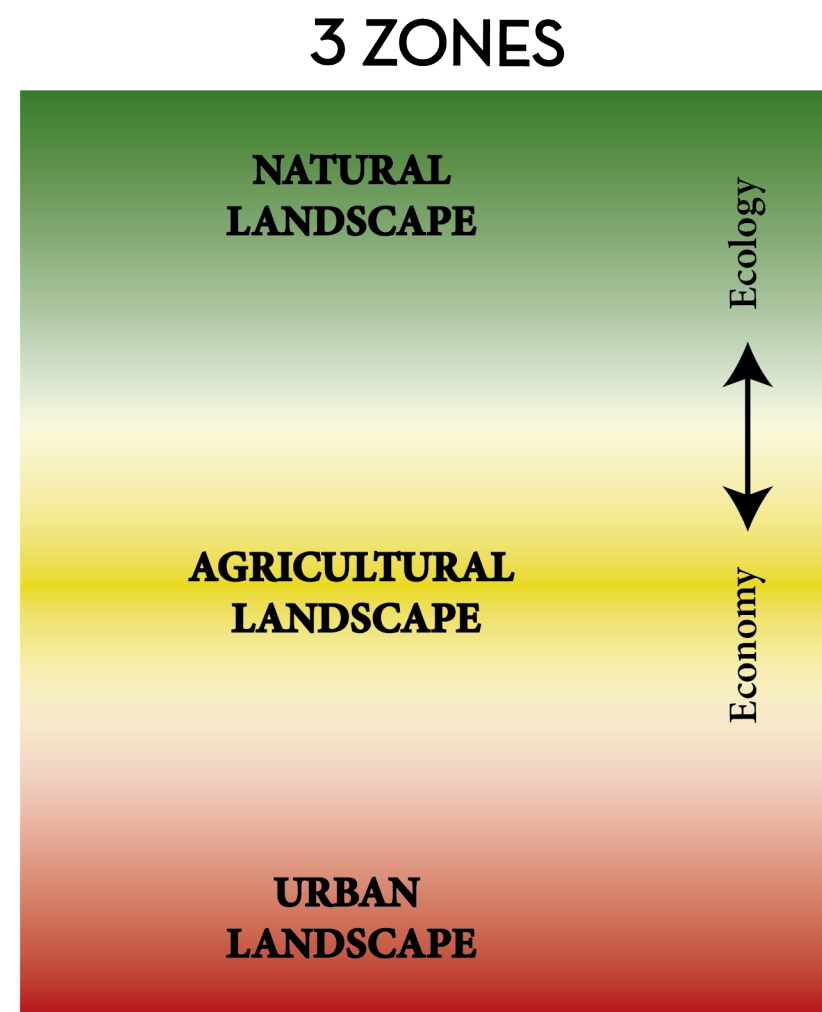


# Theoretical Framework - Landscape Infrastructures



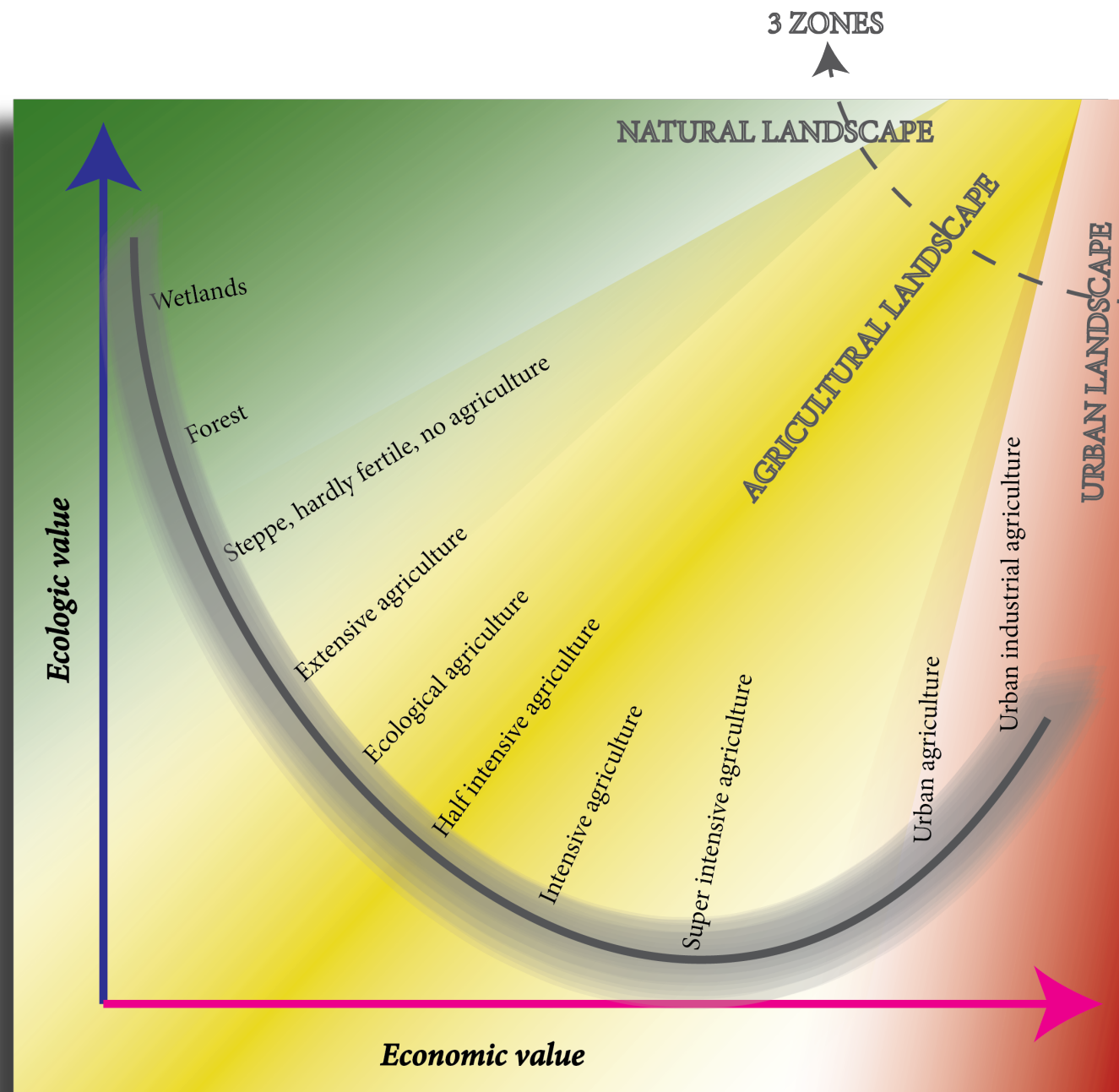


# Theoretical Framework - Ecology vs Economy





# Theoretical Framework - Agricultural Ecology



Different levels of **intensity**:

extensive - -- --- intensive

Different **scales**:

small - -- --- big

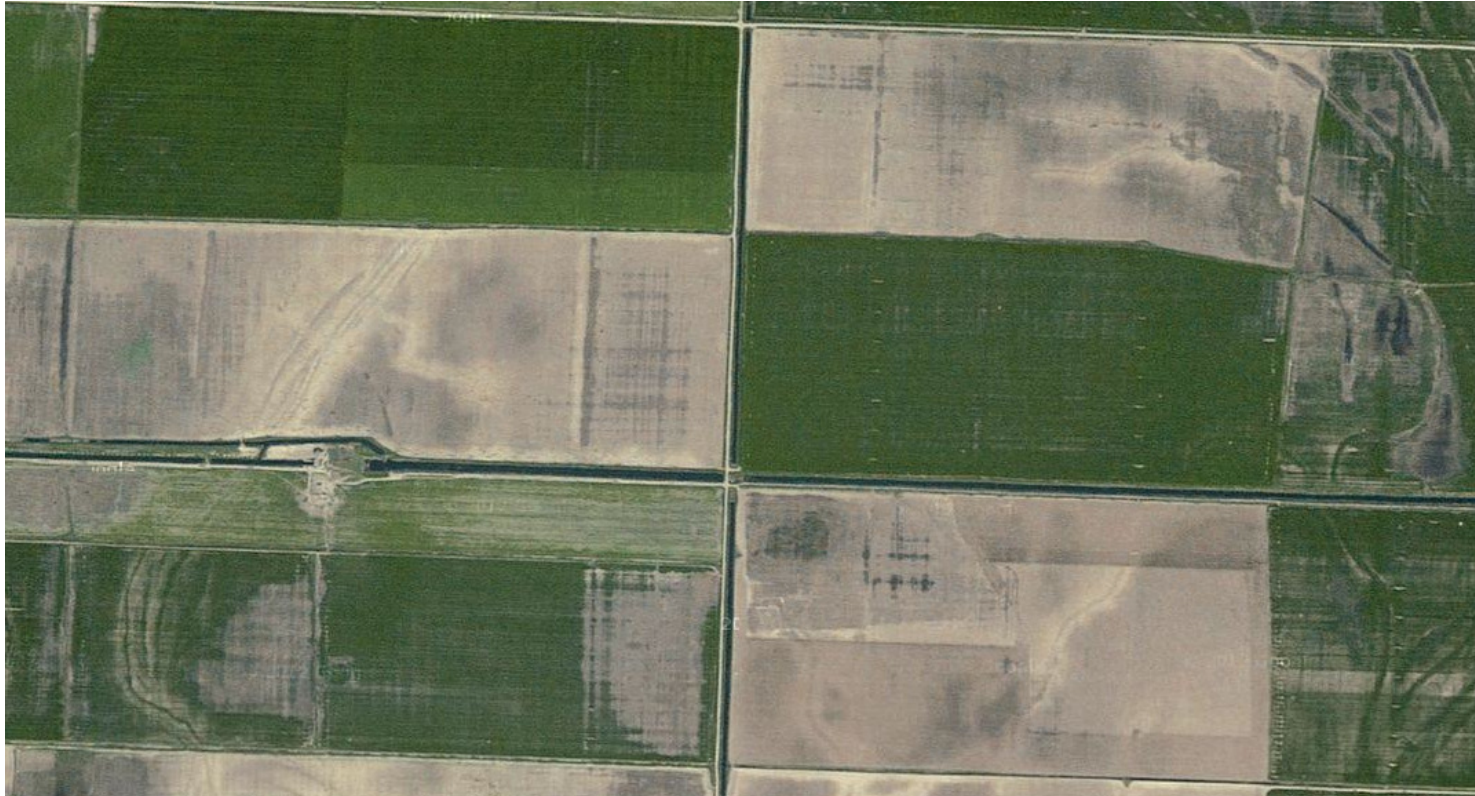
Different **types** through **time**:

- pre-industrial
- industrial
- alternative

Different **methods** within the types



# Field Typologies



Big Fields



Small Fields



Medium Fields



Typical Romanian Fields



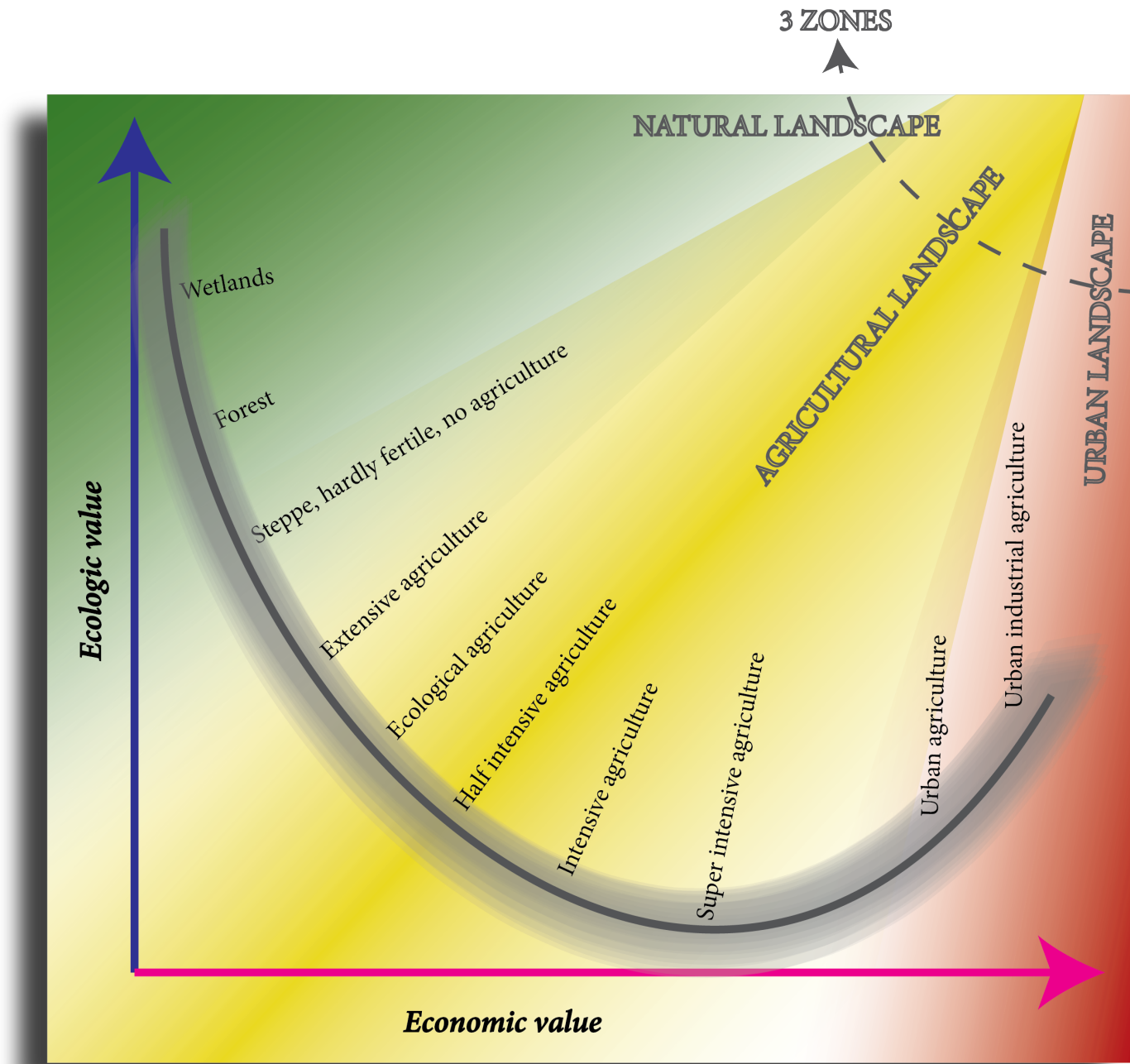
# Summary

E + A + U

S

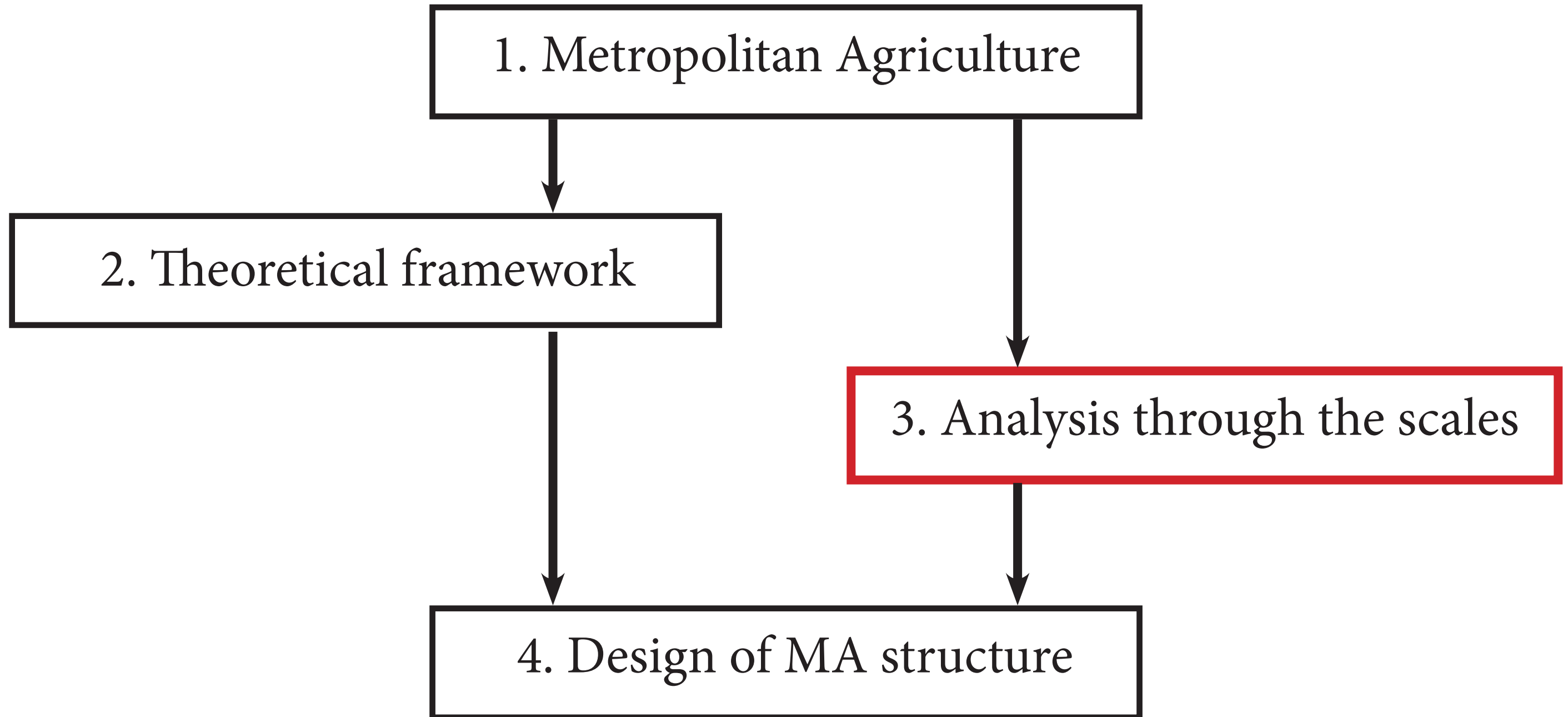
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L



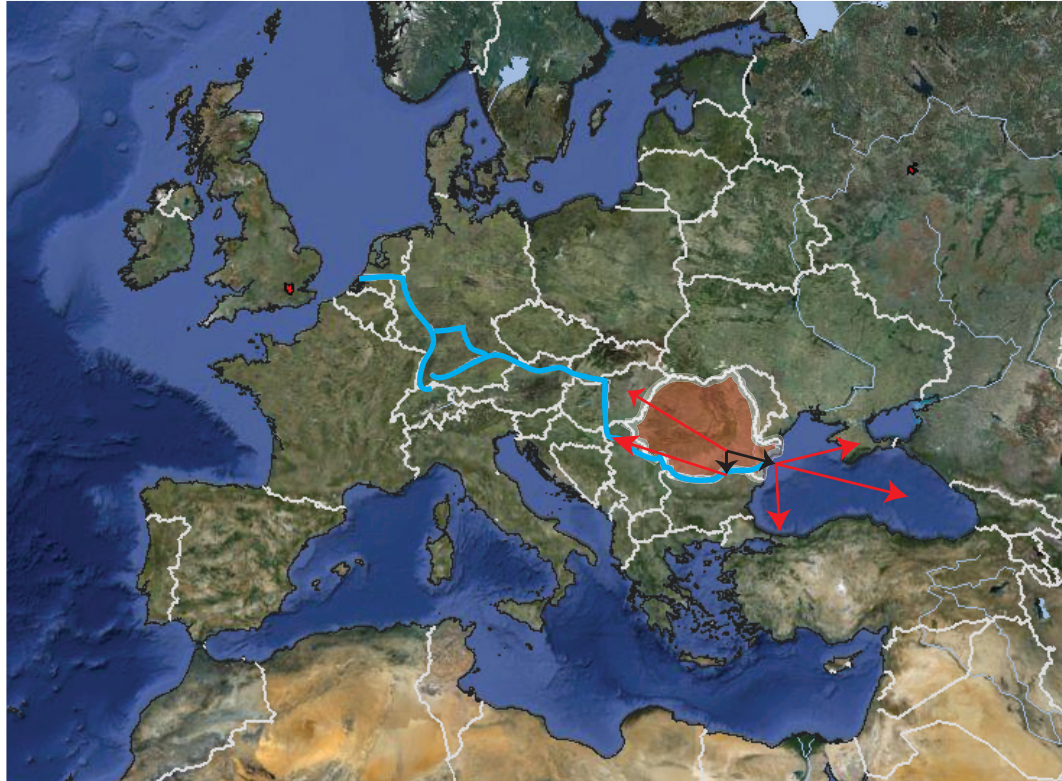


# Presentation Content





# Analysis: super region of Romania



Central position in Europe - Middle East

42% arable land, highly fertile soils

High potential but low productivity



# Analysis - agricultural situation Romania

**Romania's average production is low due to:**

- fragmented parcellation
- a high level of subsistence farming
- lack of industrialisation & tools
- lack of investment in agriculture and infrastructure

## **Trends in Romanian Agriculture**

- Produced food is exported, processed and imported again
- Slowly more cooperation between subsistence farmers
- Rural population is ageing, young people move to the city
- Redivision of land

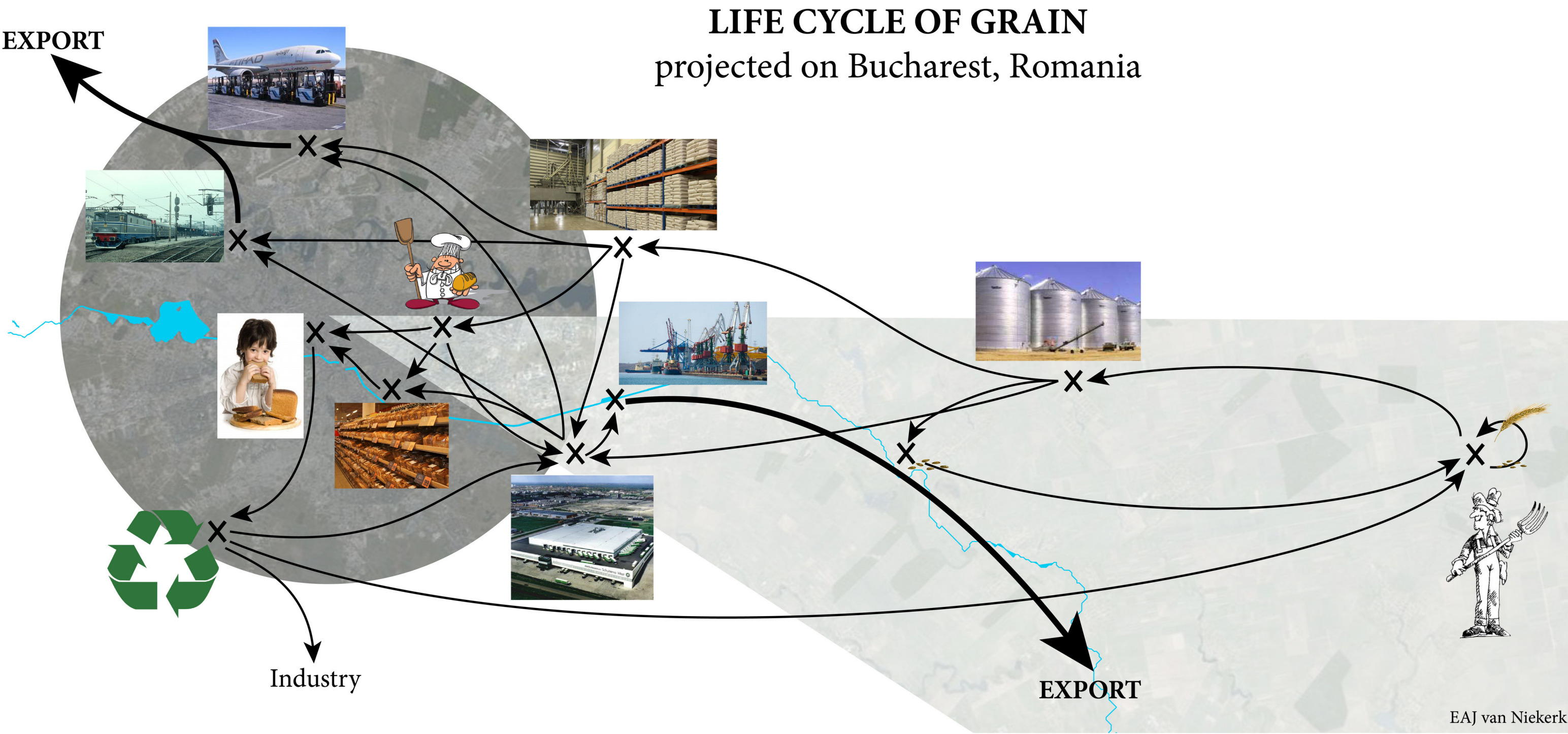
## **Opportunities for Romanian Agriculture:**

- subsistence farmers cooperating and producing more
- consciously investing in ecological agriculture, growing market
- investing in food processing industry
- strengthening position on the European/World food market





# Bucharest's function in the agricultural production chain





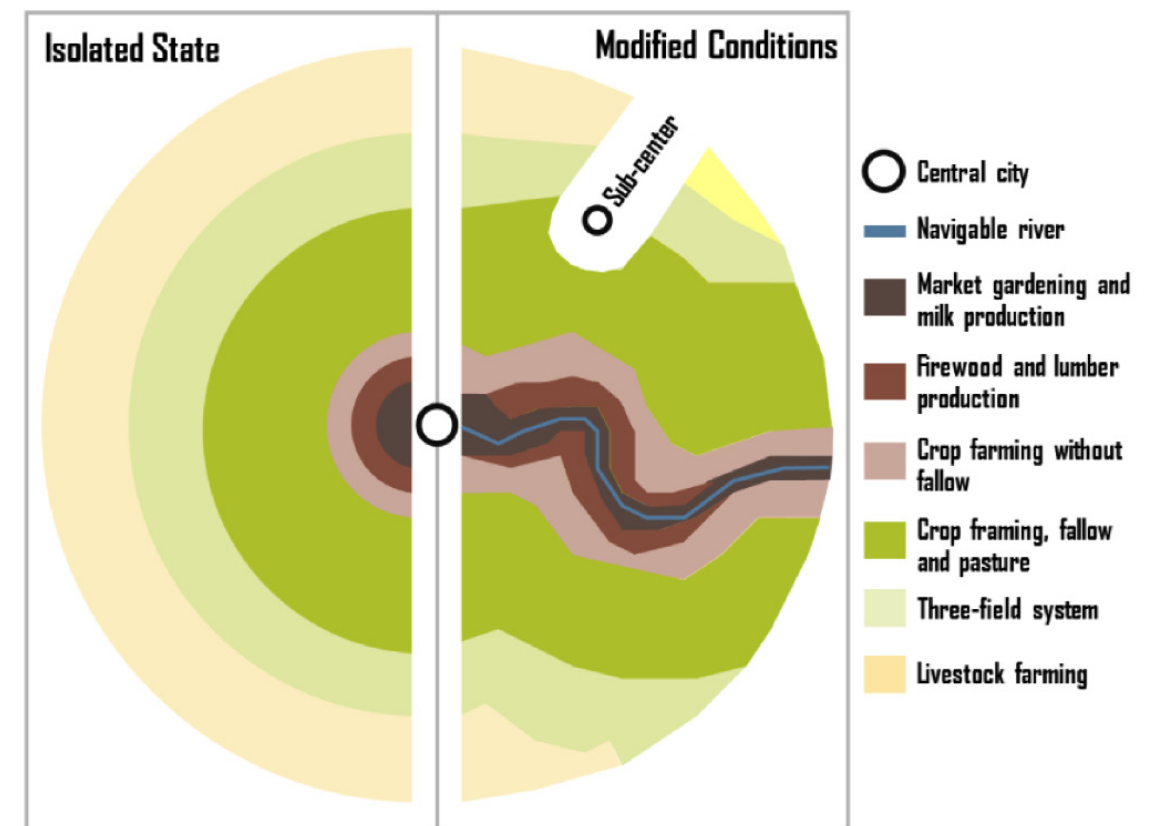




# Around the Bucharest - Danube Canal



Overlapping Corridors around canal

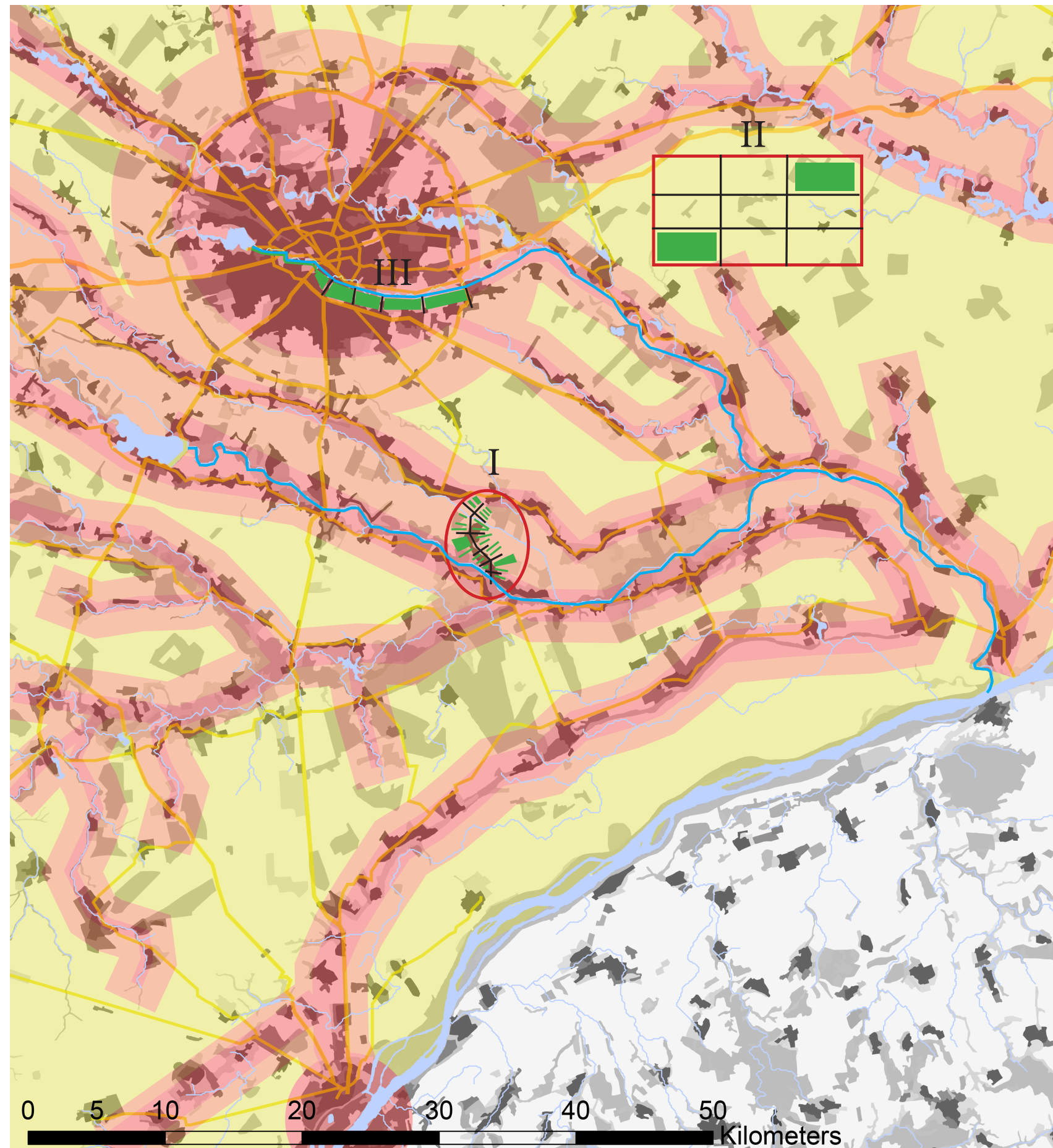


Von Thunen's Regional Land Use Model



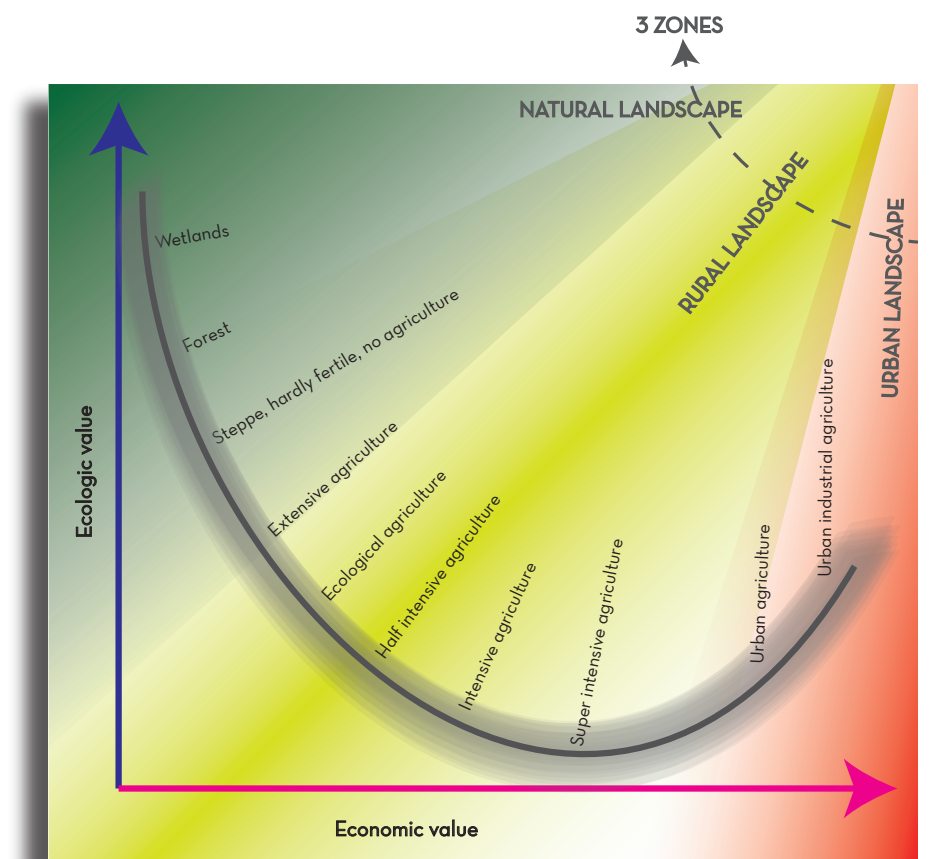


# Buc - Dan canal as structuring backbone



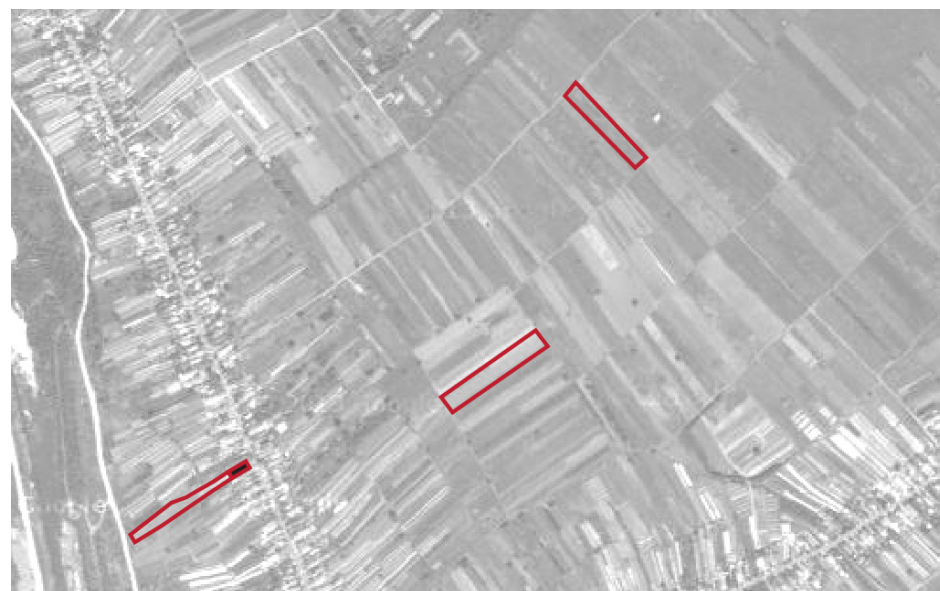
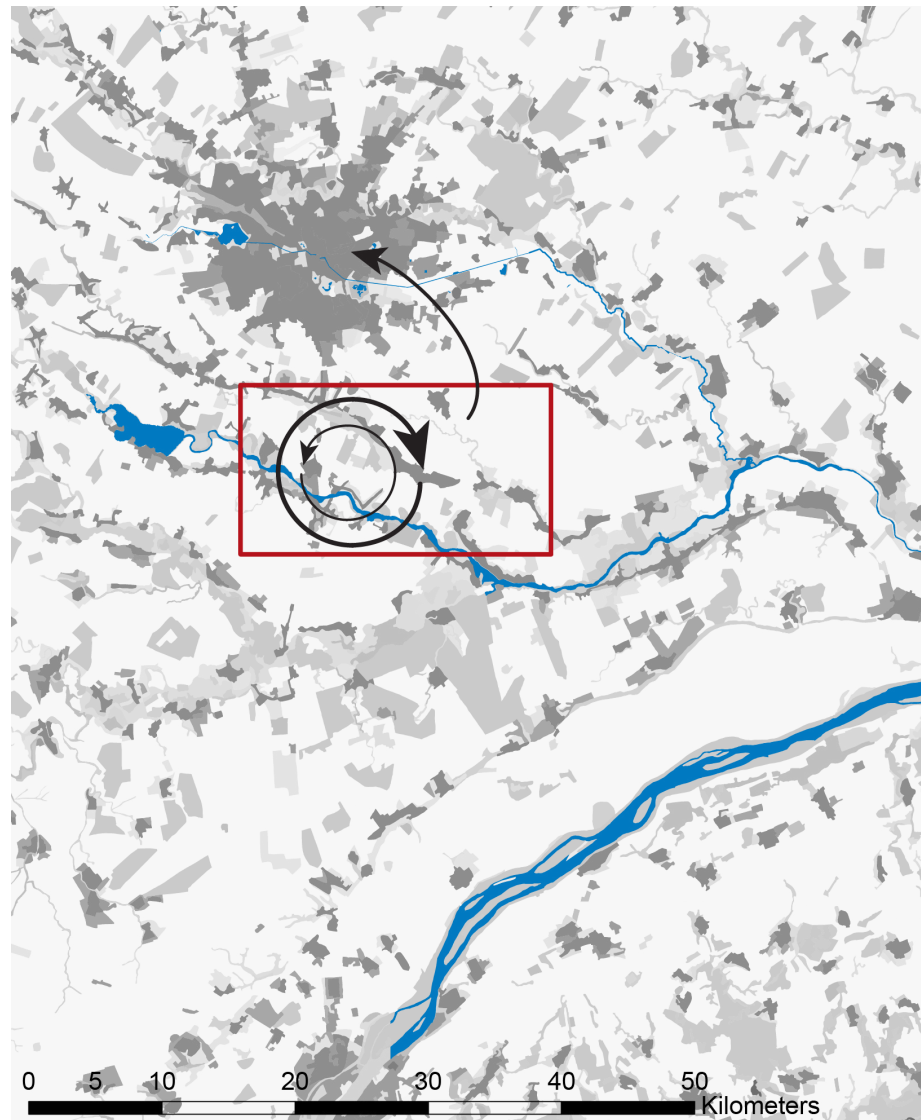
## Legend

- Small type fields
- Medium type fields
- Large type fields



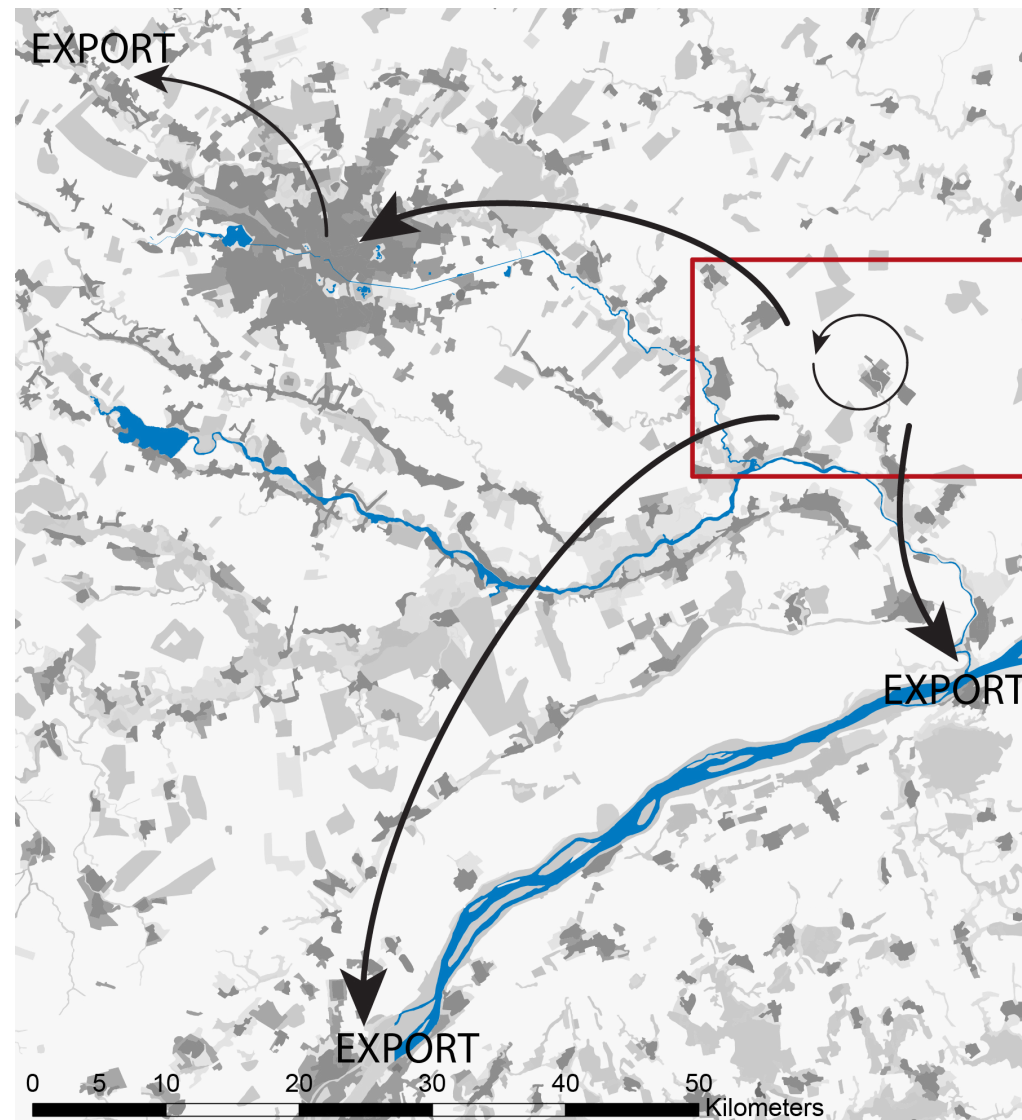


# Location I



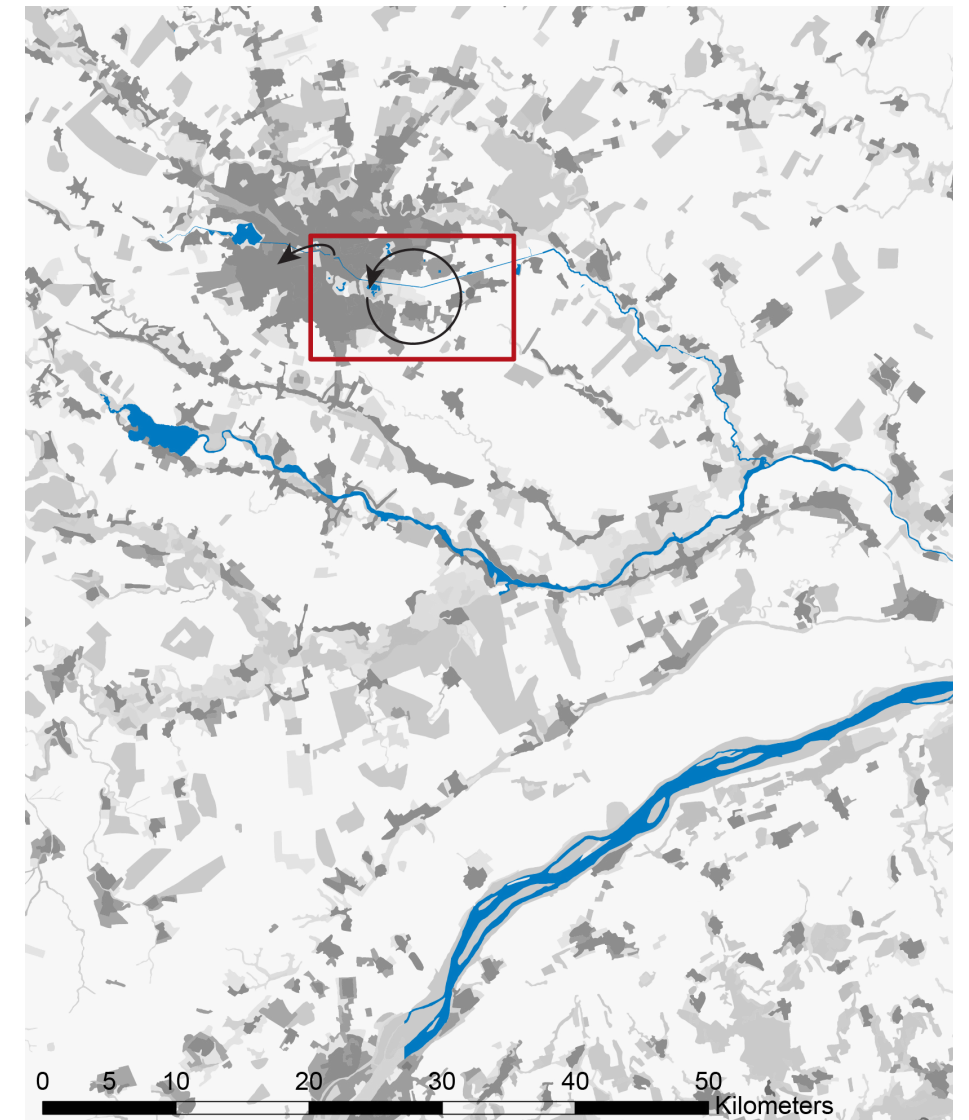
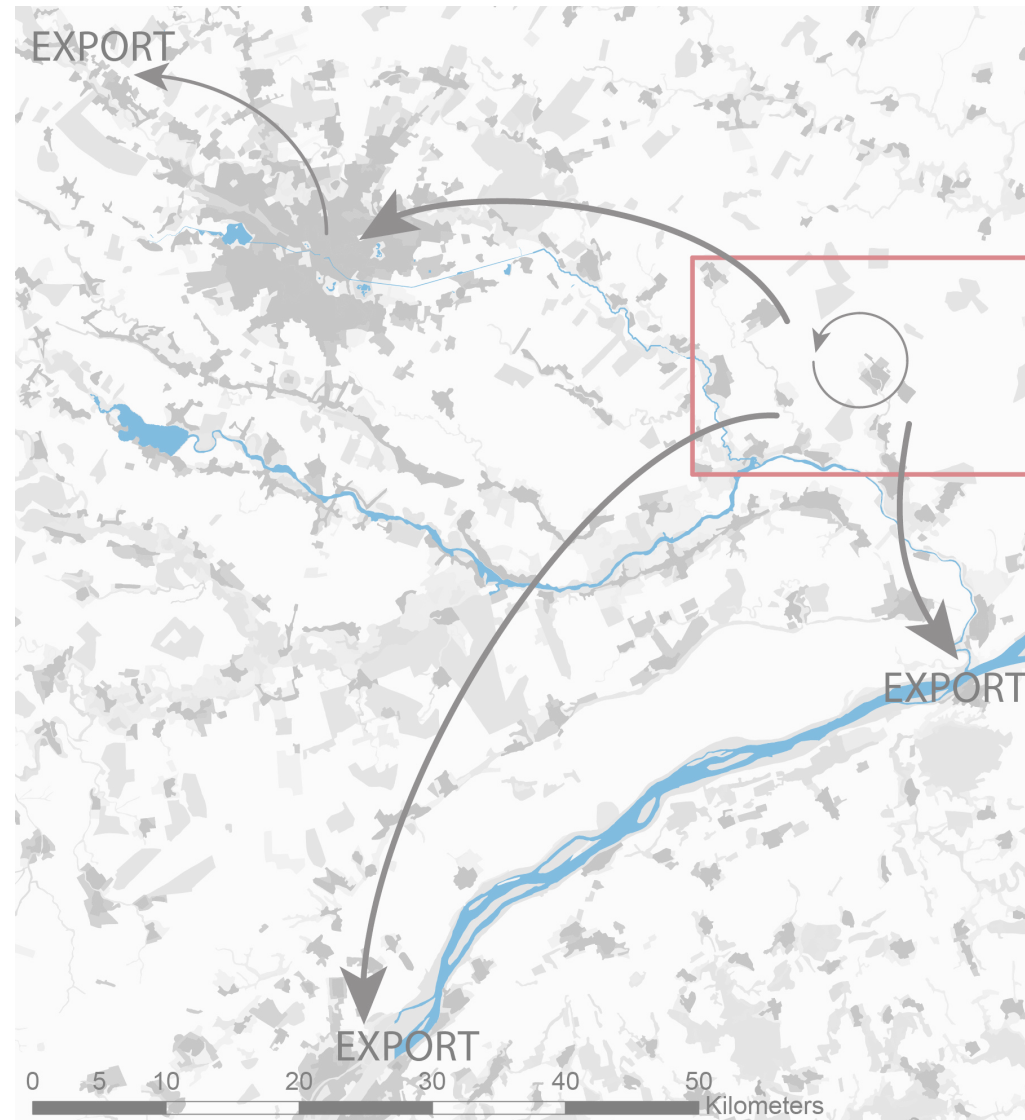


# Location II



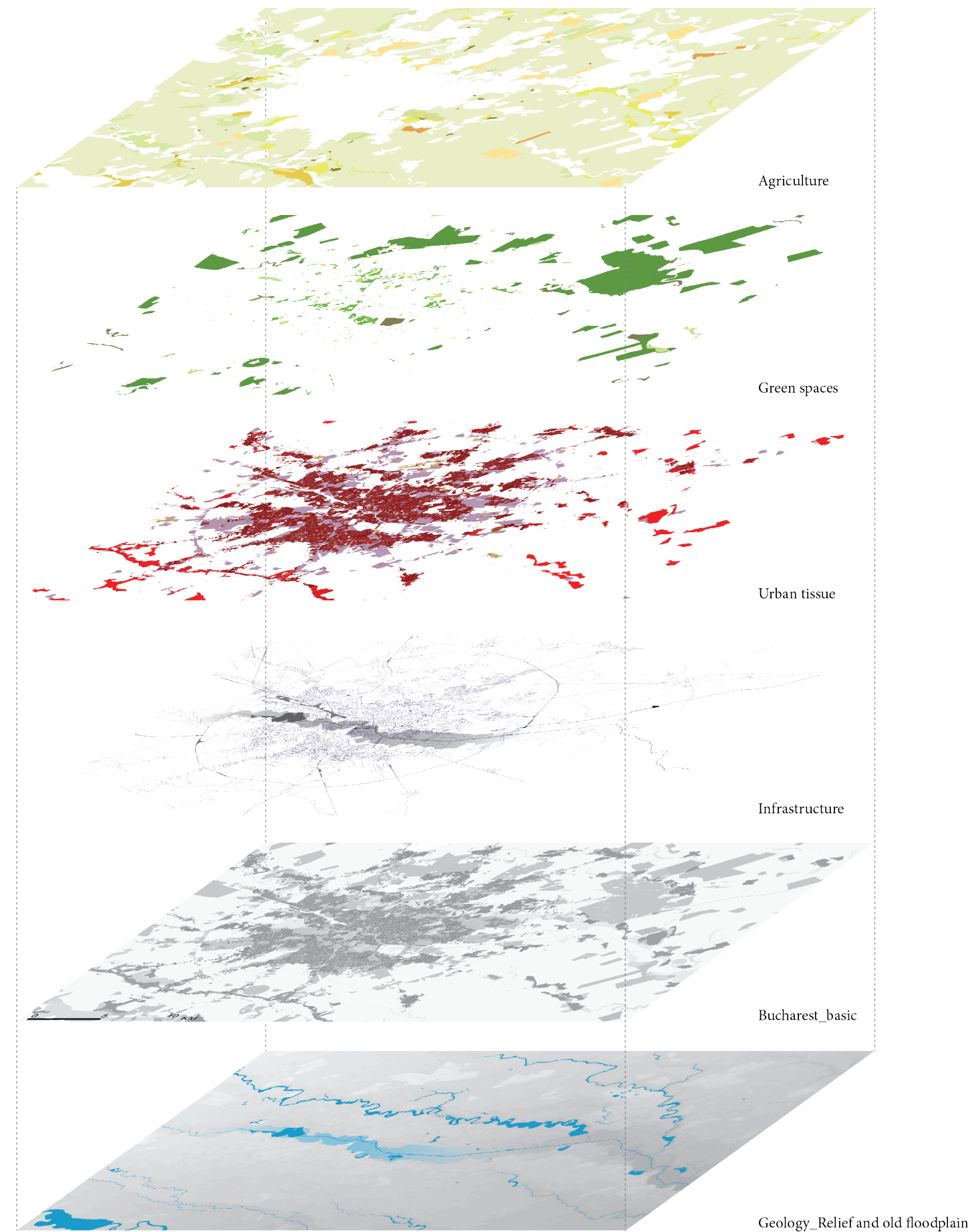


# Location III



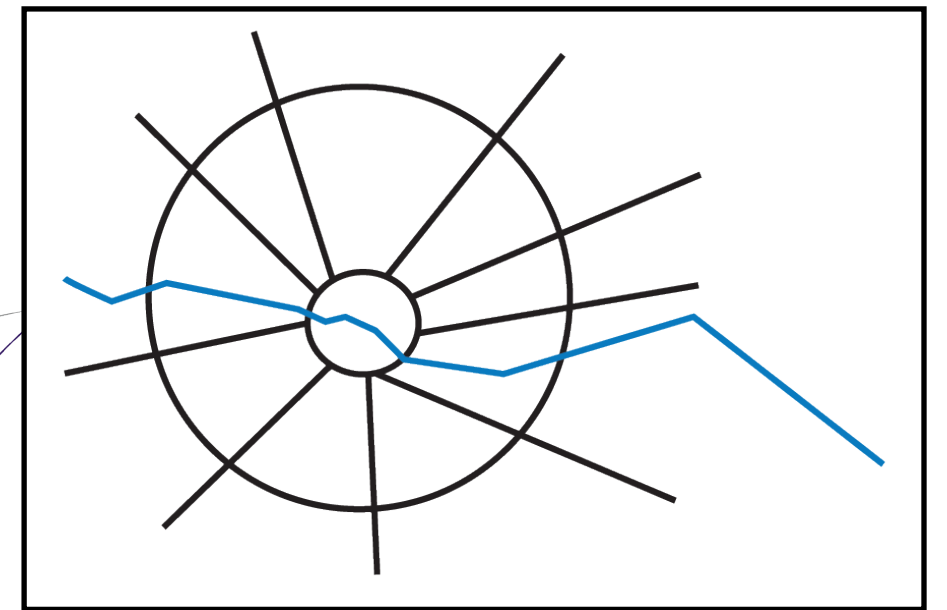


# Different layers of the Bucharest region





# Radial infrastructure



Radial Roads

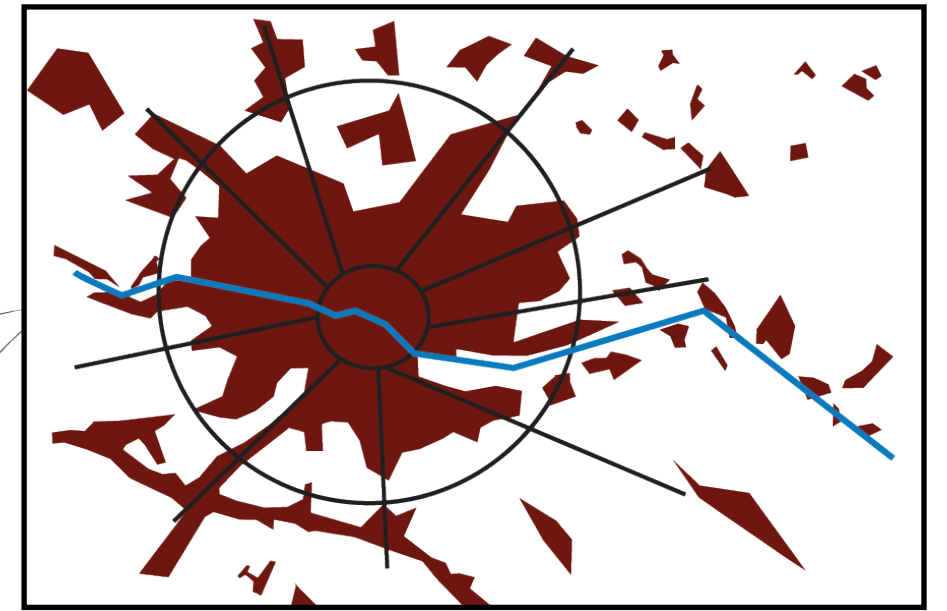
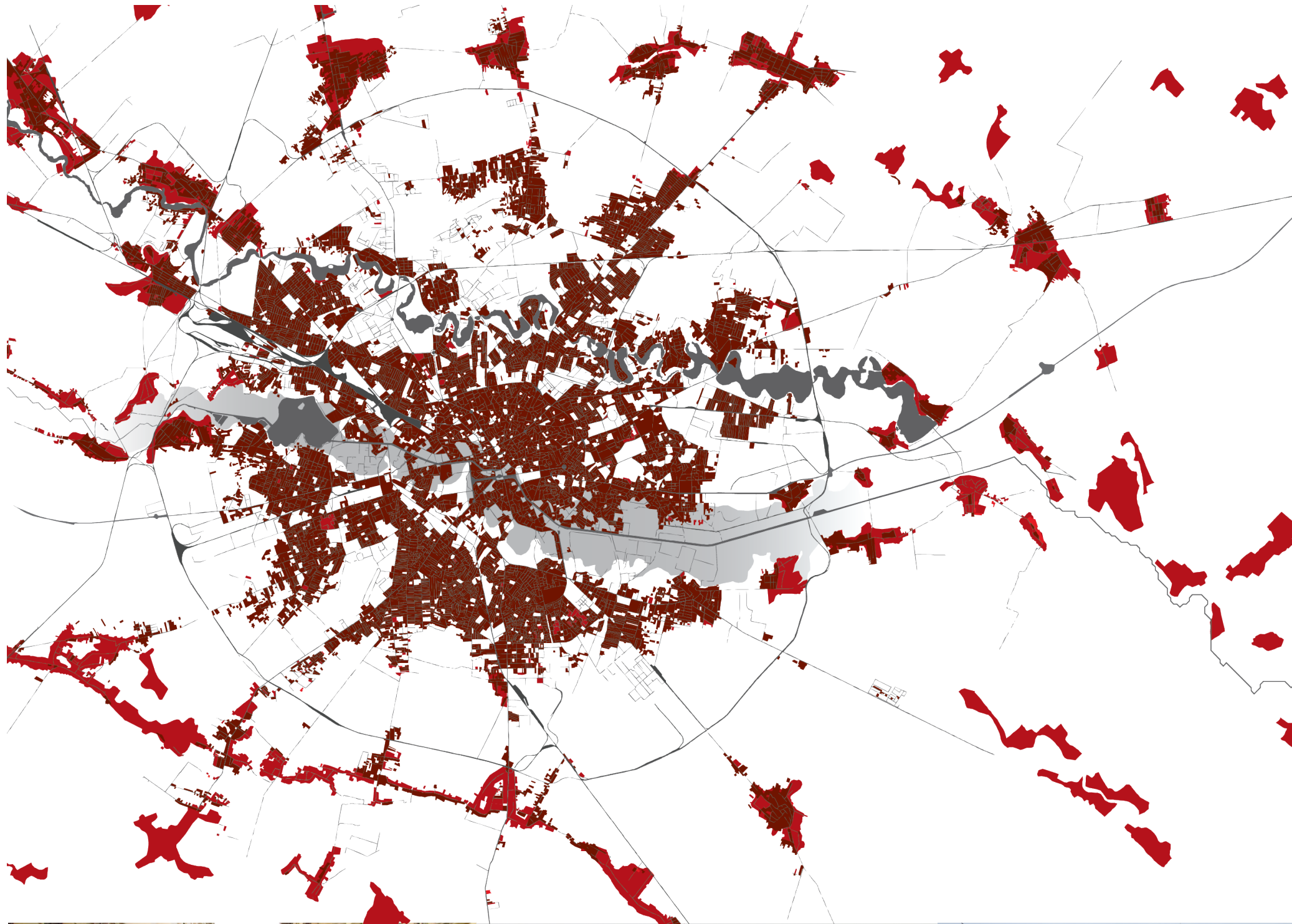
Two rings

Accessible centre





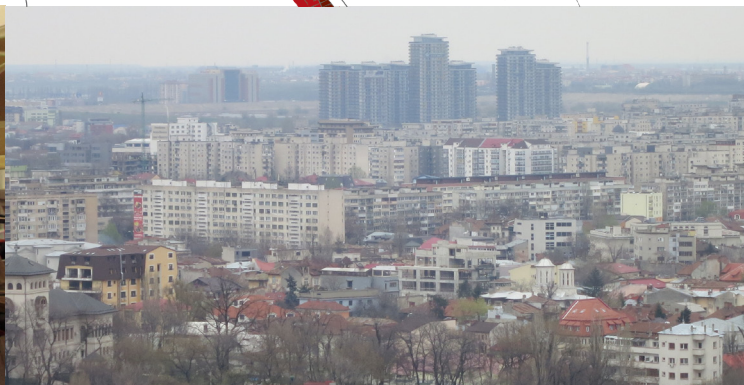
# Bucharest urban tissue grows radially



Amoeba shaped city

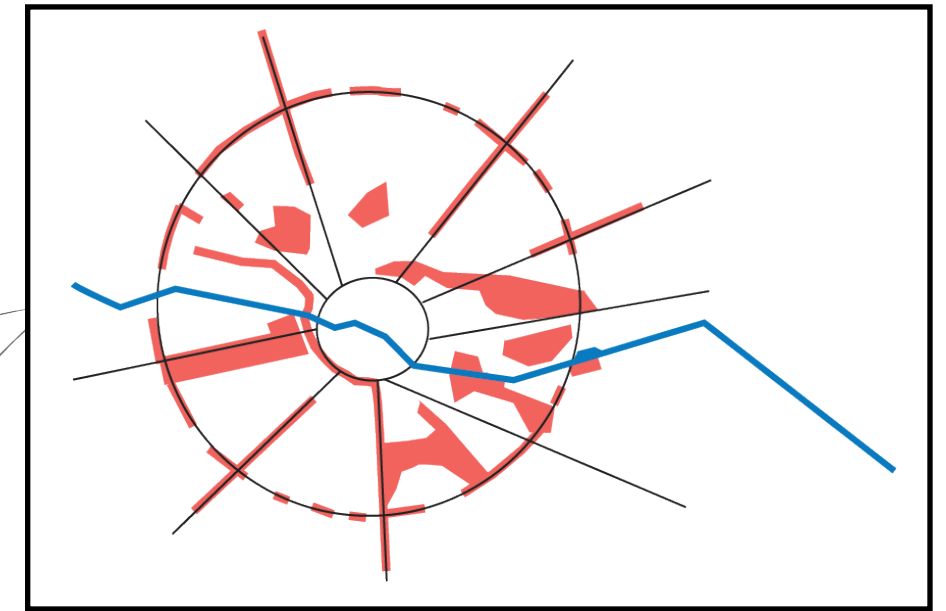
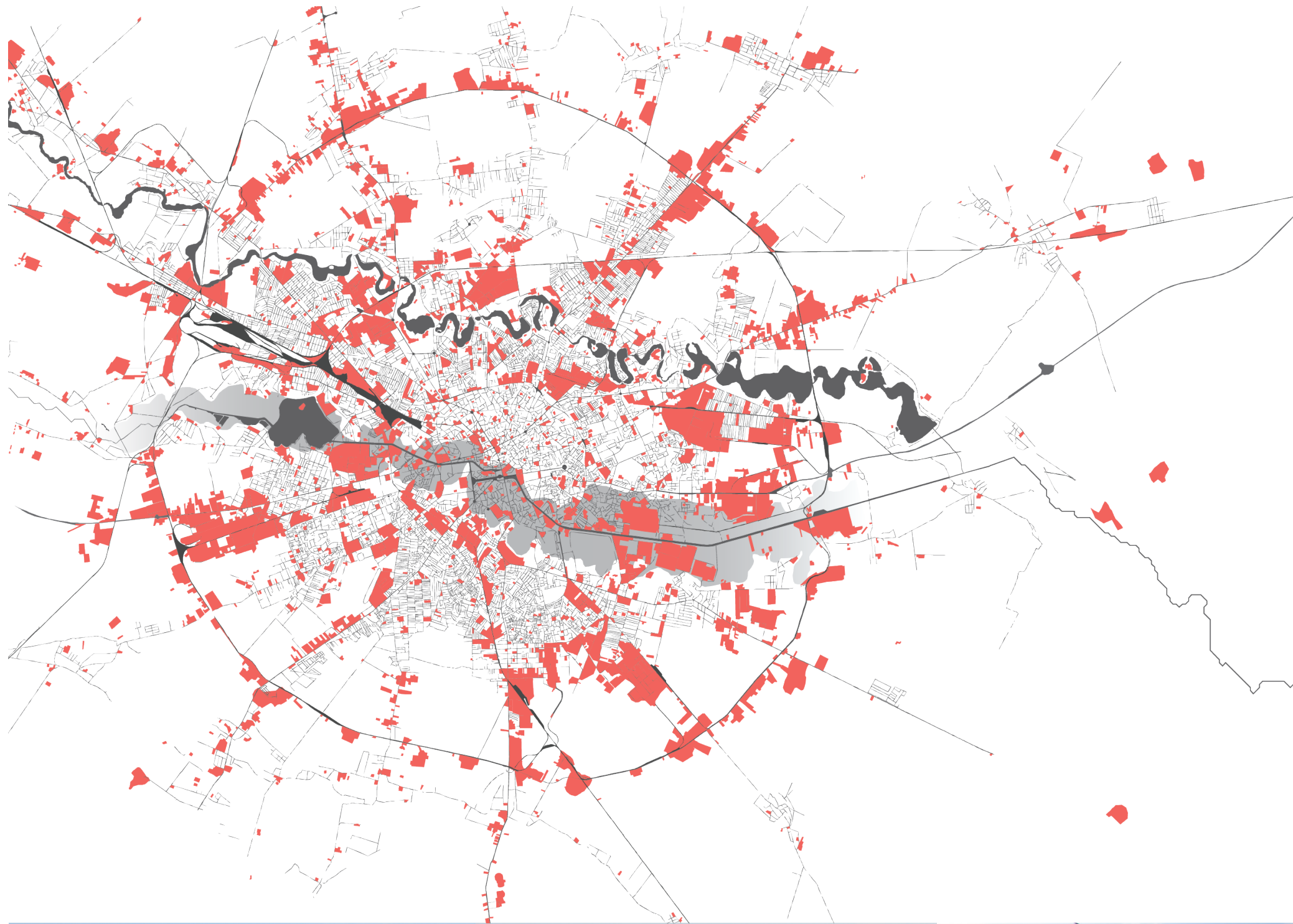
Grows in all directions

Long edges





# Industry around the ring and main roads



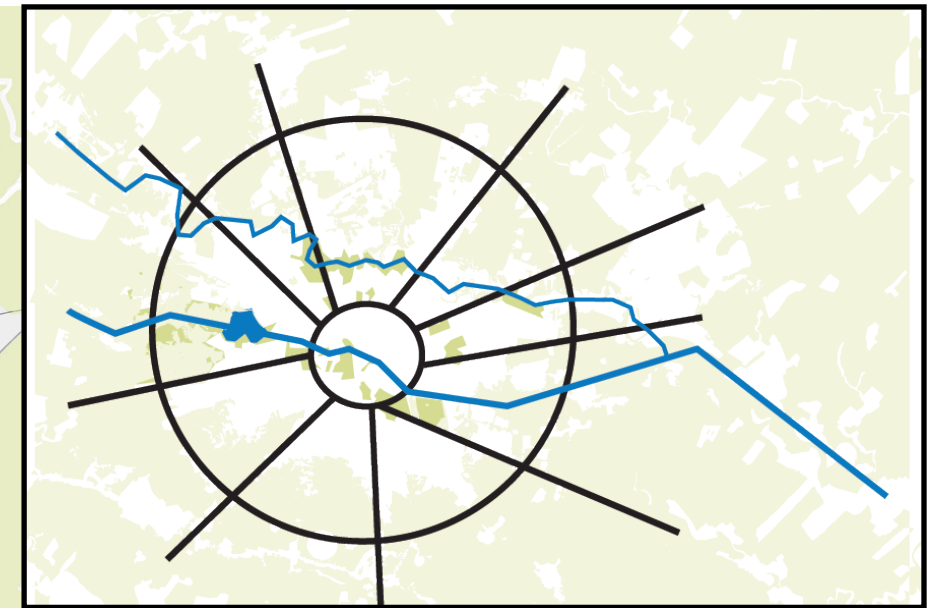
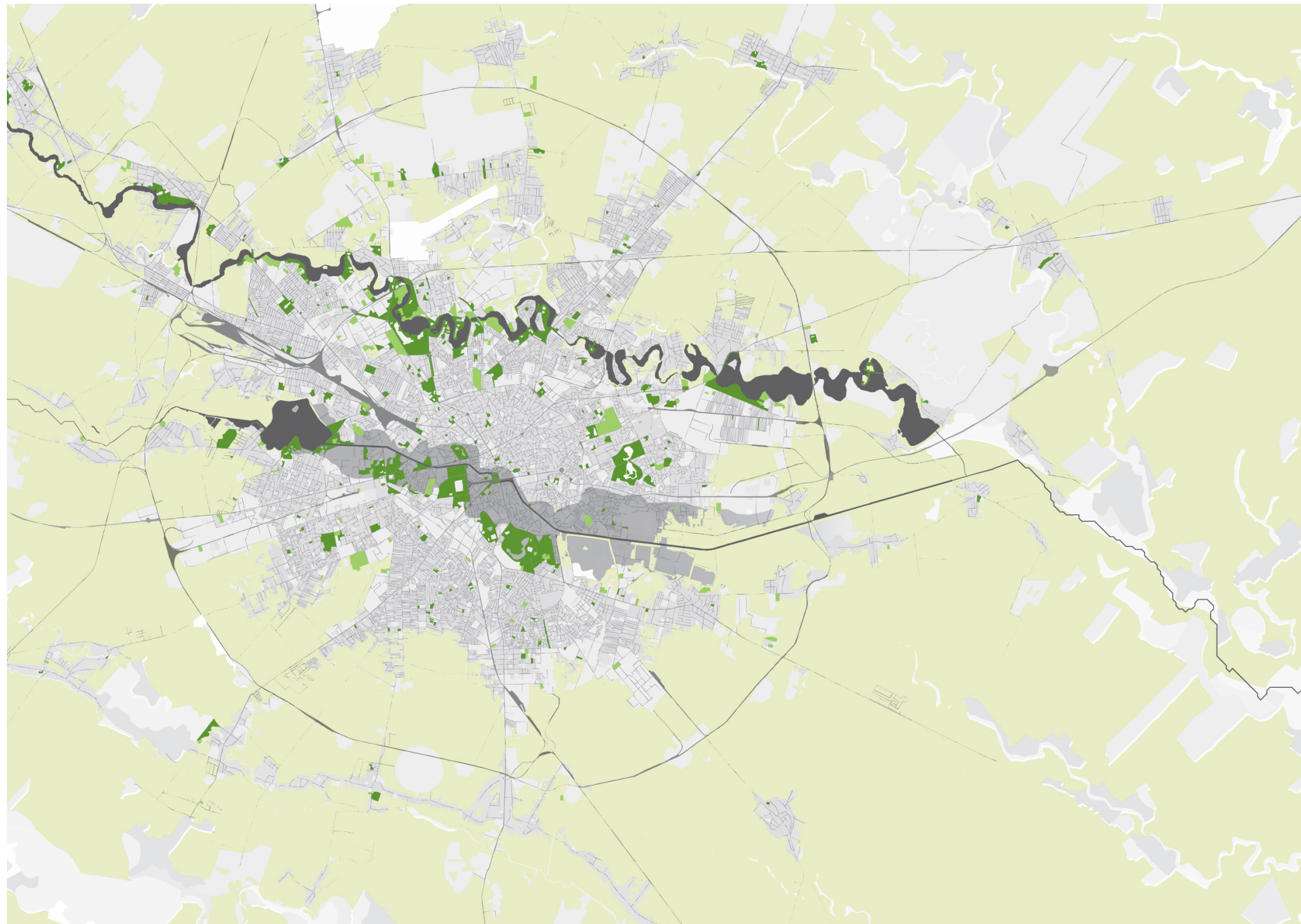
Industry dispersed

Industry concentrates around the  
outer ring and main radial roads





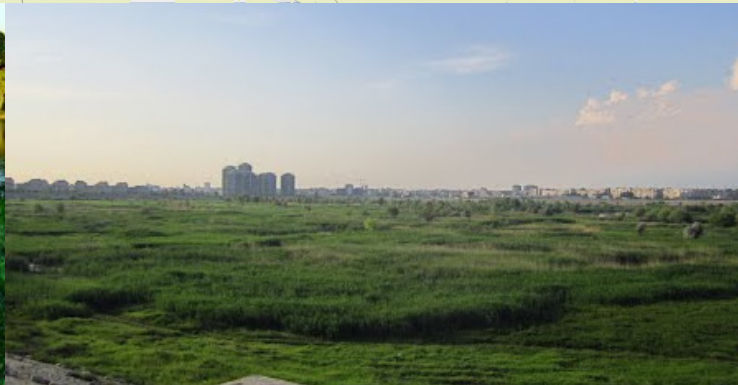
# Spectrum of green landscape types found along Dambovita



Green spaces in city mainly found in old floodplains of rivers

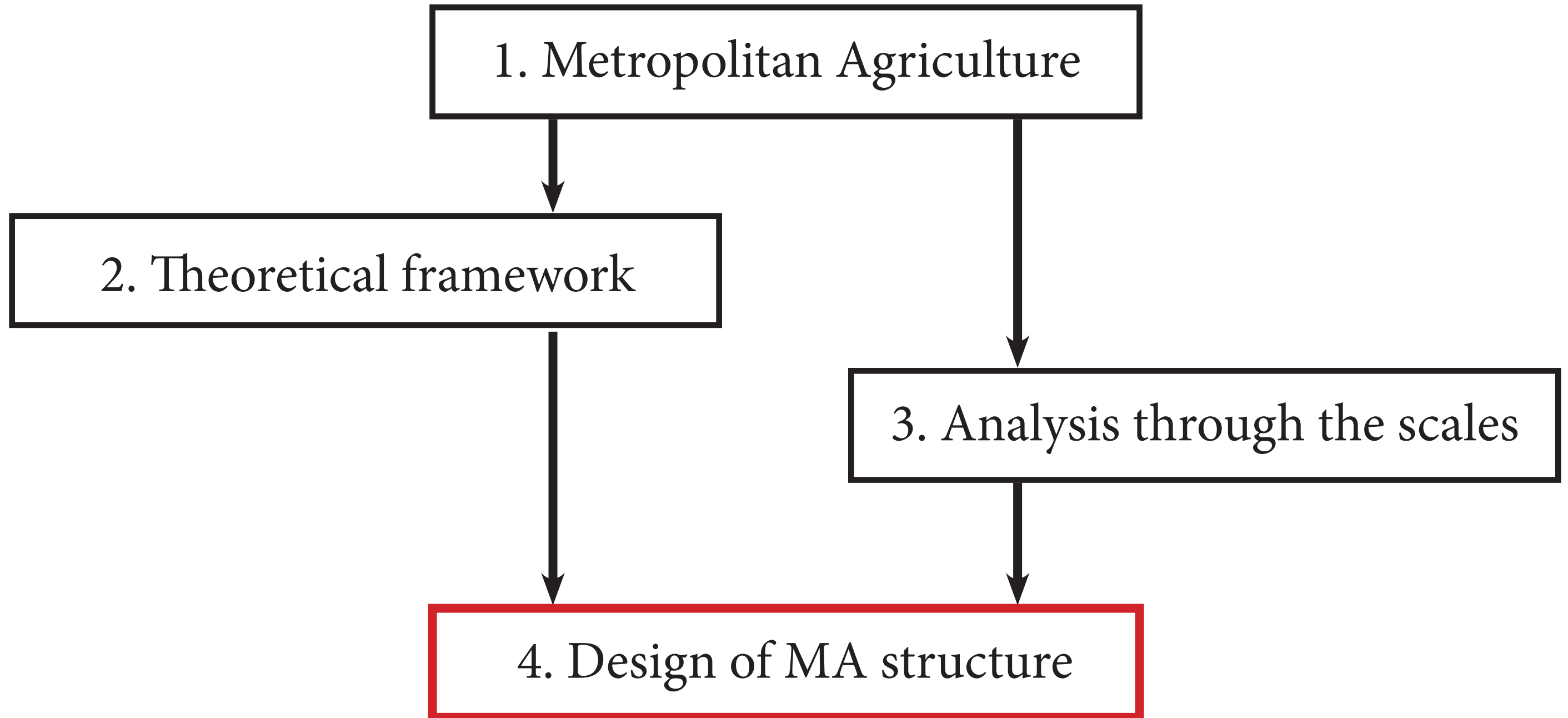
Differentiated types of green spaces

Hinterland reaching over the ring into the urban tissue



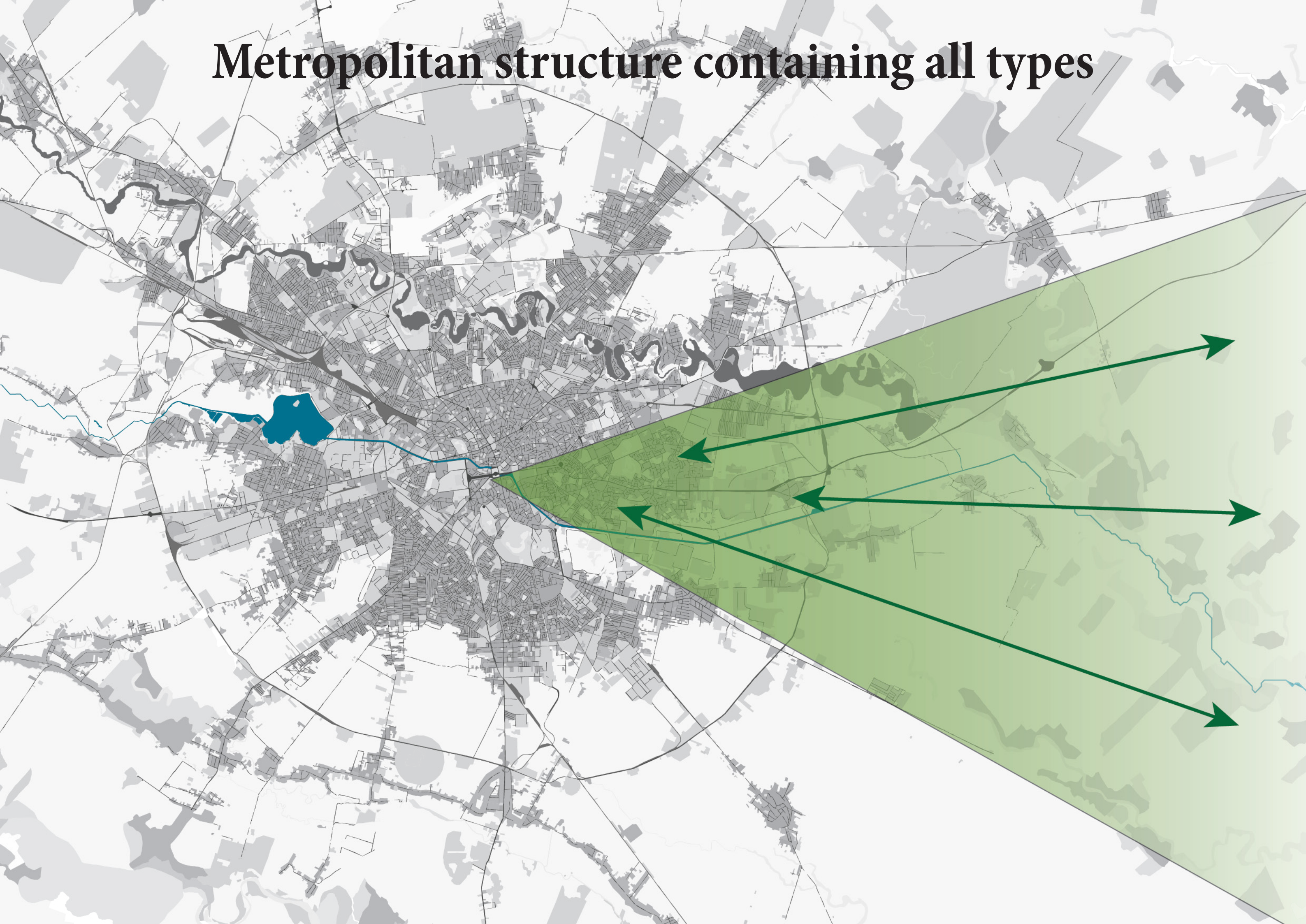


# Presentation Content



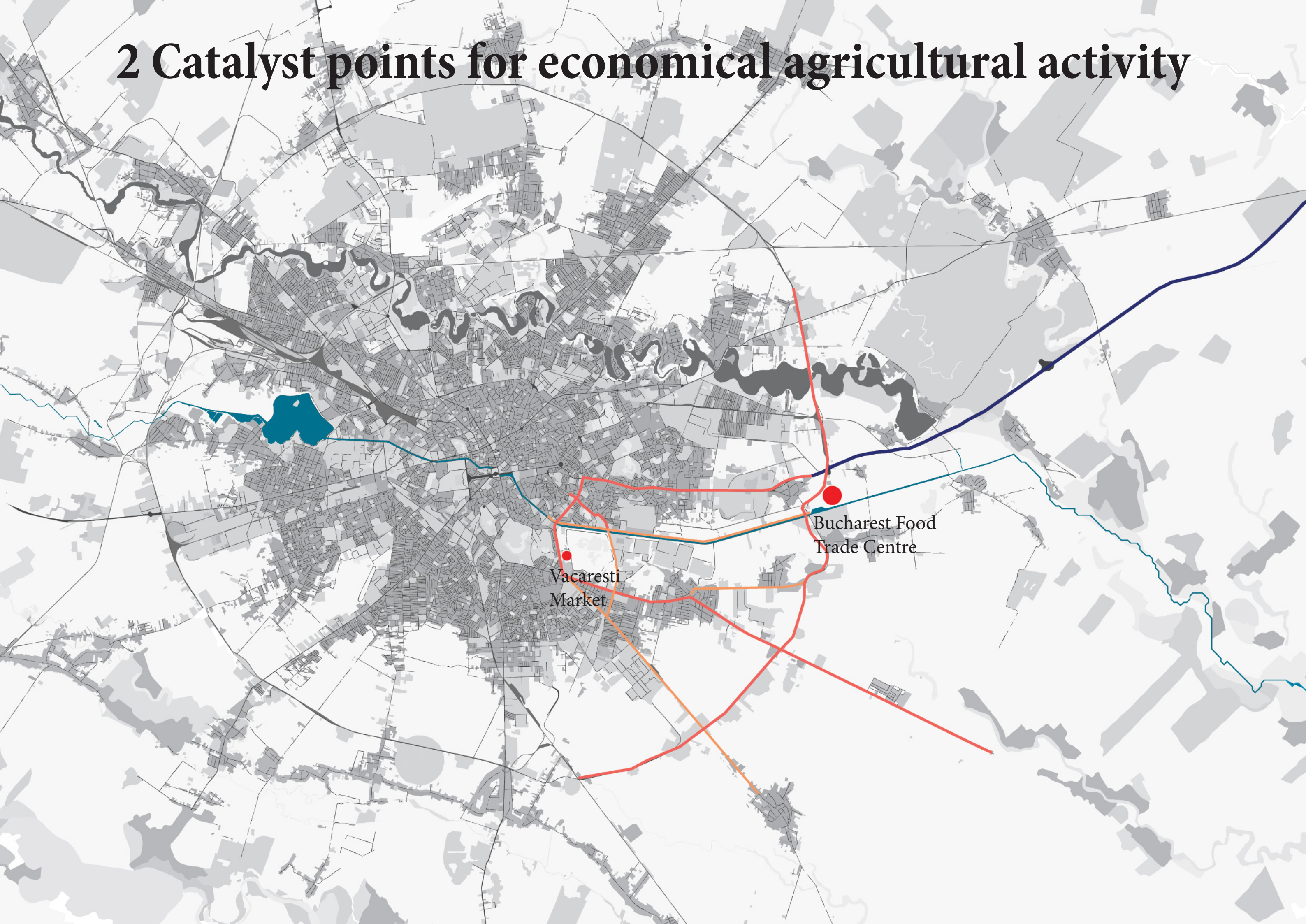


# Metropolitan structure containing all types

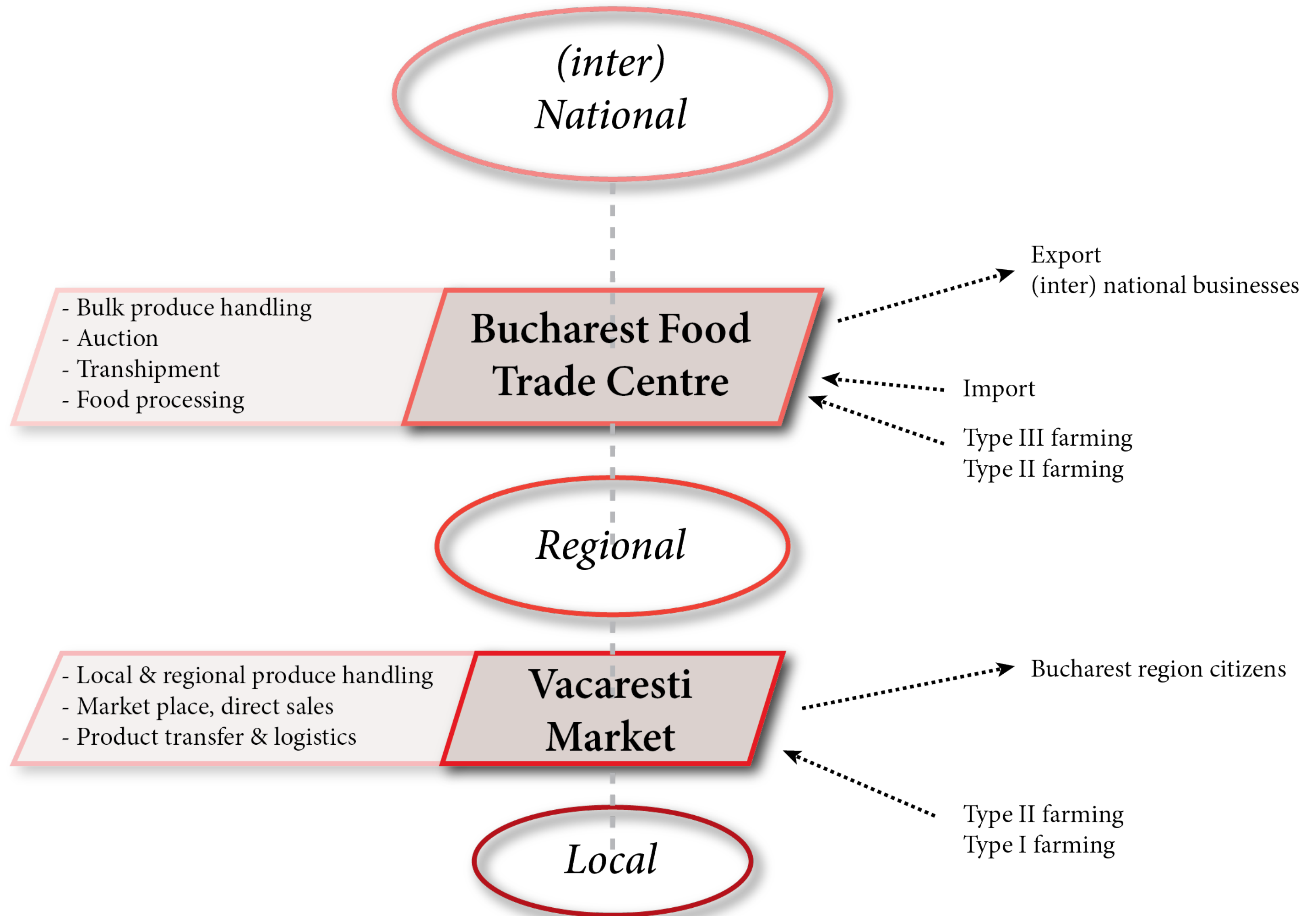




## 2 Catalyst points for economical agricultural activity







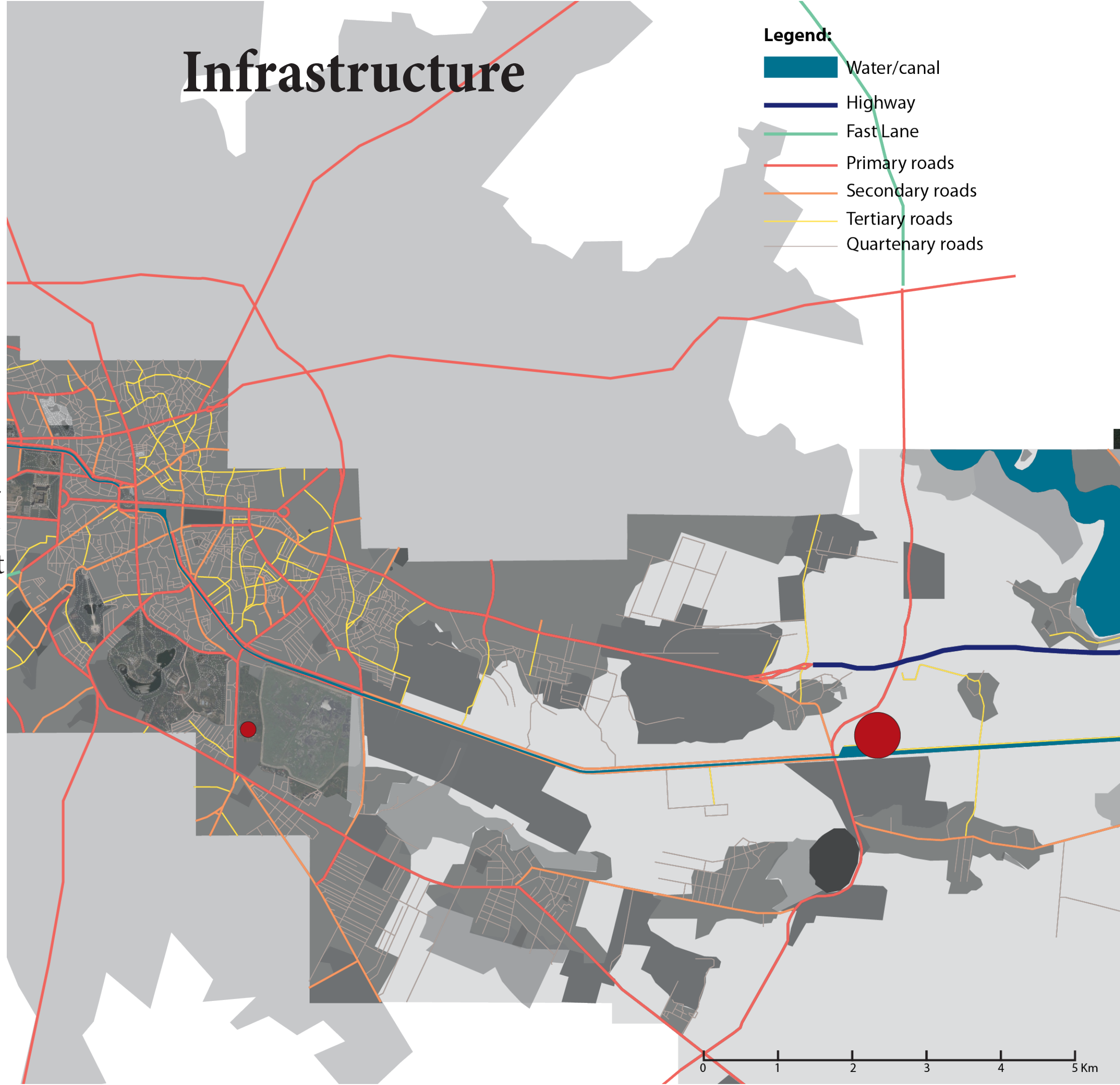


# Infrastructure

Well connected to existing infrastructure

Bucharest Food Trade Centre has great accessibility through road, rail and water infrastructure on national and international scale

Vacaresti Market has great accessibility through road infrastructure and public transport infrastructure on local and regional scale





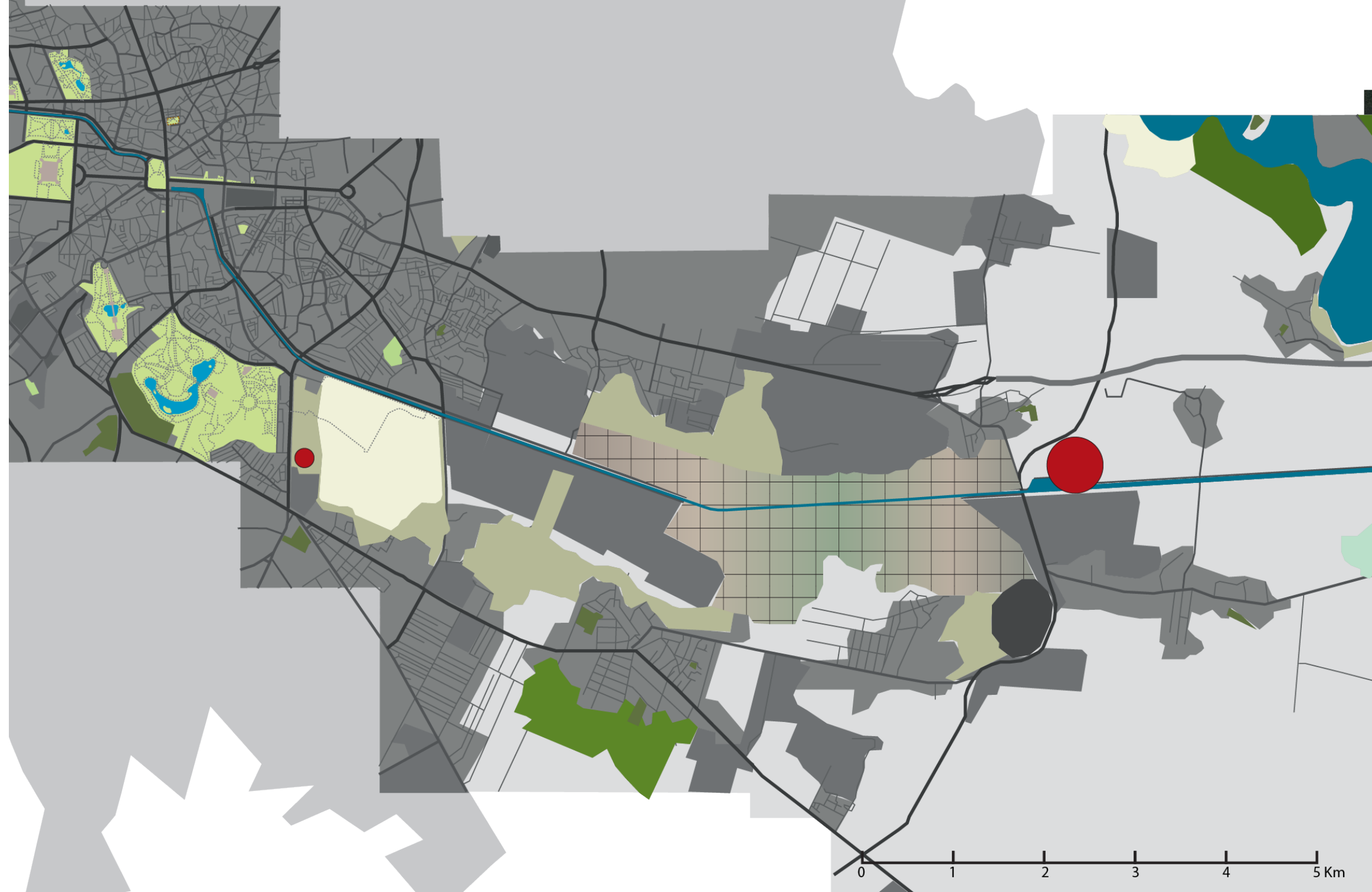
# Green structures

Vacaresti Market lays at the edge of the developed city green structures.

Different types of agricultural production found in this site.

## Legend:

- Agriculture/farms
- Open spaces, urban sprawl
- Urban parks
- Marshlands
- Forest





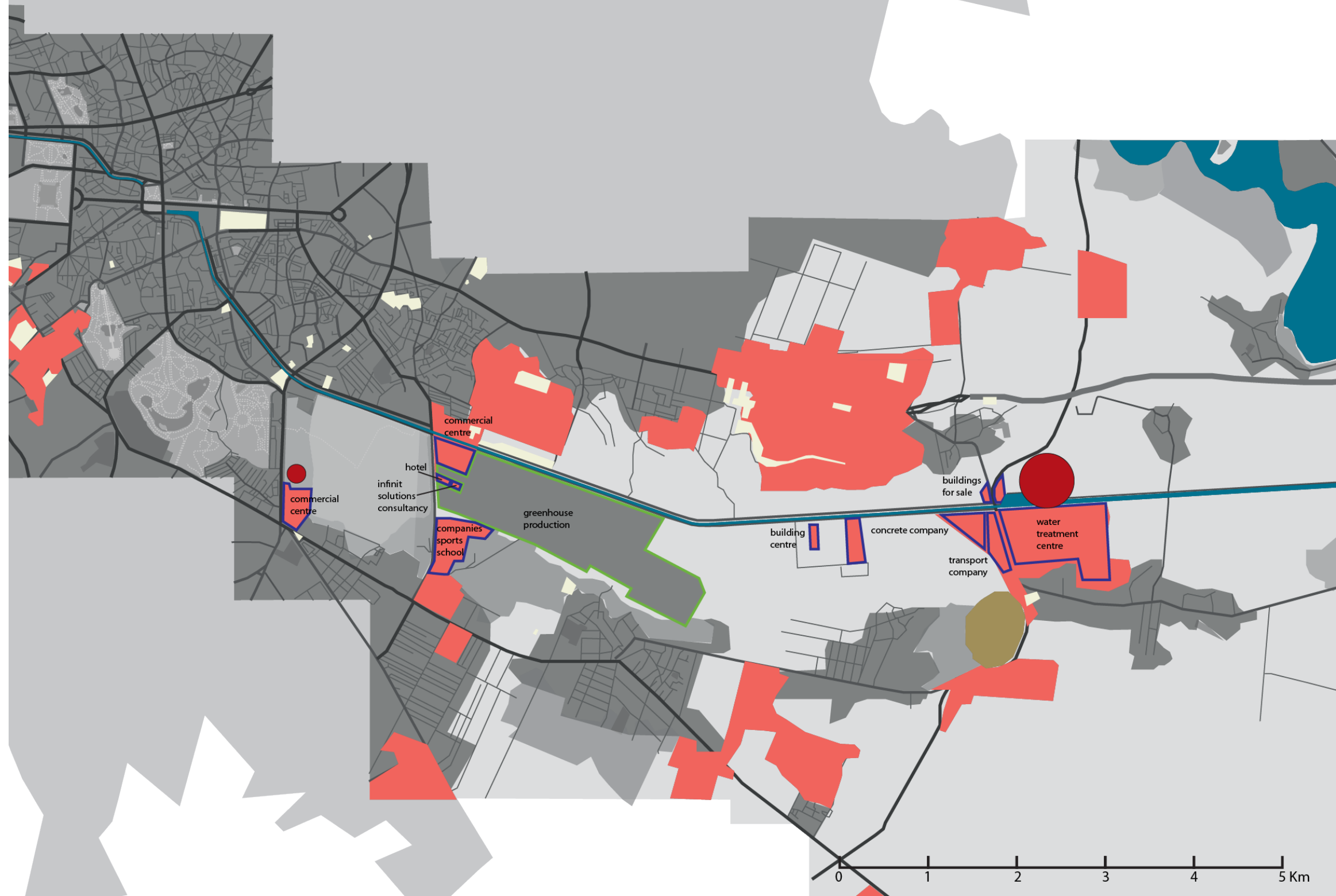
# Built tissue

Built tissue embraces the green spaces around the Dambovita

Industry especially around the outer ring and along the radial roads

## Legend:

- Built tissue
- Agricultural buildings
- Industrial & commercial
- Ind & comm functions
- Unused urban space
- Dumping sites



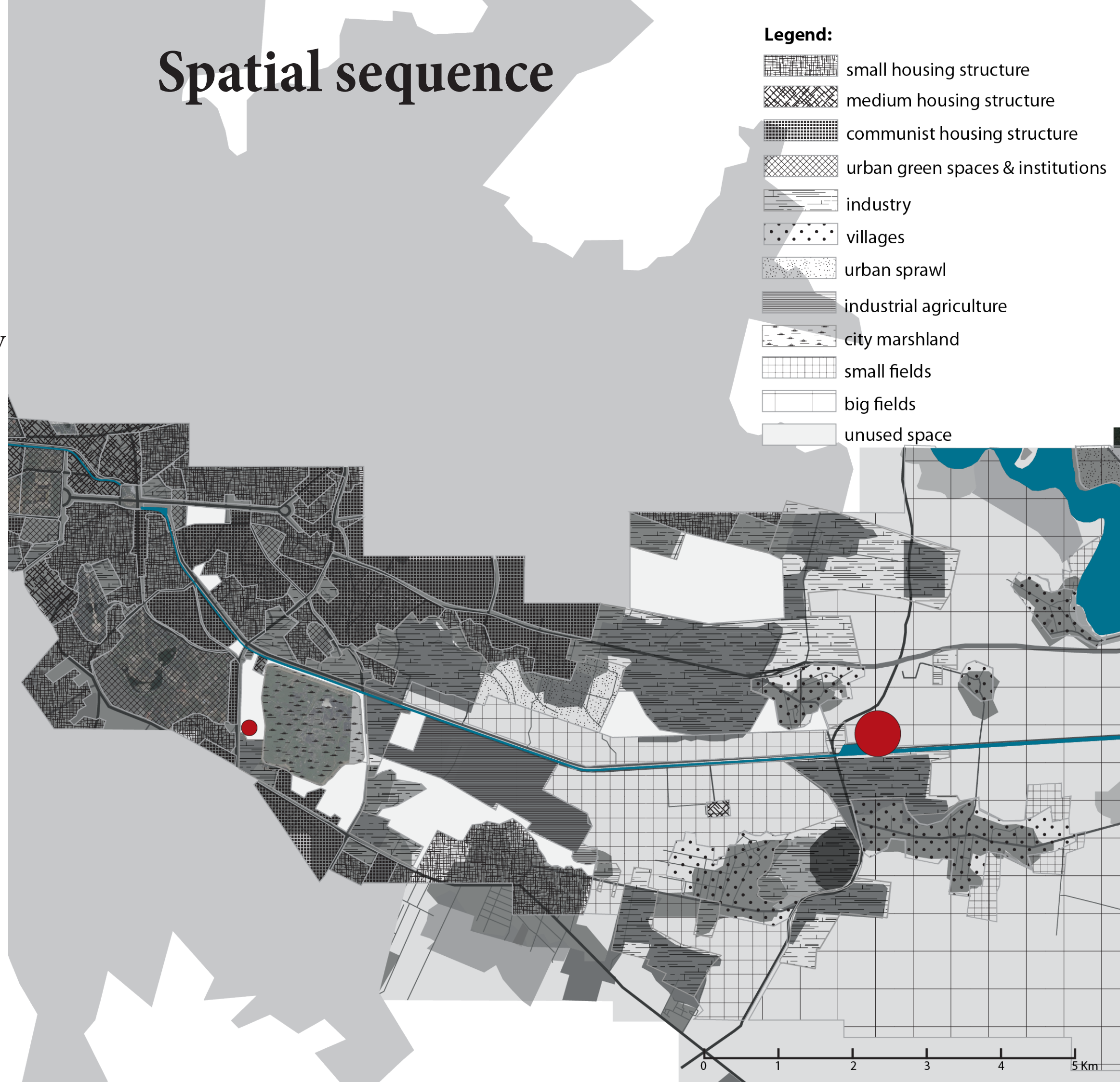


# Spatial sequence

Inside the city high density and diversity in building structures

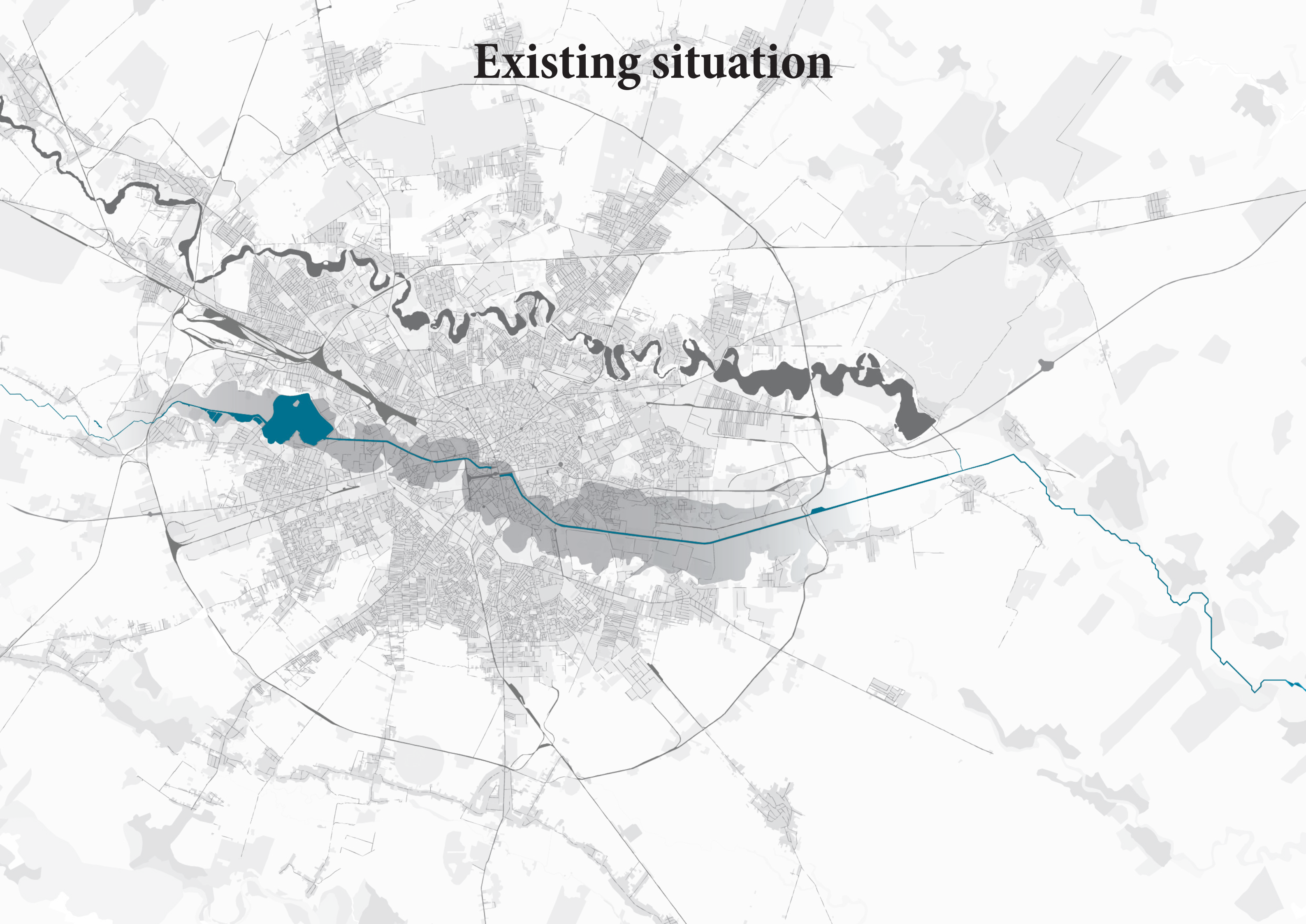
Grain of the landscape increases to the edges of the city and beyond

Spacial experience becomes more open to the outside



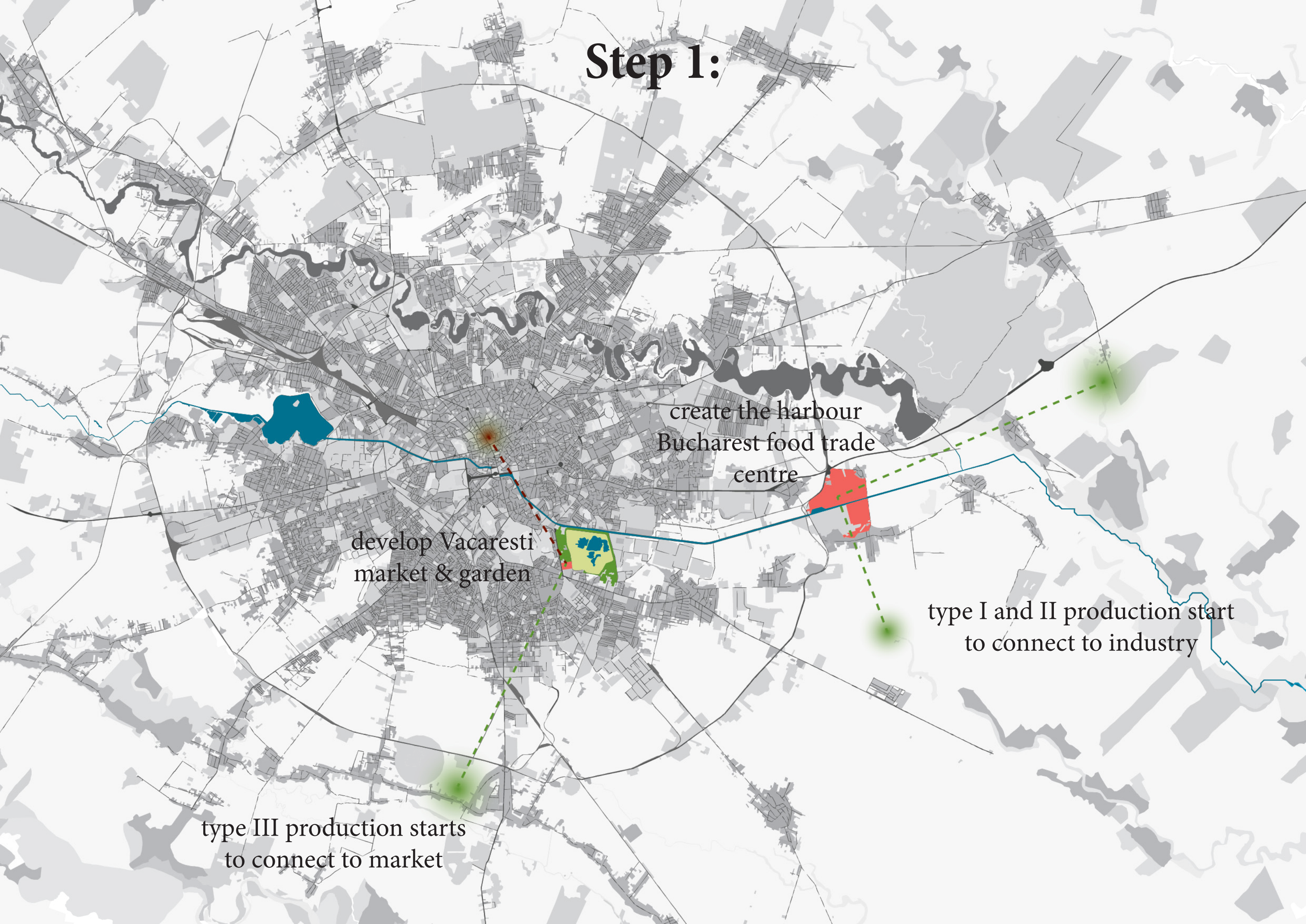


# Existing situation





# Step 1:



create the harbour  
Bucharest food trade  
centre

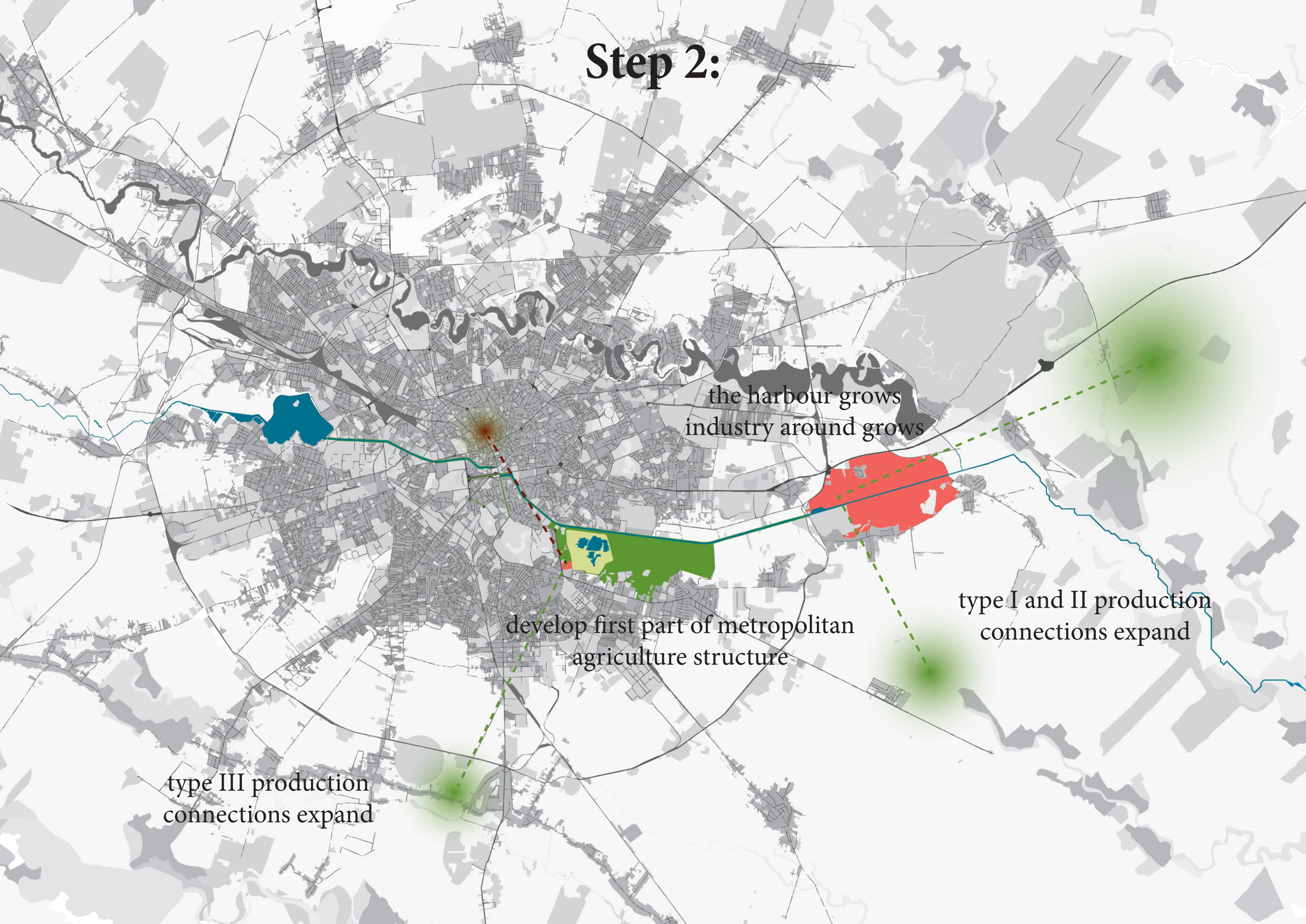
develop Vacaresti  
market & garden

type I and II production start  
to connect to industry

type III production starts  
to connect to market

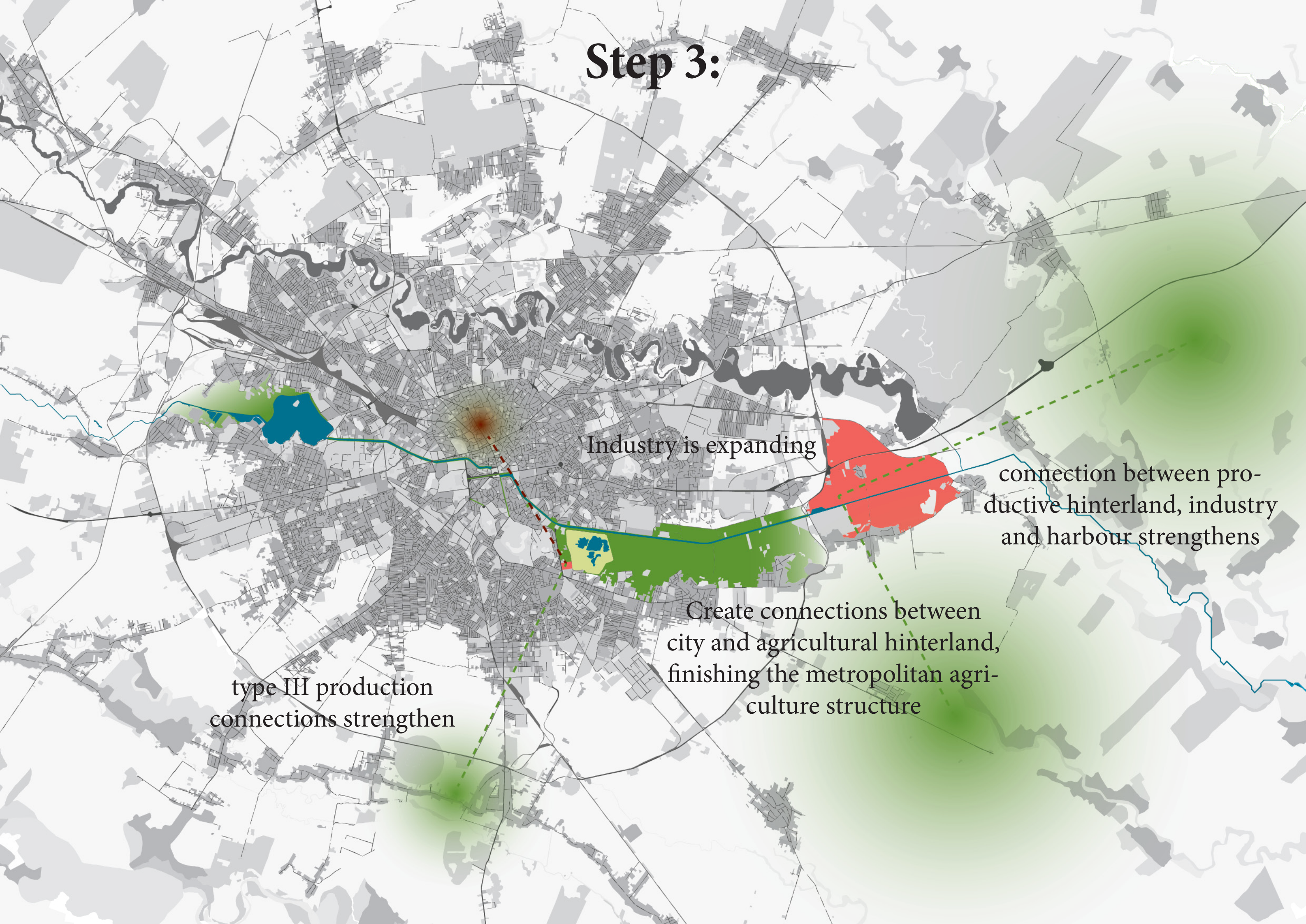


## Step 2:





# Step 3:



Industry is expanding

connection between productive hinterland, industry and harbour strengthens

Create connections between city and agricultural hinterland, finishing the metropolitan agriculture structure

type III production connections strengthen



## Step 4:

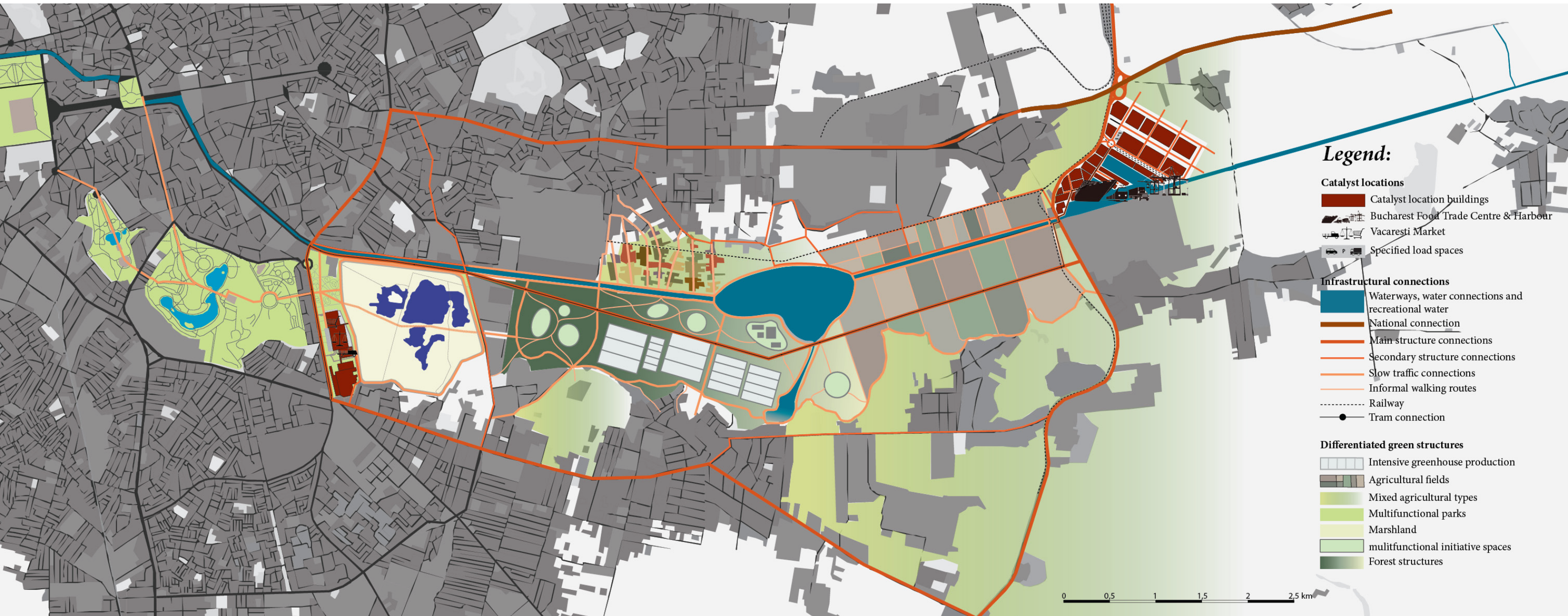
convert the exitsing  
green spaces in the city  
to the concept

Result: a metropolitan ag-  
ricultural system connect-  
ing Bucharest and the hin-  
terland



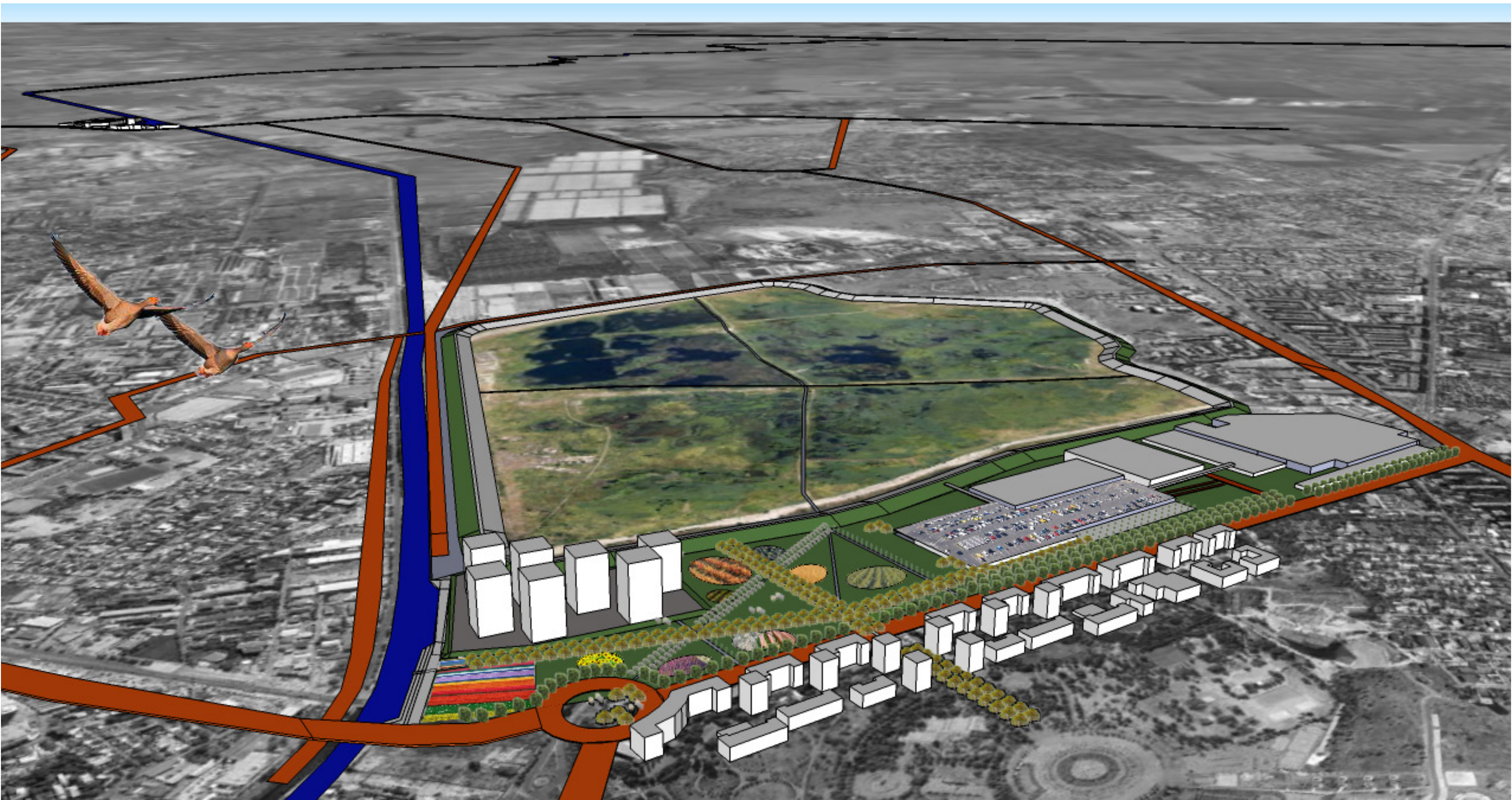


# Masterplan



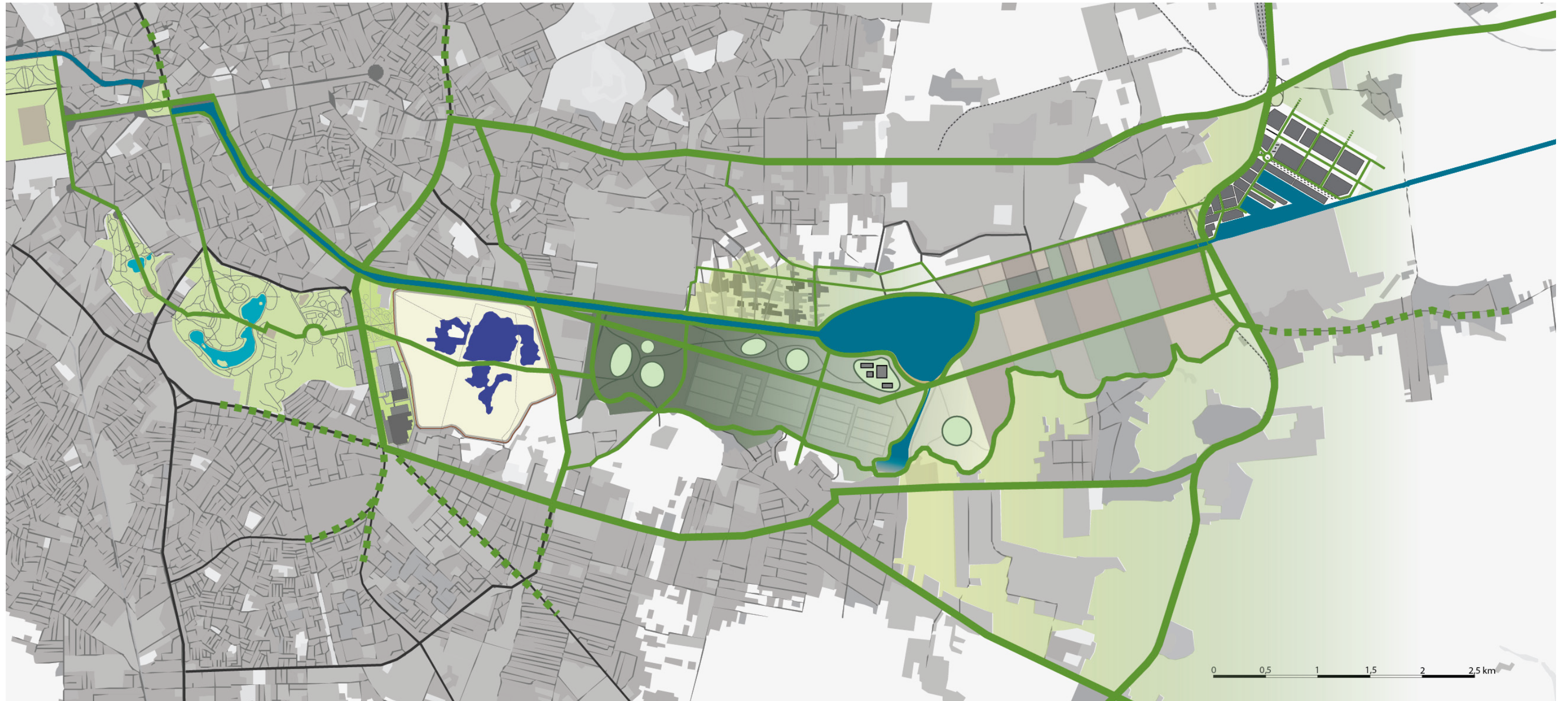


# Impression of the structure and catalyst locations



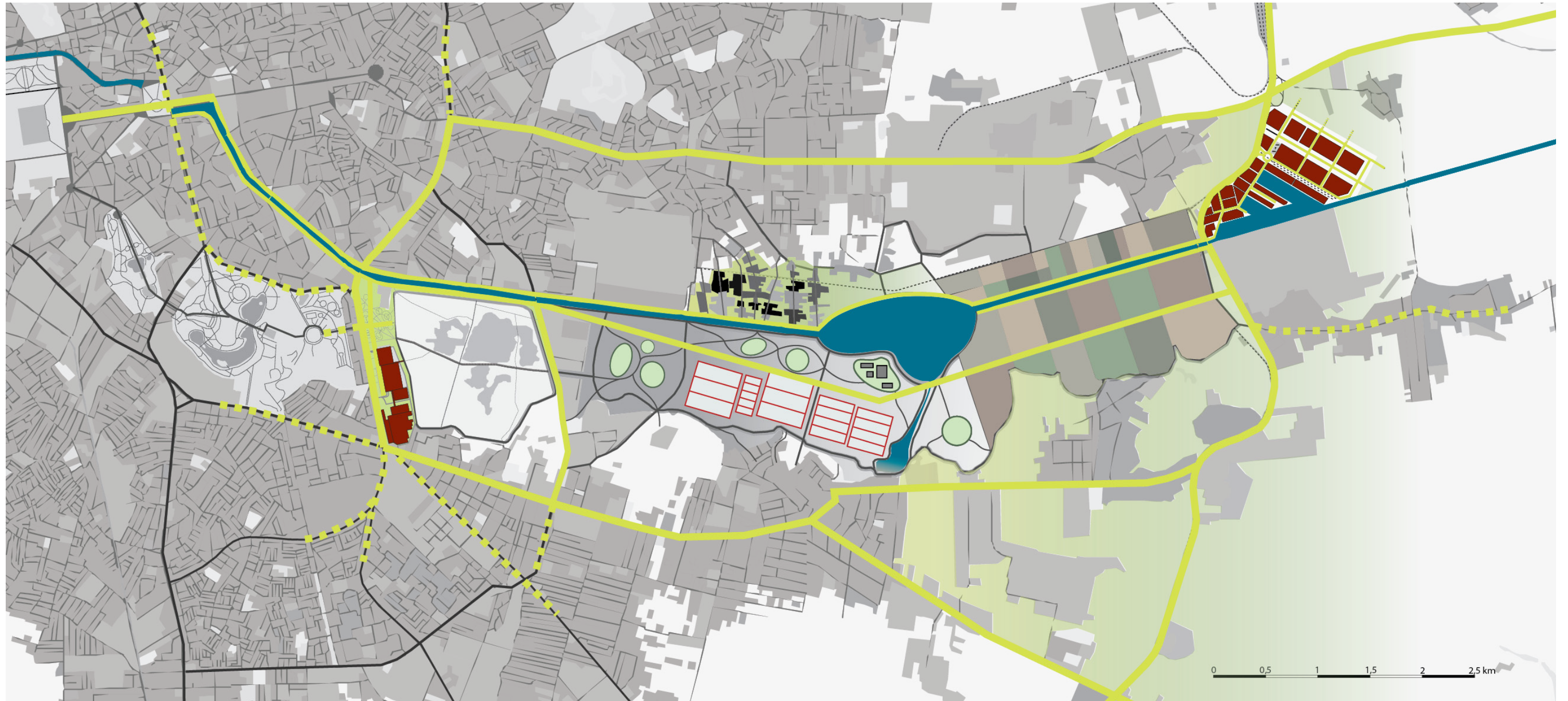


# Ecological part of the structure



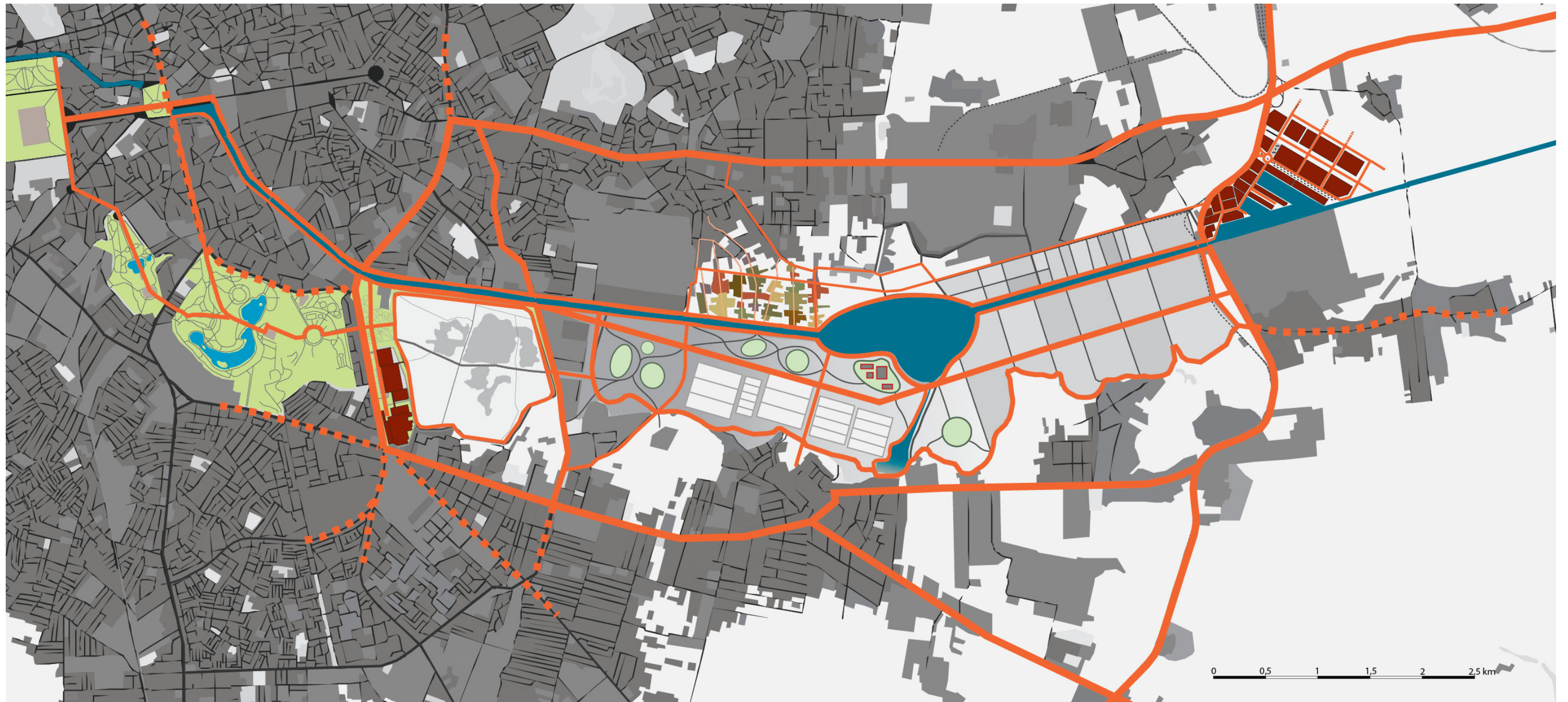


# Agricultural part of the structure



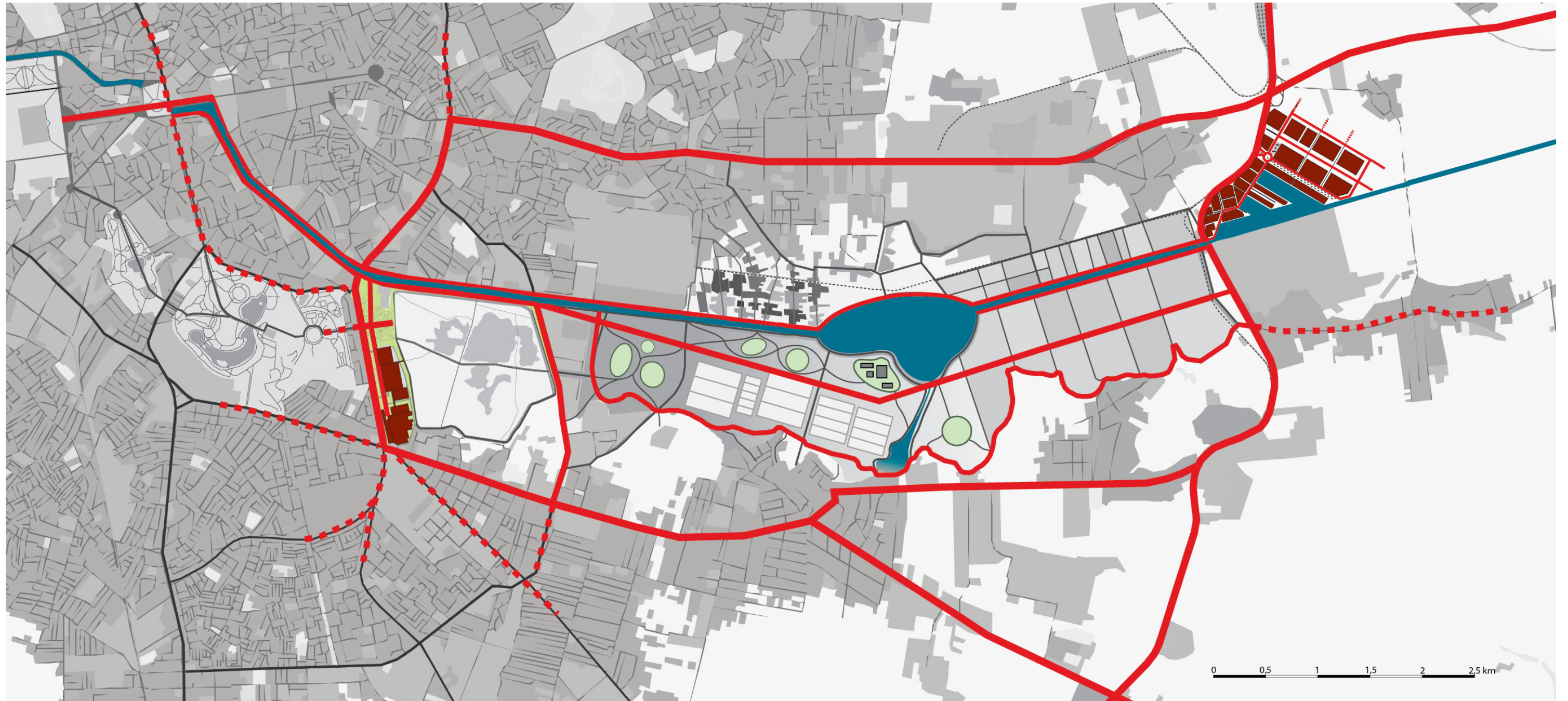


# Urban part of the structure





# The main (overlapping) structural parts





# Section of the basic structure profile



section & materialization

$$\boxed{\text{E}} + \boxed{\text{A}} + \boxed{\text{U}}$$

All flows must be accommodated



City - - - - - >  
Relationship between the flows





# Bucharest Food Trade Centre & Glina Harbour



reference: Food Centre Amsterdam  
26ha



reference: Rungis, Paris  
232ha

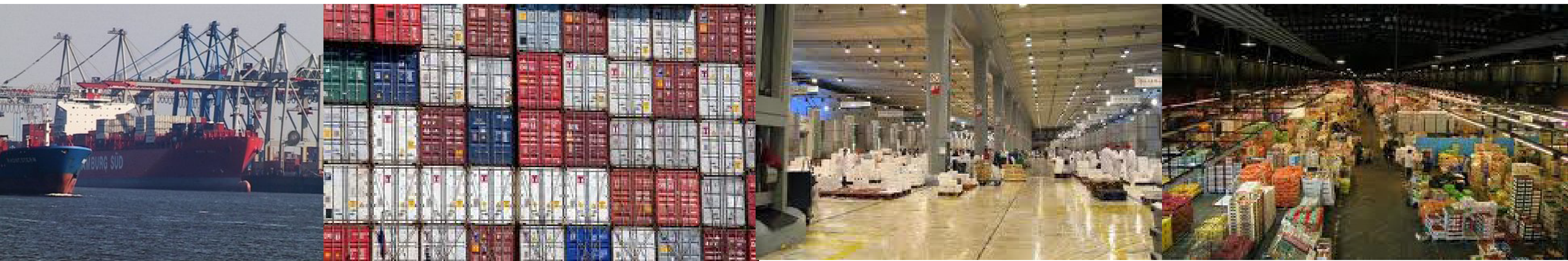




# References & Impressions for Bucharest Food Trade Centre



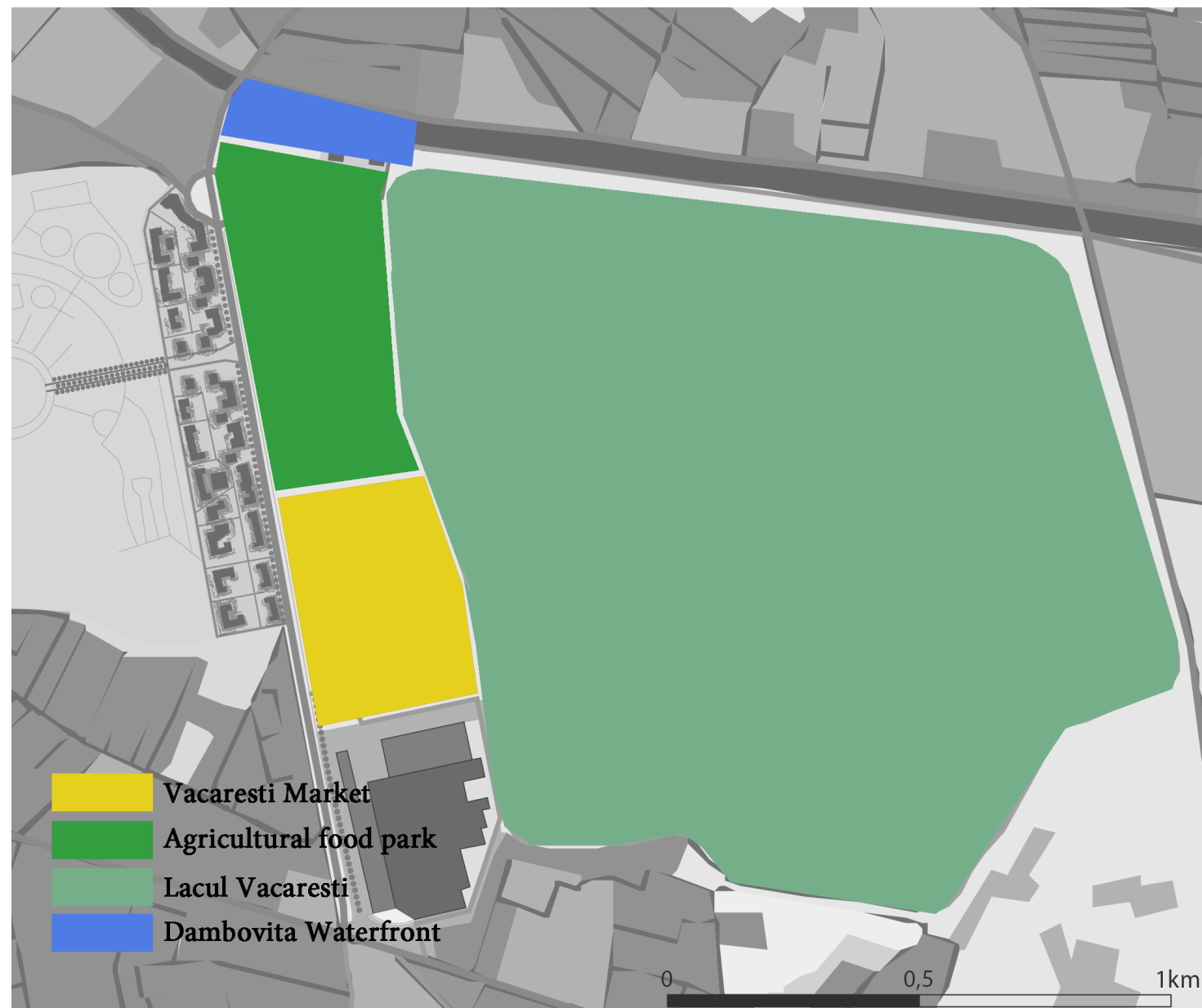
section of the harbour, Bucharest Food Trade Centre and the outer ring road of Bucharest



reference images



# Vacaresti Market site



4 parts



current situation







# Vacaresti Market site



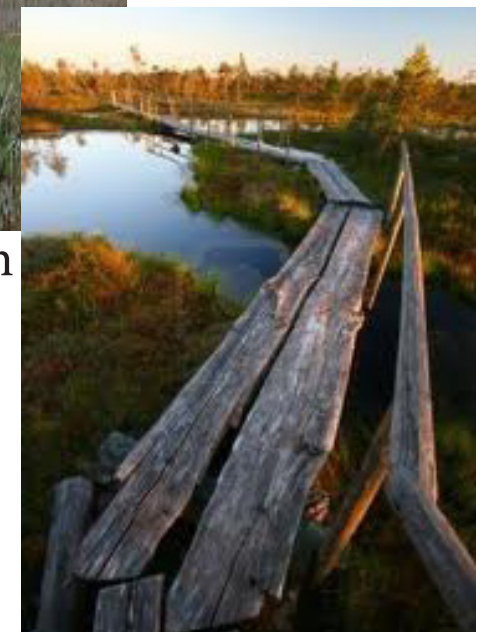
First part of Vacaresti Market  
Basic lay-out agricultural food park  
Wooden footbridges in Lacul Vacaresti  
Water square & recreational harbour



Impressions of the market  
function in the beginning



Impression of the wooden  
footbridges

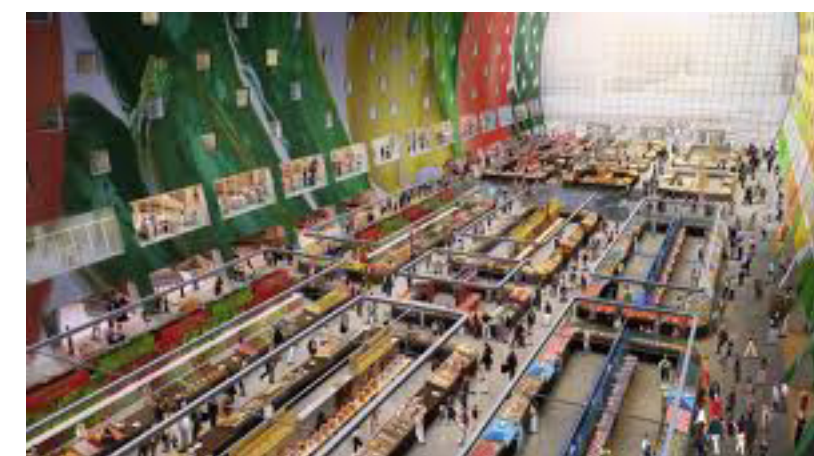




# Vacaresti Market Site



Second part of Vacaresti Market  
Organic paths in food park



Reference for Vacaresti Market: Markthal  
Rotterdam, designed by MVRDV & INBO  
(<http://www.markthalrotterdam.nl>)







# Impression of Vacaresti Market Site



Birdseye impression of the site



Section of Vacaresti Market



# Impression Agricultural Food Park



Inside the Agricultural Food Park



# Crops from the Agricultural Food Park



Tree lanes



Flower fields



Fruit orchards



Vegetable fields



# Impression of the edge Lacul Vacaresti



From the edge of Lacul Vacaresti



# Impression of the water square



Reference: sea organ Zadar

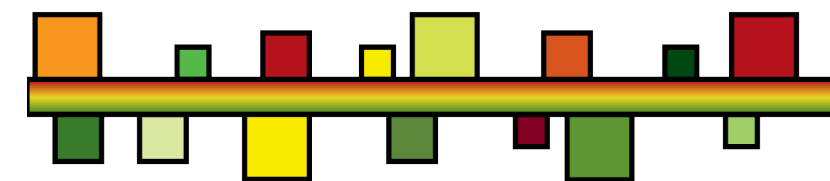
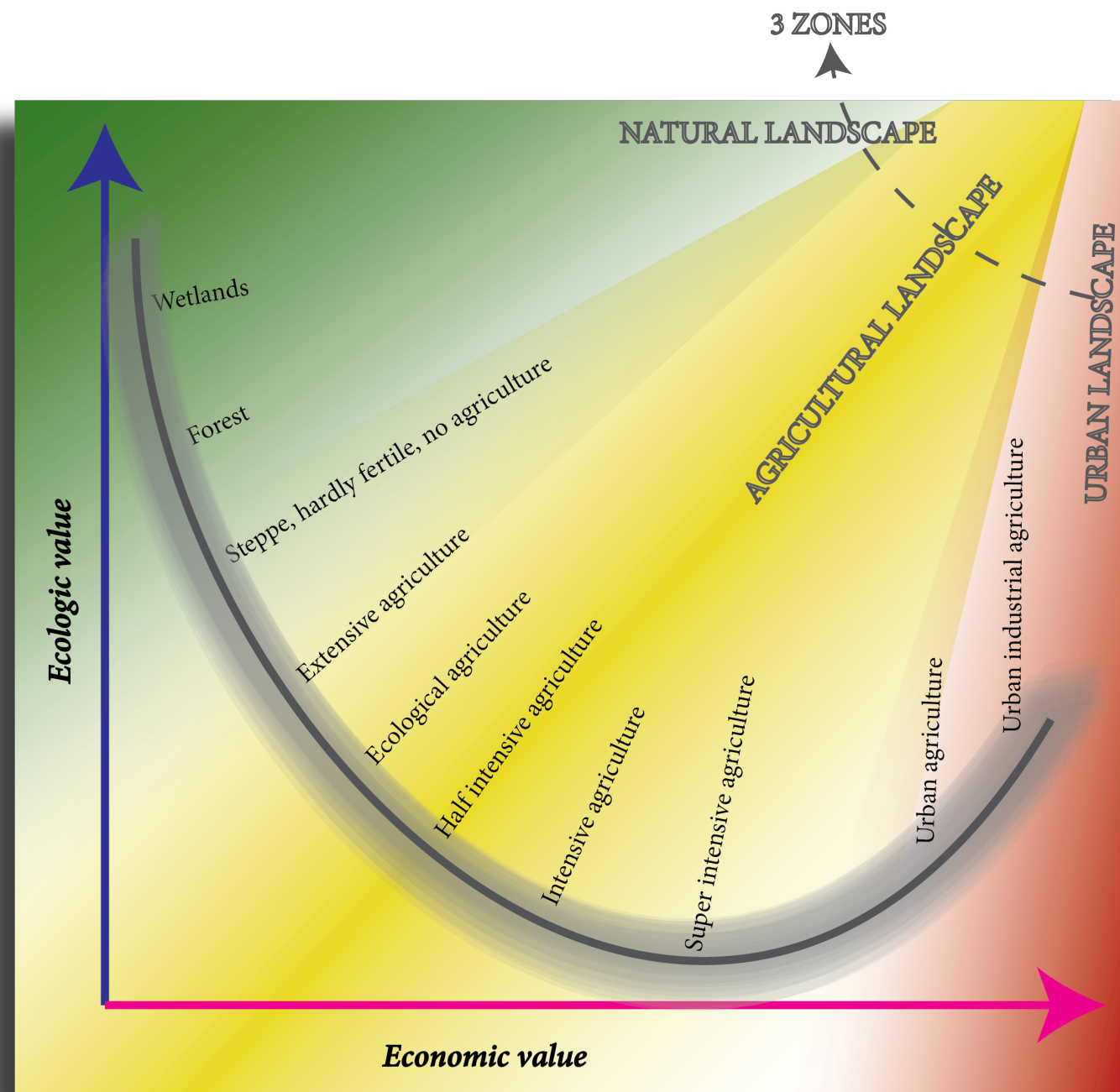




# Summary

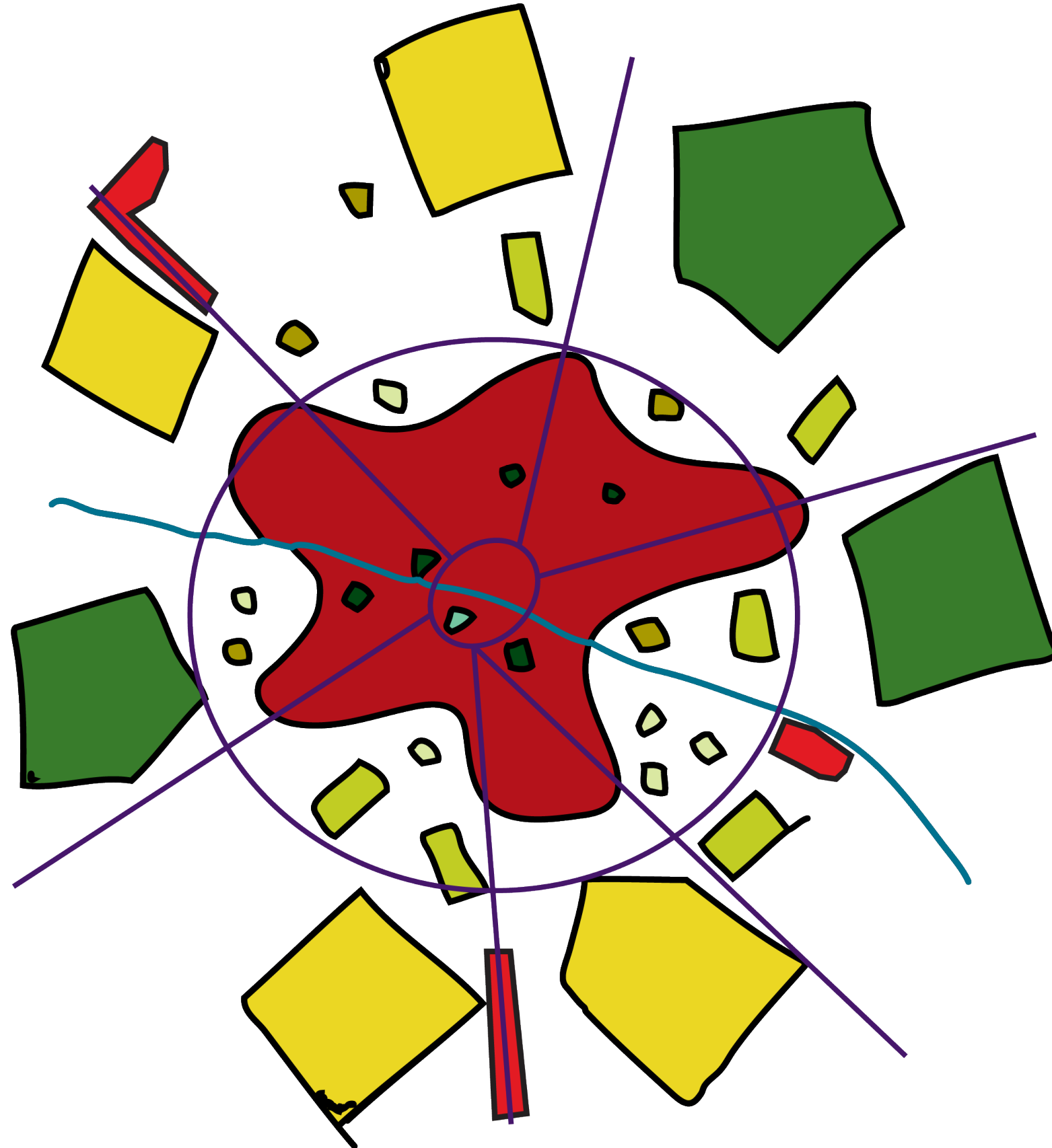
E + A + U

S M L



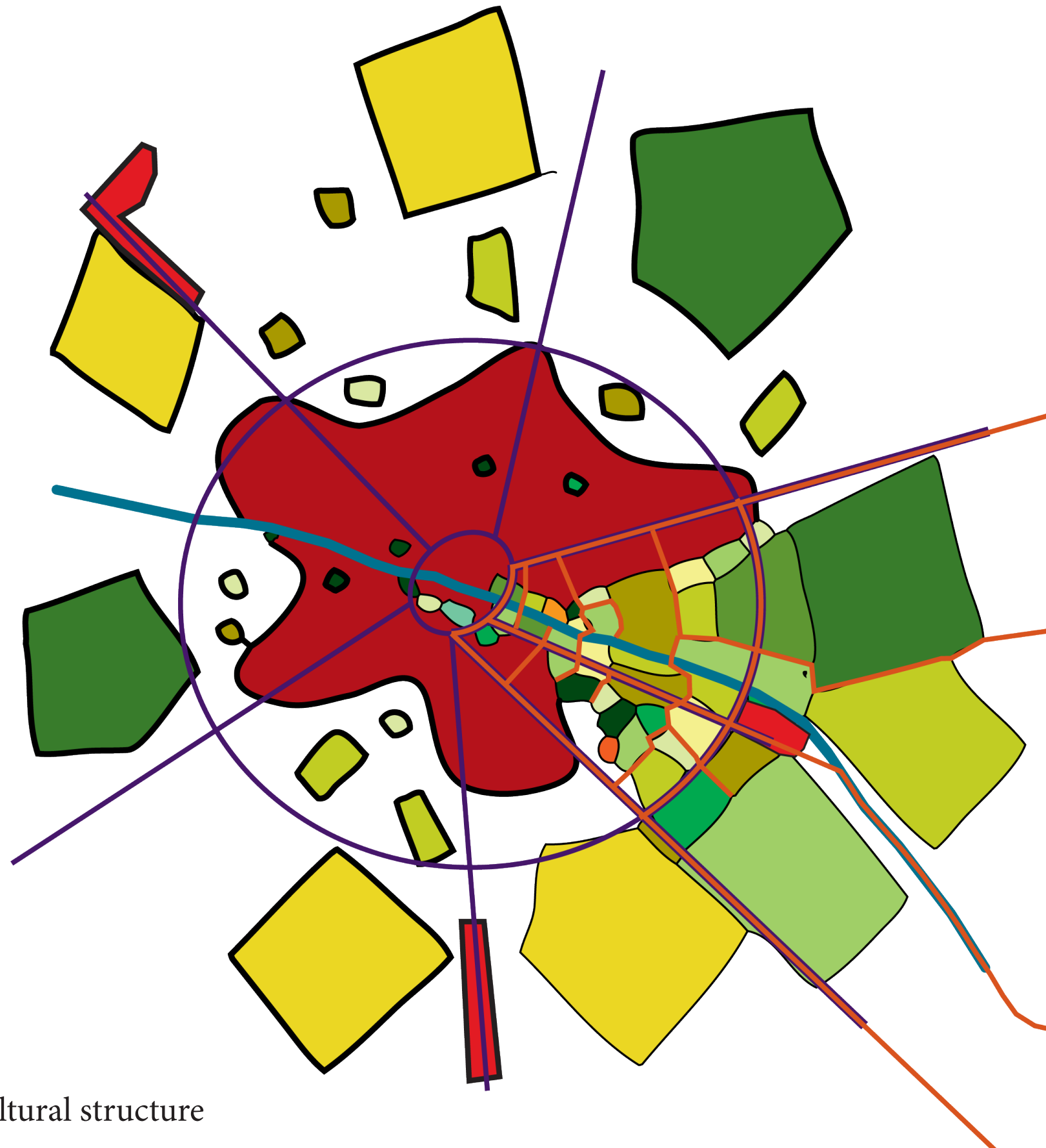


# Future potential of implementing the concept in spatial design



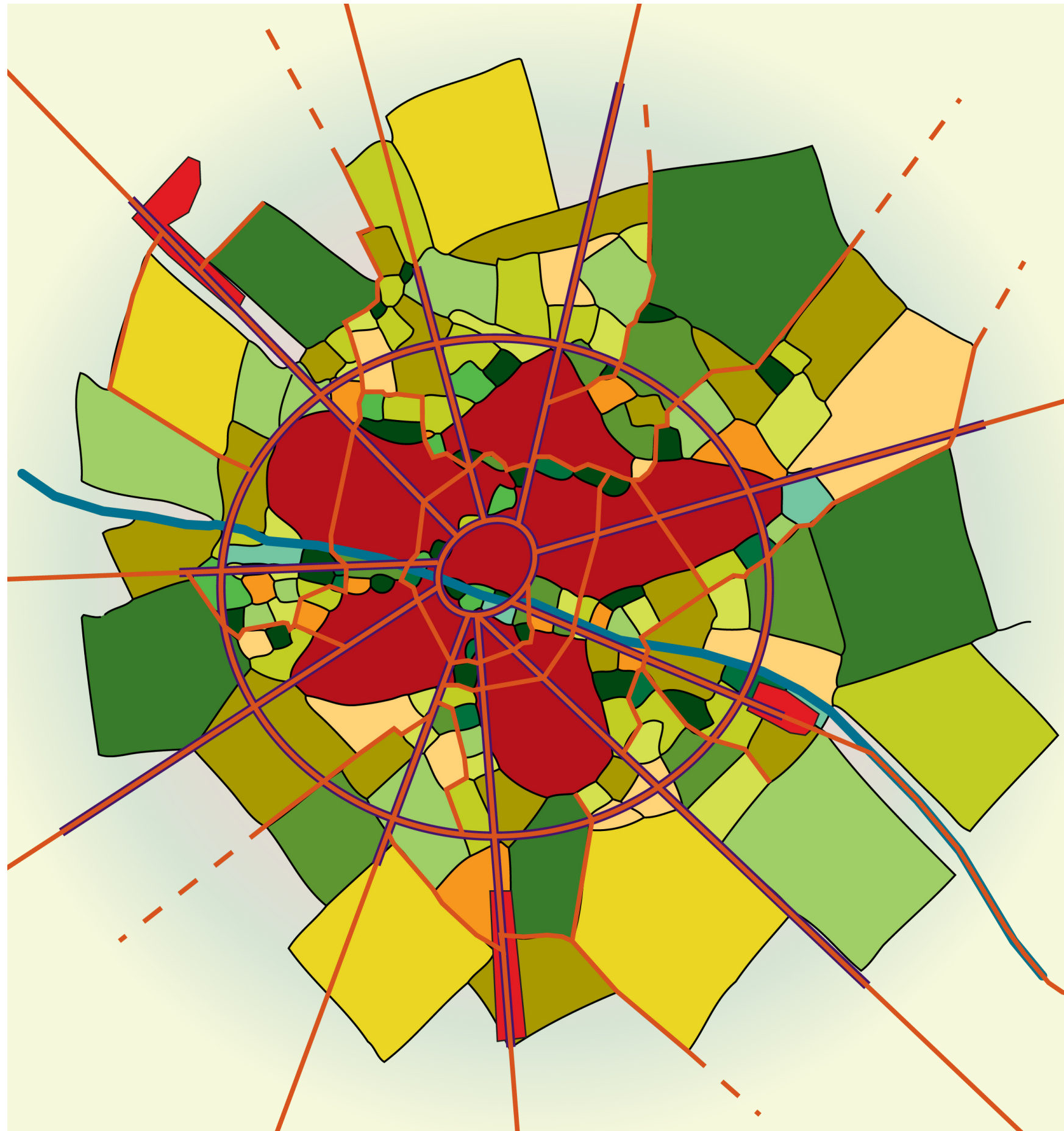
Current situation





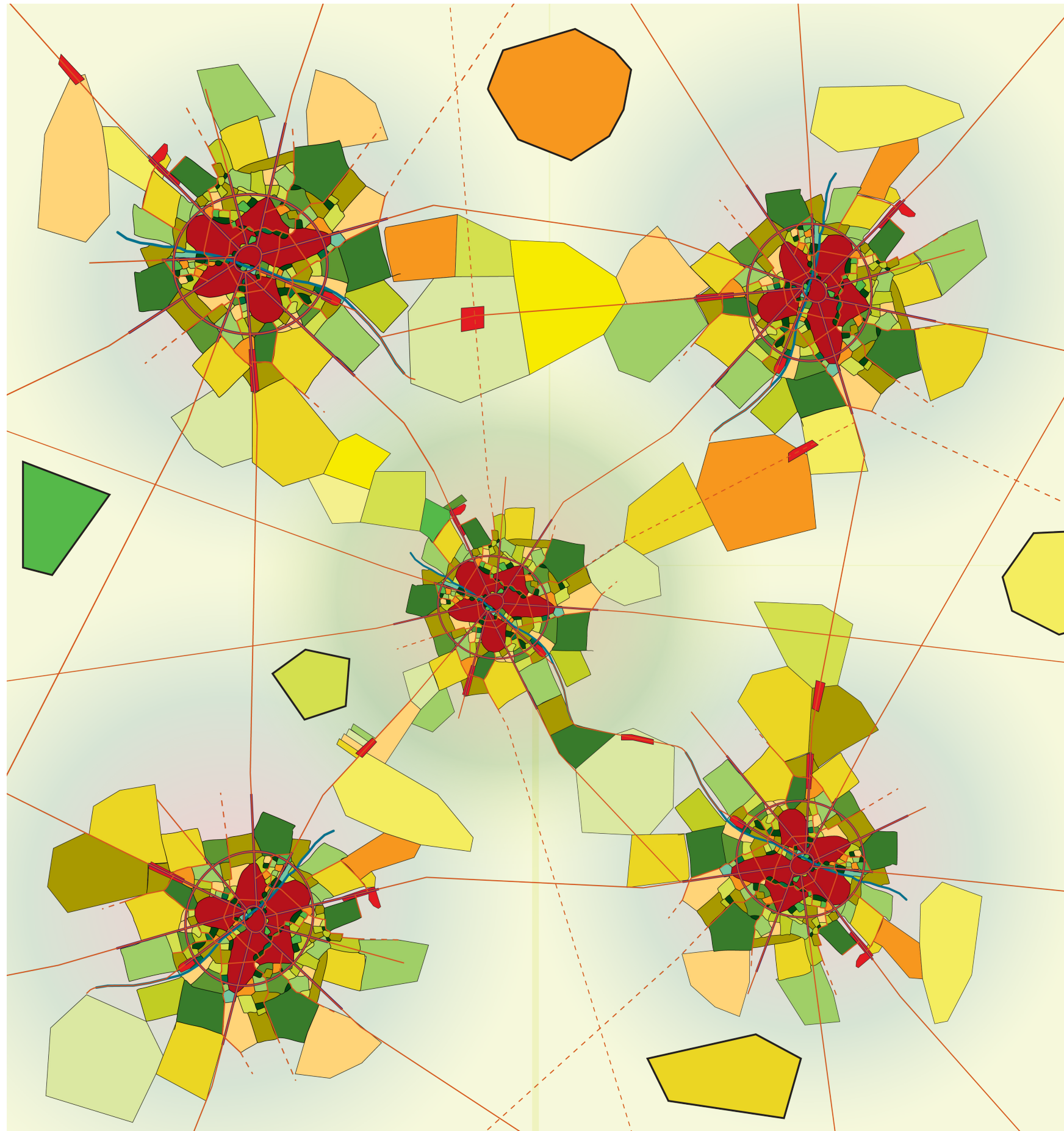
Impact of this metropolitan agricultural structure





continuing the structure  
around Bucharest





Connecting super regions  
with metropolitan agricul-  
tural structures



**It's all about finding a sustainable balance!**





