

Vybrané geografické aspekty populačného vývoja v KSK

EastGIS 2023



Potenciál využitia
GIS pre regionálny rozvoj
30. 11. — Hotel Yasmin / Košice
1. 12. — Technicom / Košice

**LADISLAV NOVOTNÝ, JANETTA NESTOROVÁ DICKÁ,
MARIÁN KULLA, LORÁNT PREGI, KATARÍNA ONAČILLOVÁ**
UNIVERZITA PAVLA JOZEFA ŠAFÁRIKA V KOŠICIACH
PRÍRODOVEDECKÁ FAKULTA
ÚSTAV GEOGRAFIE



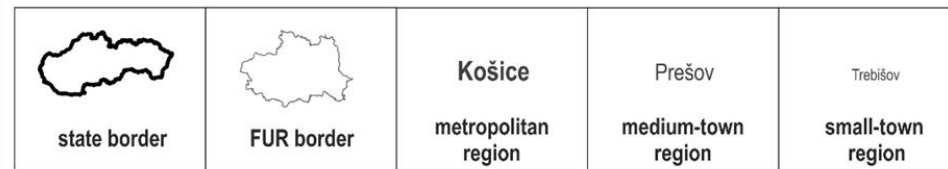
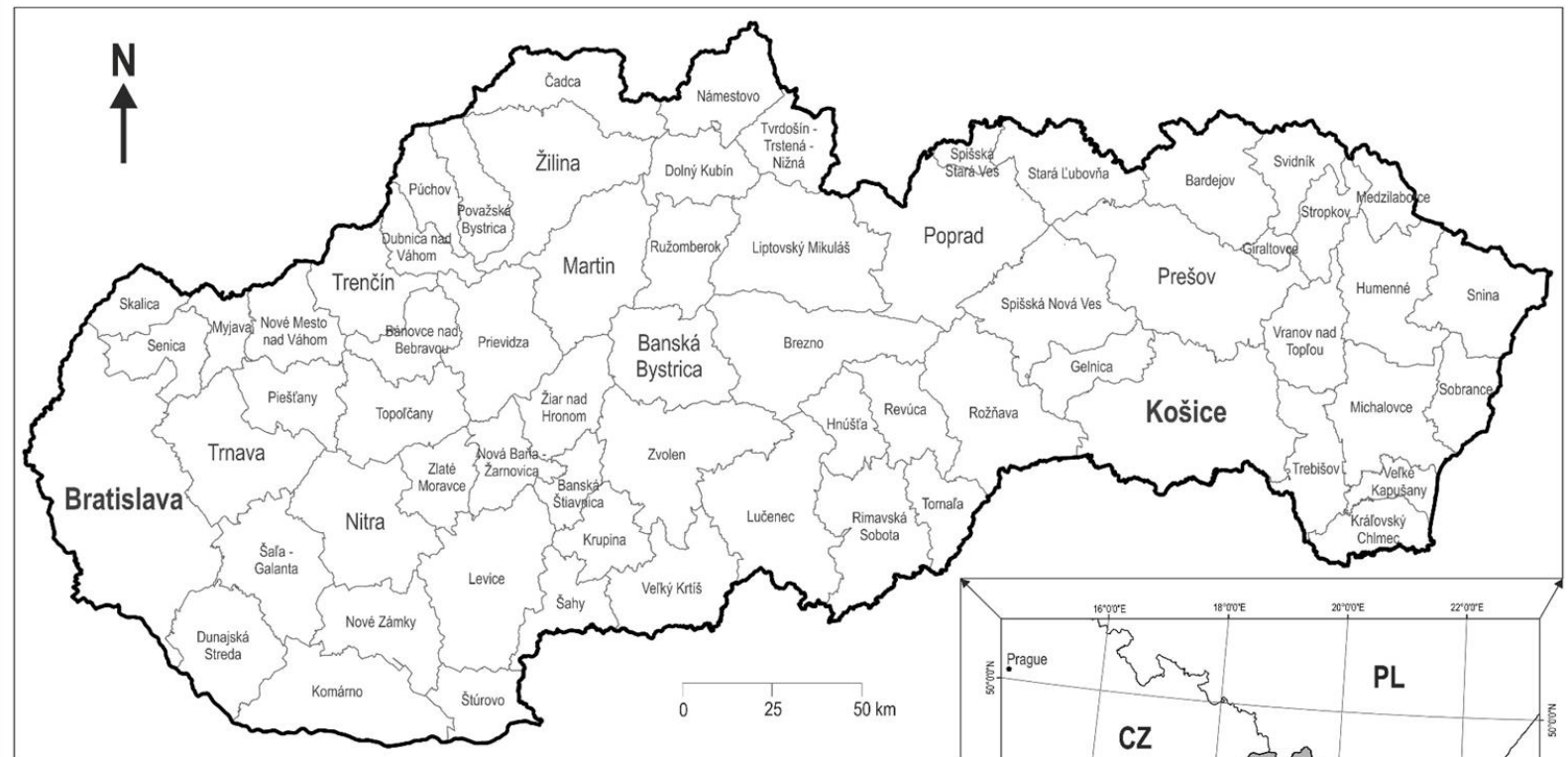
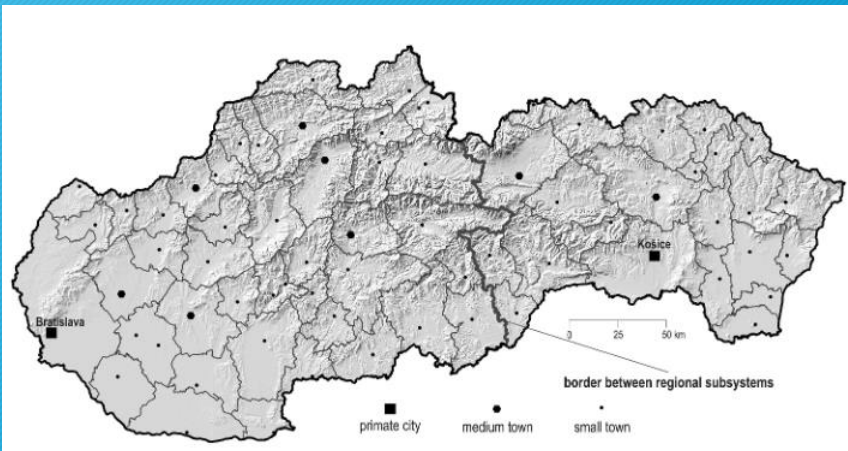
Selected geographic aspects of population development in KSK

- Population development trends
 - migration – determinant of population development
- Projection to 2030 and 2050
 - selected effects
 - population change
 - change in structure by age – impact on public services (children, elderly)
 - heat islands
 - motorisation and commuting

Regional system – functional urban regions

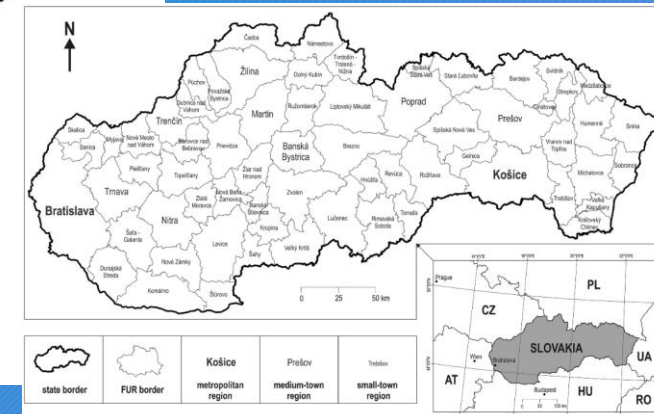
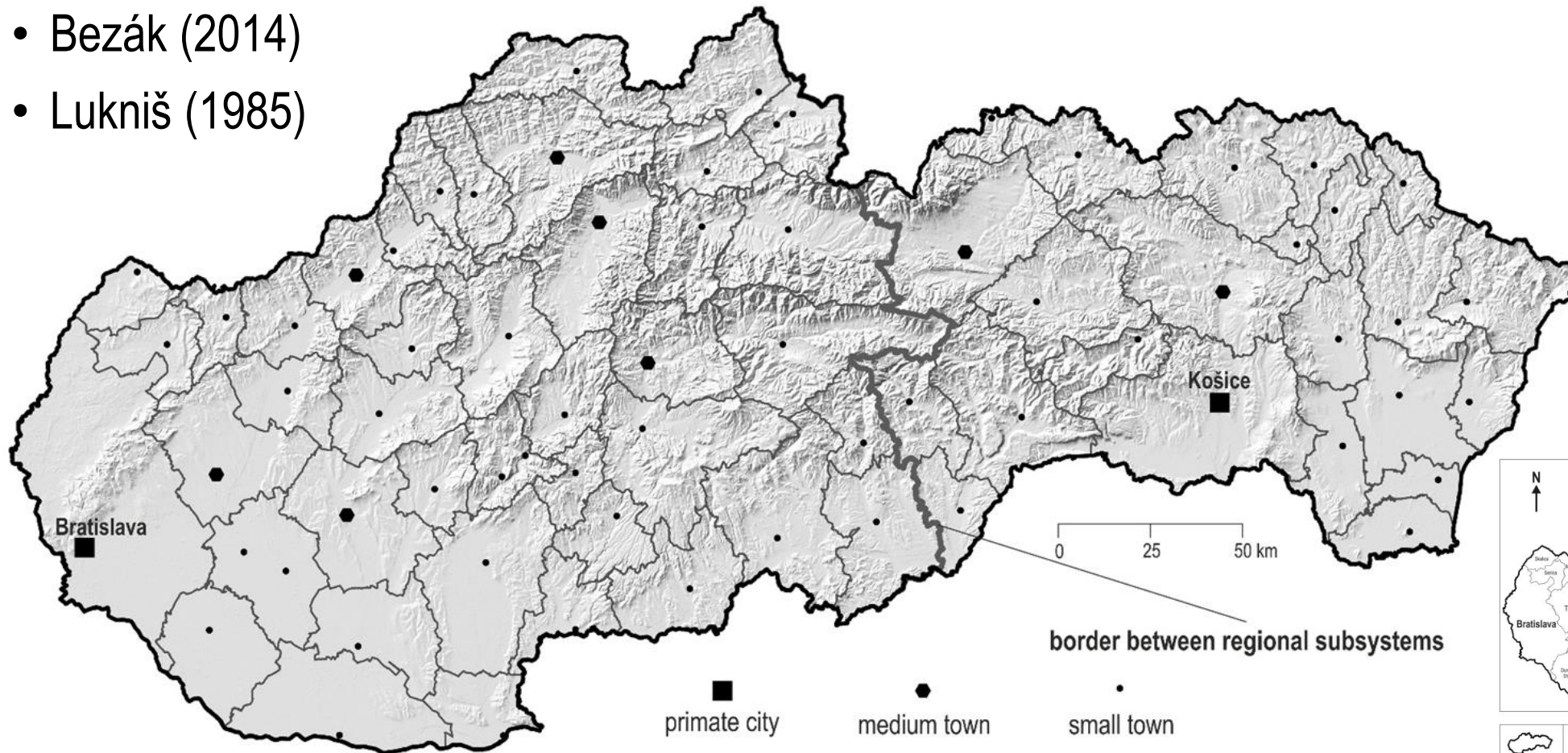
- FURs – regional concept applied in geographic research related to spatial mobility and redistribution of population

- Bezák (2014)



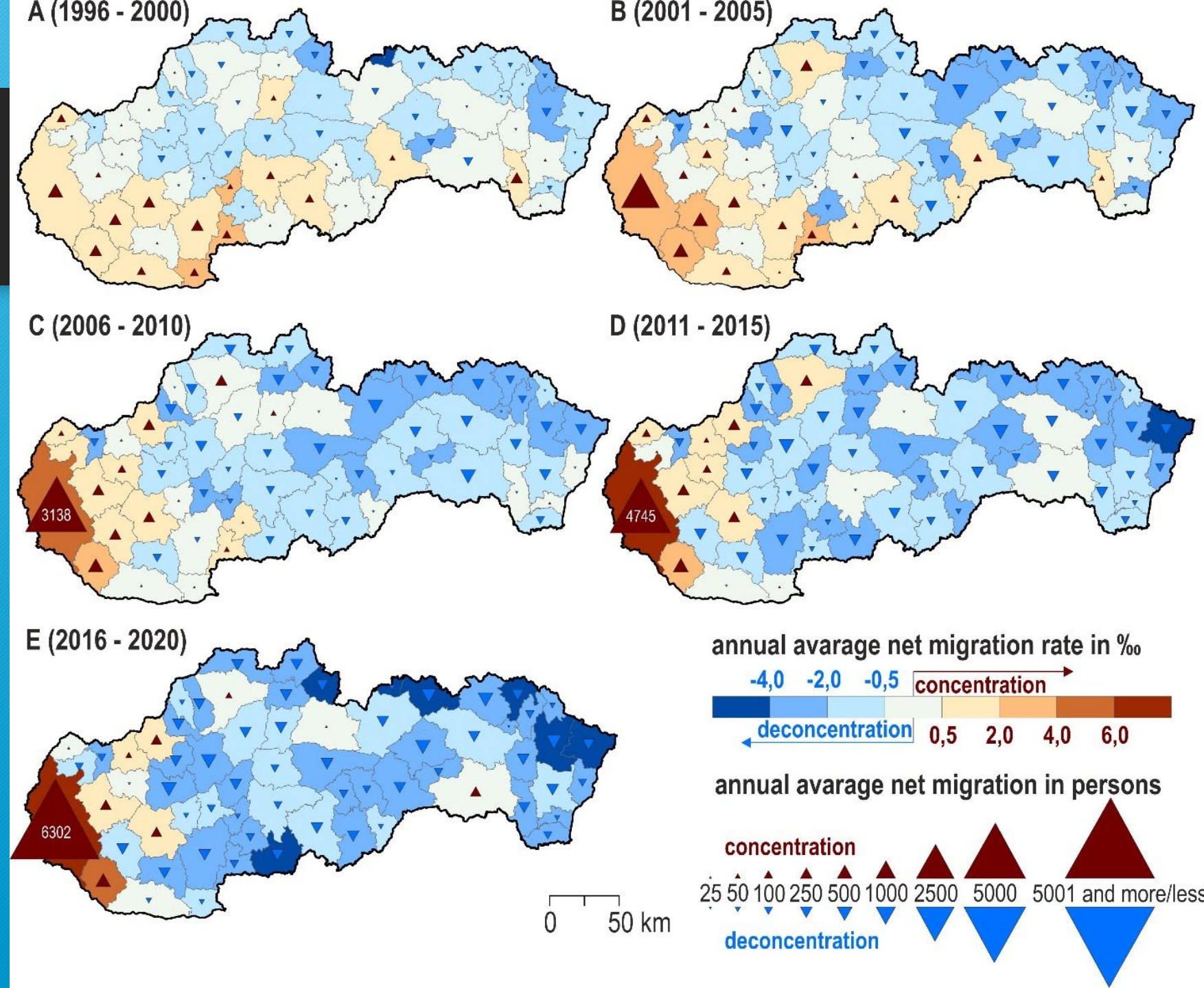
Bipolar regional system – two major subsystems

- Bezák (2014)
- Lukniš (1985)



Migration

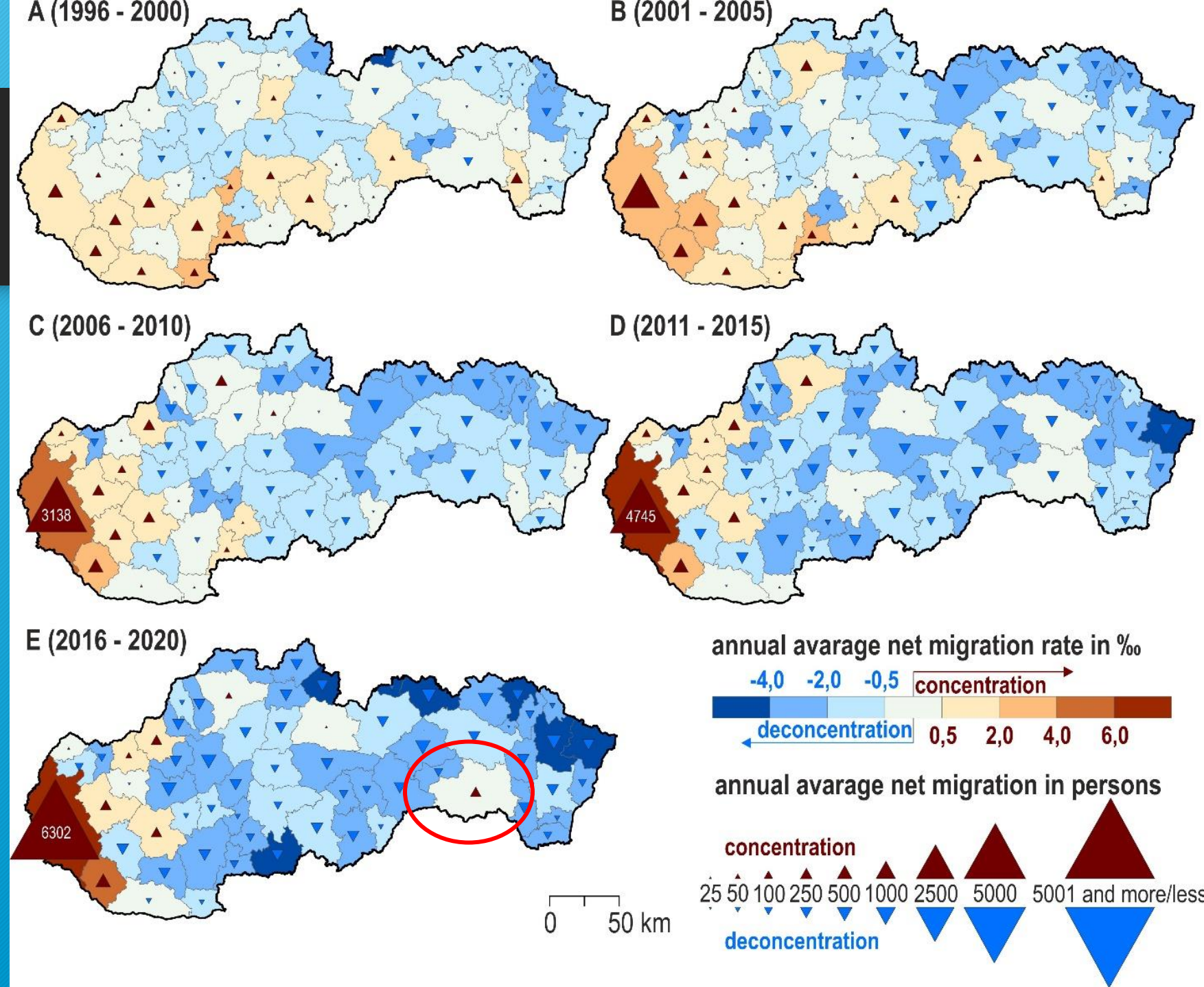
- Annual average net migration rate & annual average net migration



Migration

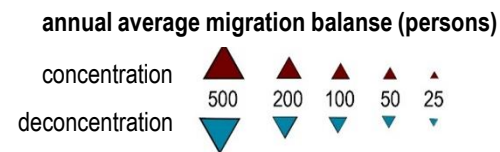
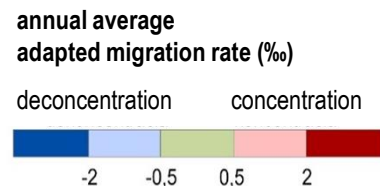
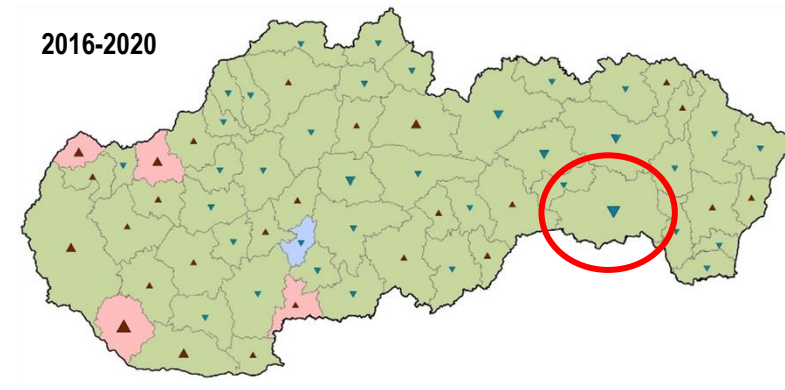
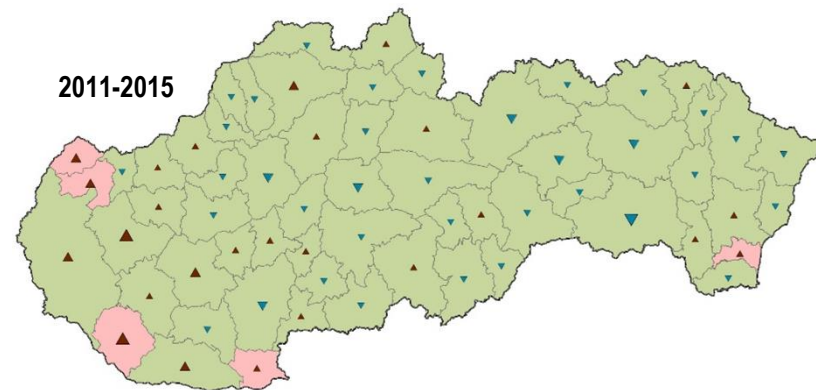
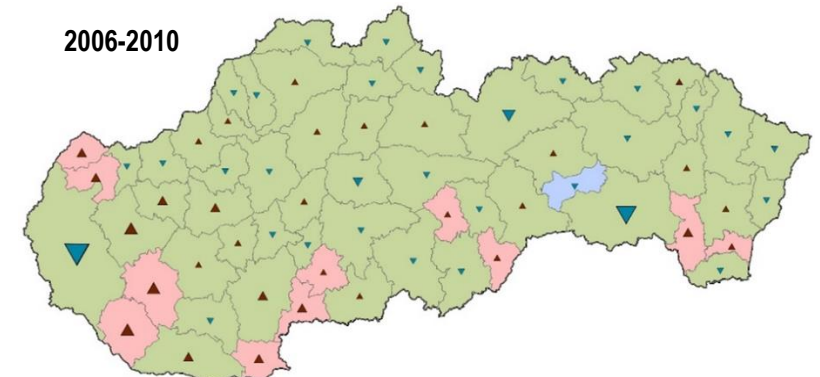
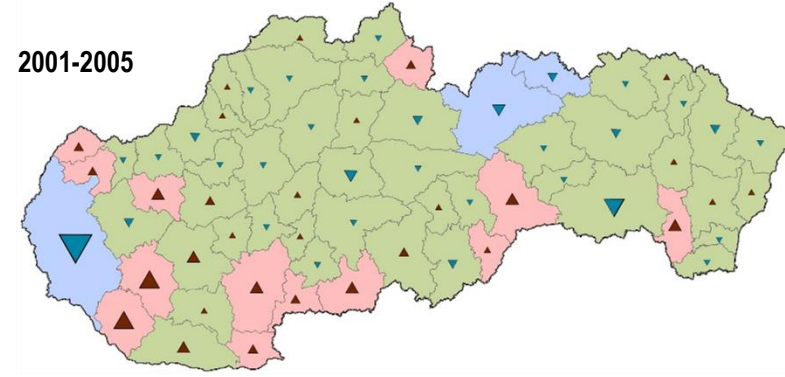
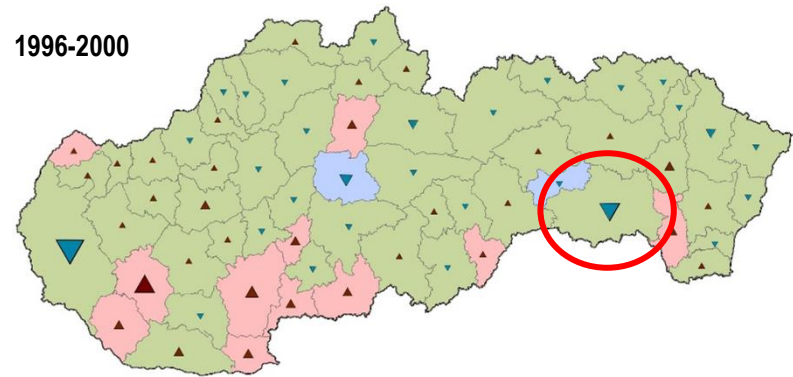
- Annual average net migration rate & annual average net migration →

- spatial polarisation
- loss in majority of FURs
- concentration to Bratislava
- metropolisation
- emergence of new pole of growth in Košice?
- growth of east-to-west migration
- internal migration dominating in both subsystems



Interregional migration

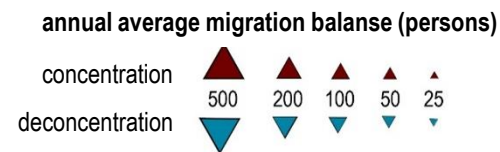
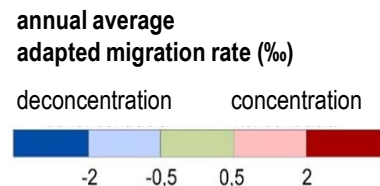
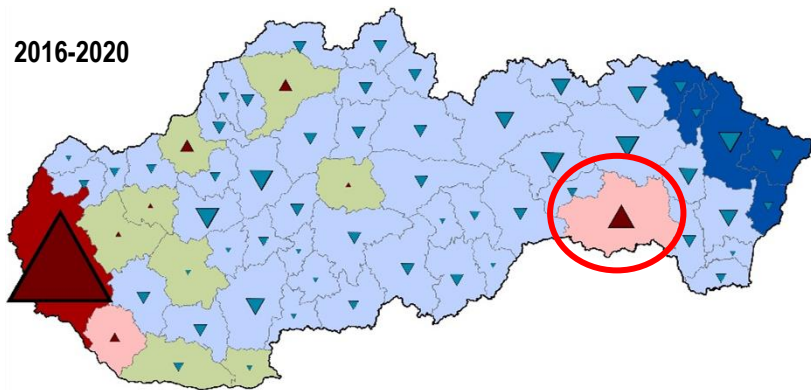
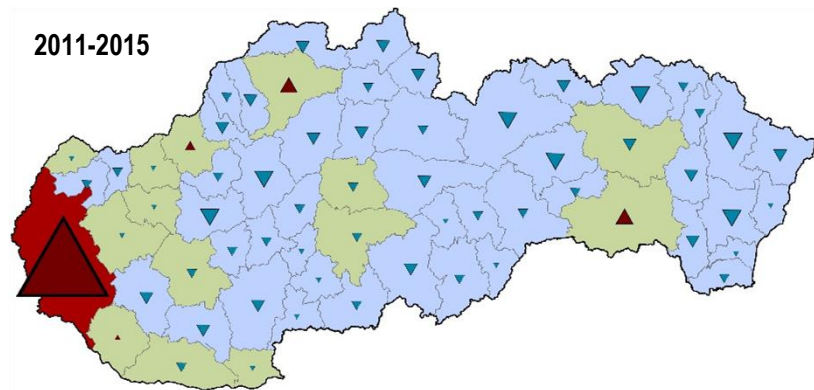
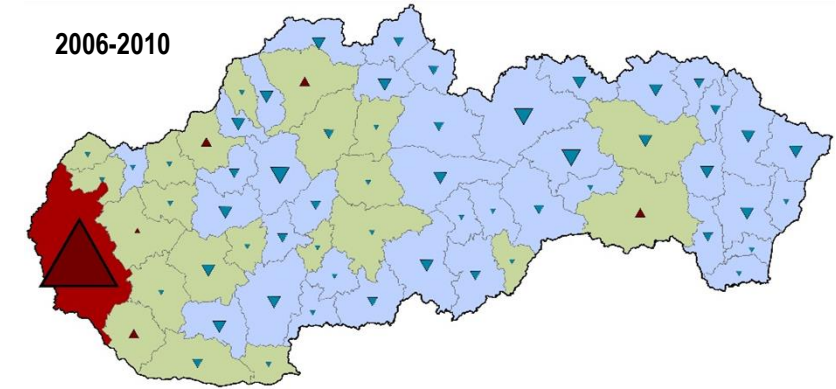
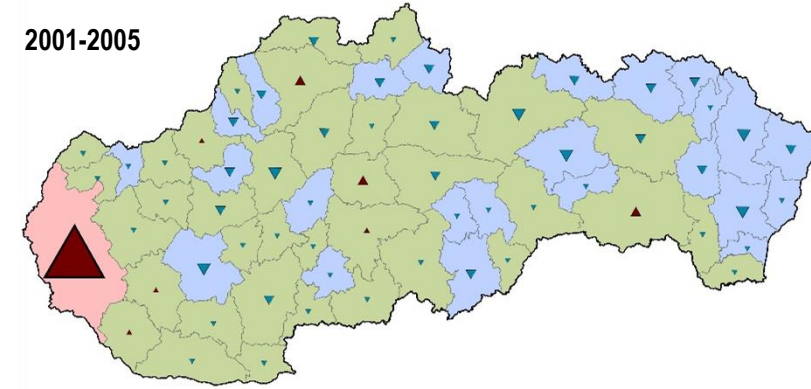
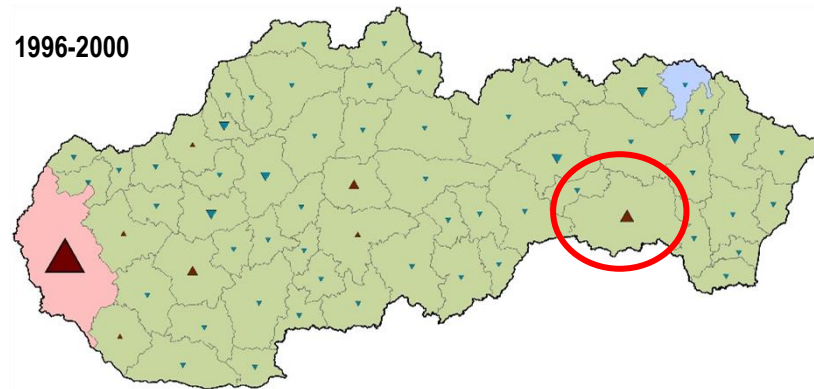
migrants with primary educational attainment



- No significant impact on spatial redistribution of population/human capital

Interregional migration

migrants with tertiary educational attainment

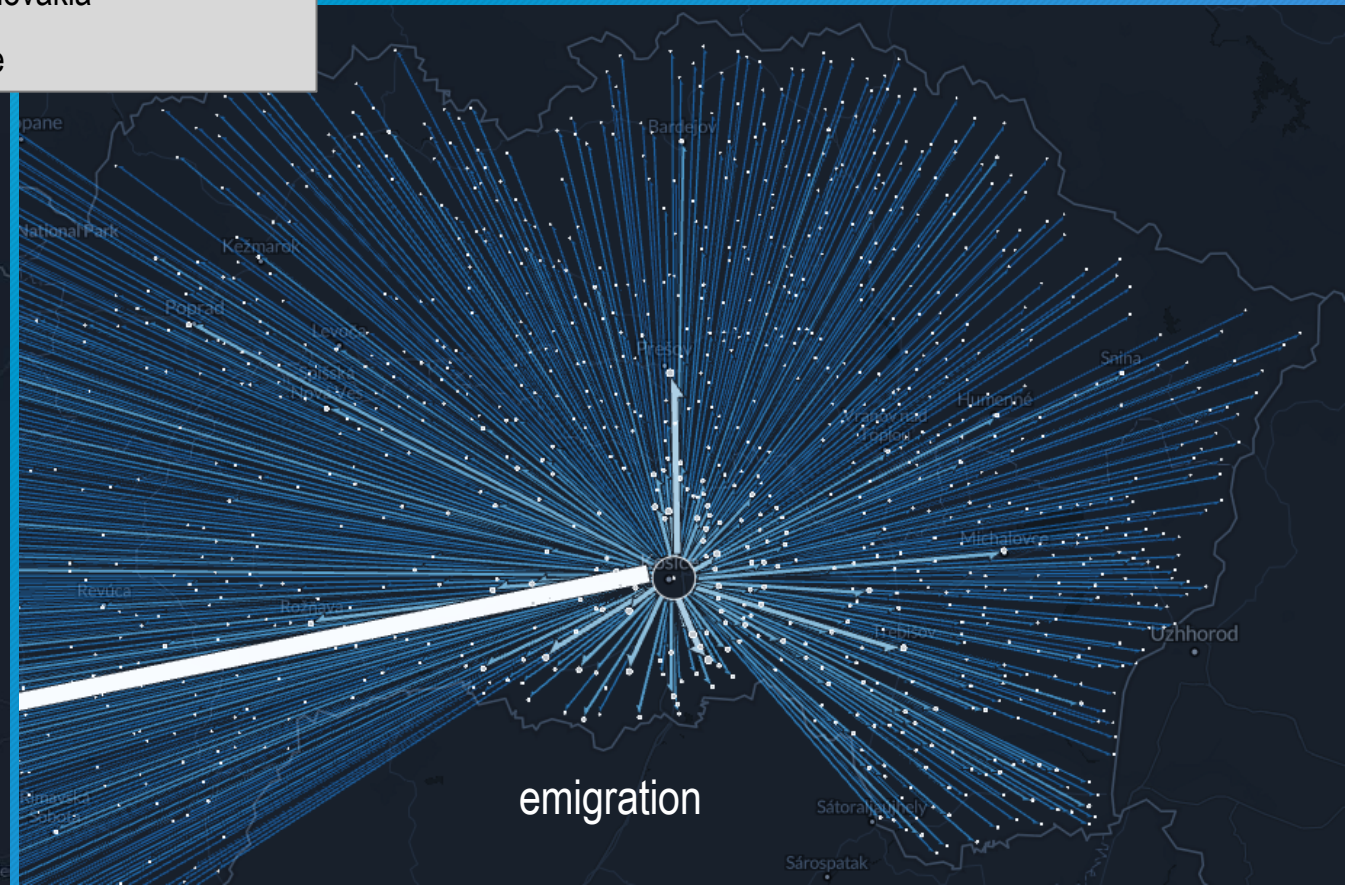
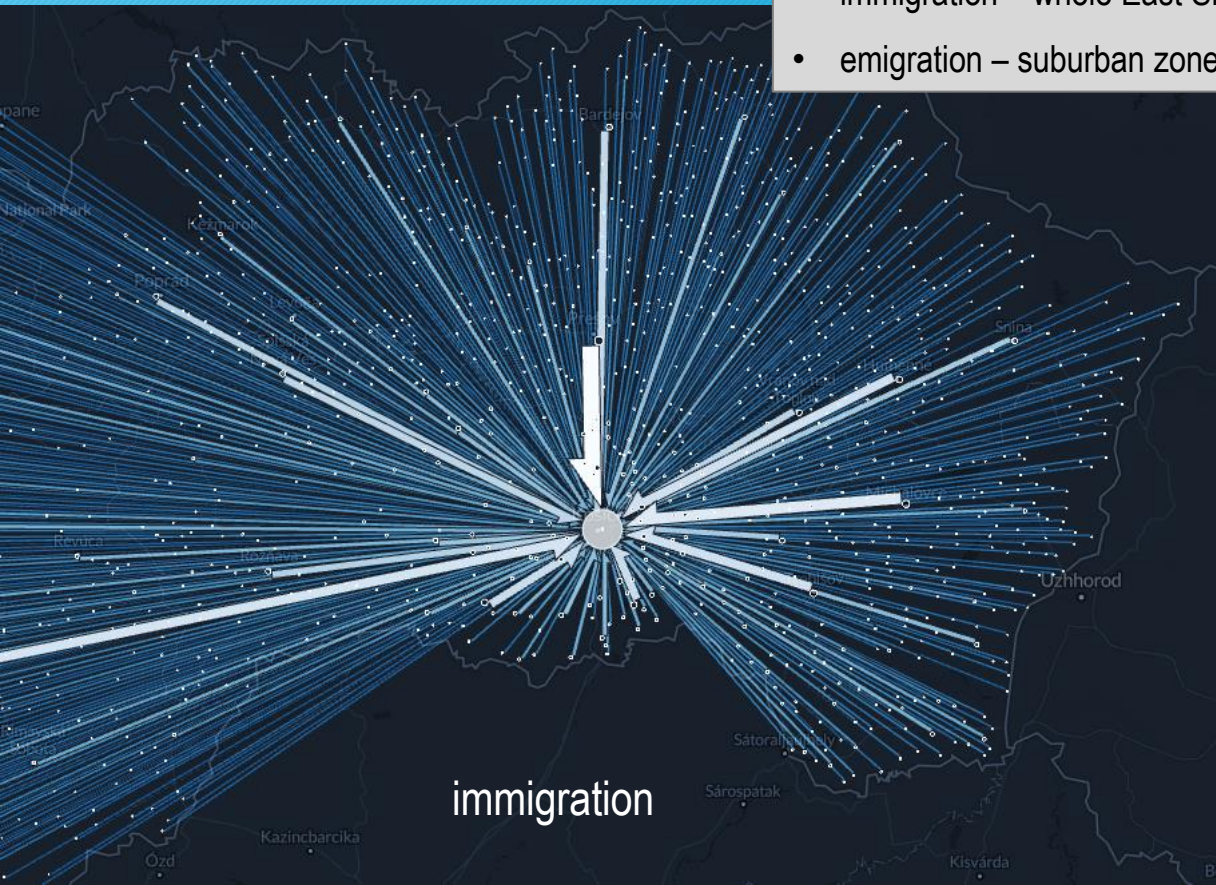


- increasing role
- significant impact on redistribution of human capital
- Košice FUR – valid complementary metropolitan region

Migration flows to and from Košice

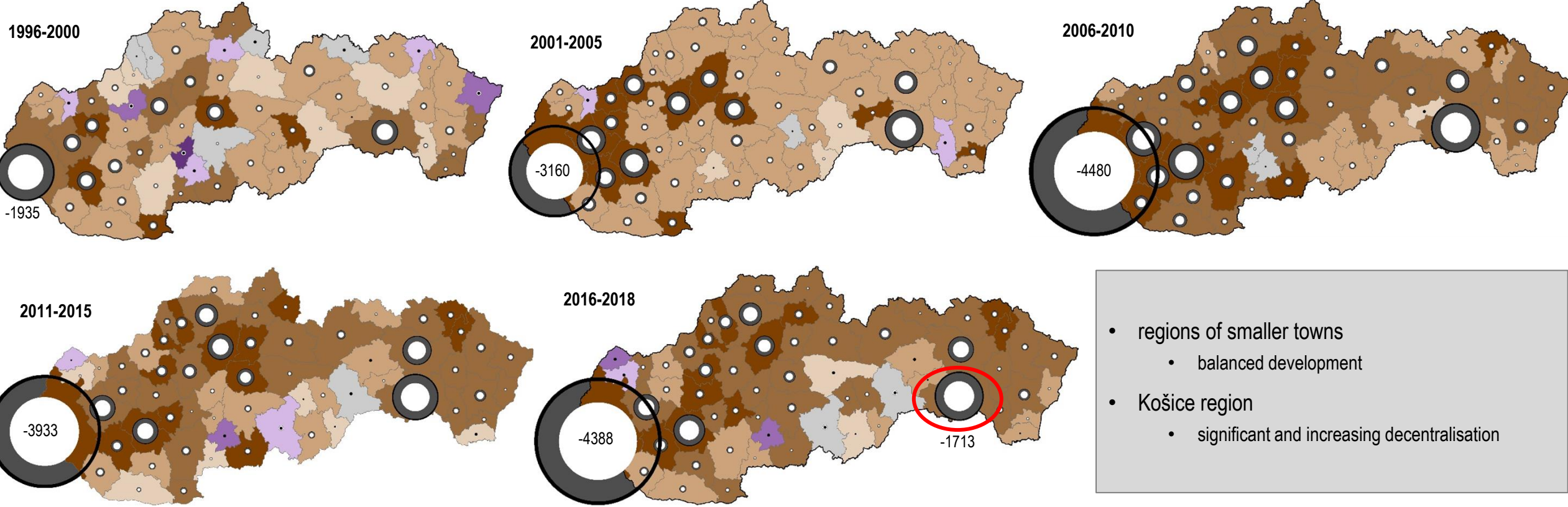


- Košice – supraregional importance
- immigration – whole East Slovakia
- emigration – suburban zone

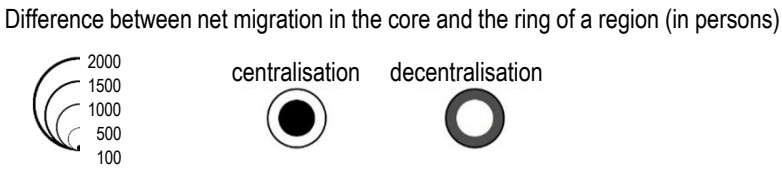
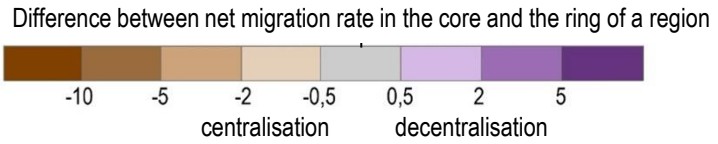


Intra-regional migration

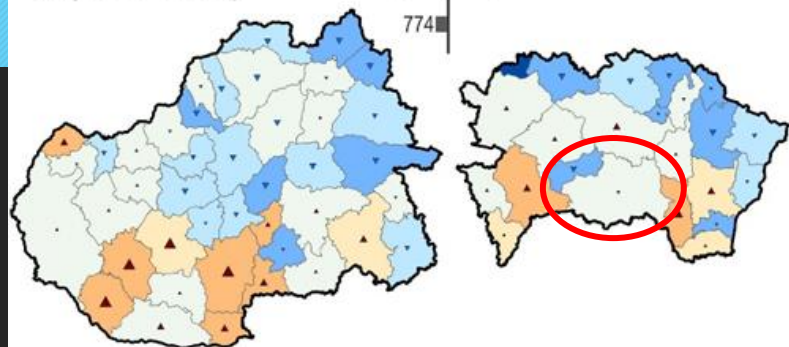
centralisation (urbanisation) vs. decentralisation (suburbanisation)



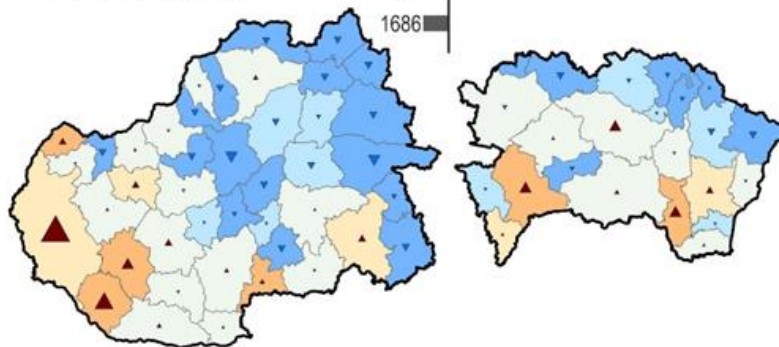
- regions of smaller towns
 - balanced development
- Košice region
 - significant and increasing decentralisation



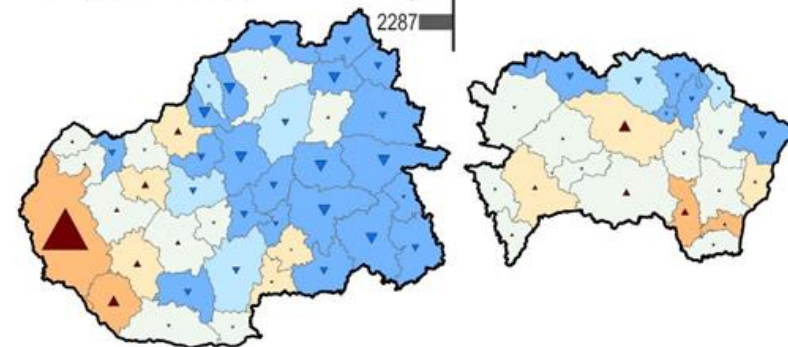
A (1996-2000)



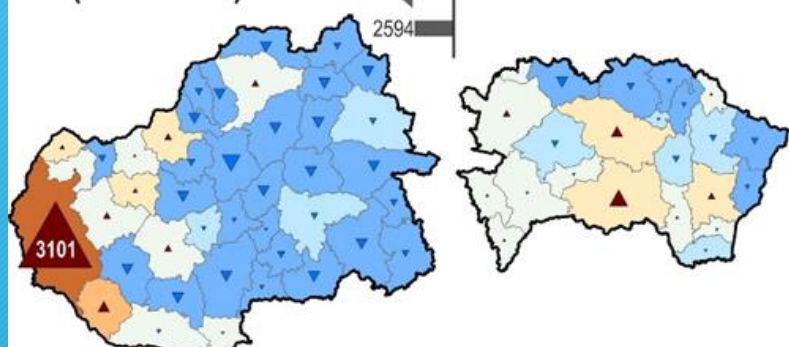
B (2001-2005)



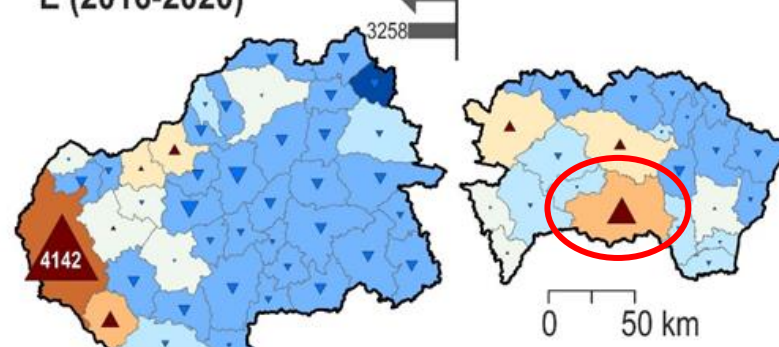
C (2006-2010)



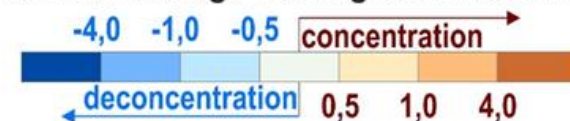
D (2011-2015)



E (2016-2020)



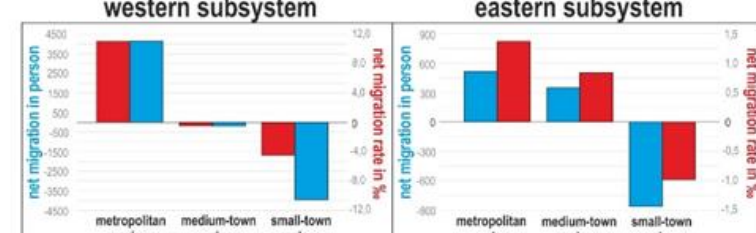
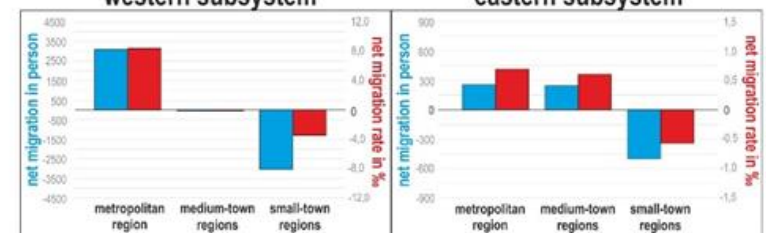
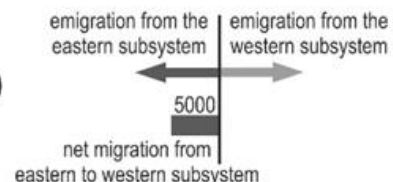
annual average net migration rate in ‰



annual average net migration in persons



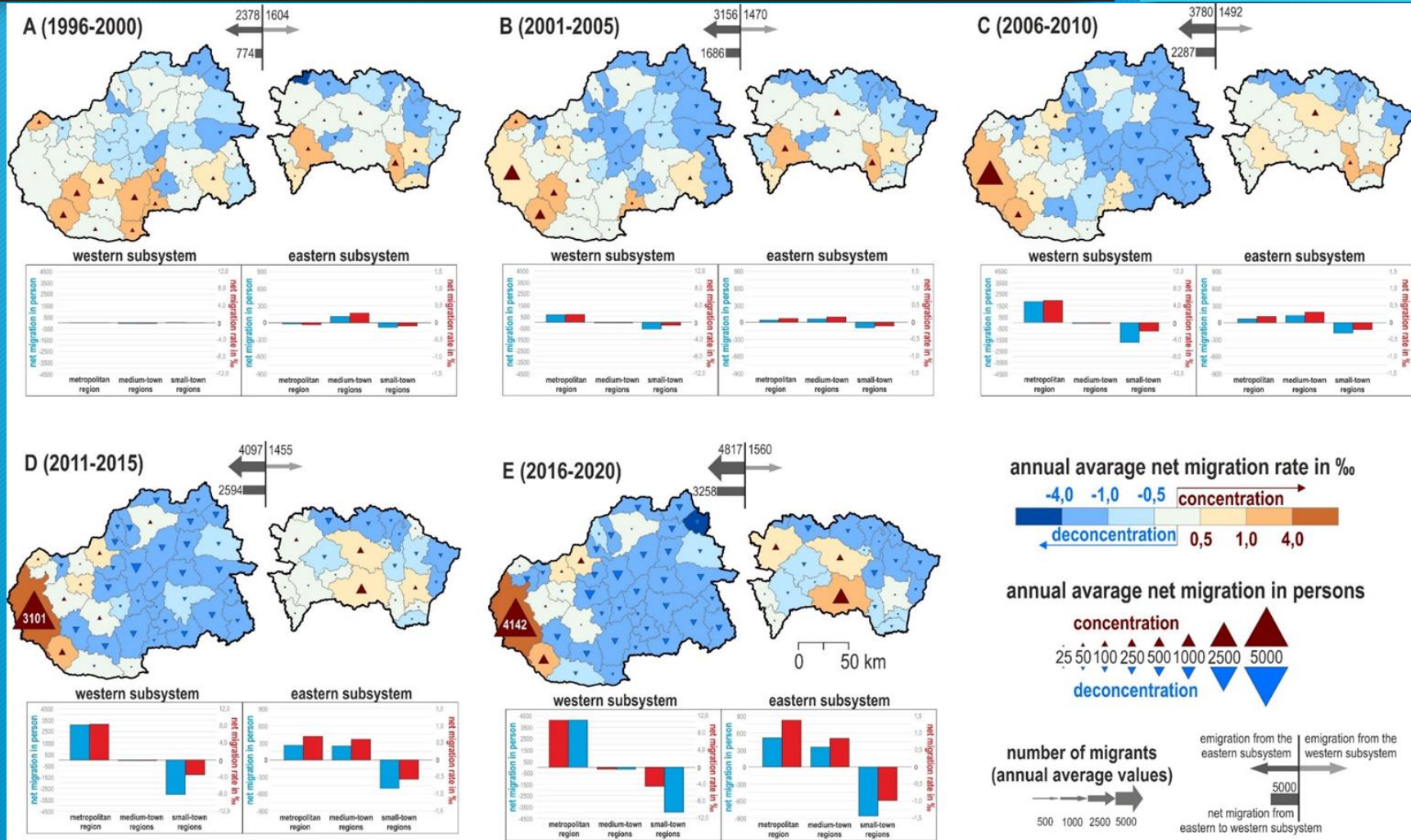
number of migrants
(annual average values)



Internal migration in east and west regional subsystems

- Annual average net migration rate & annual average net migration →

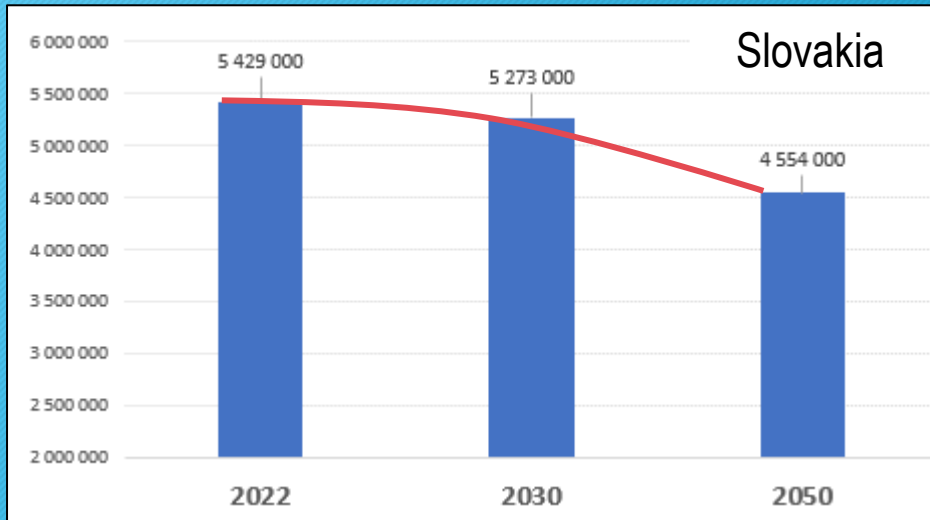
- hierarchical polarisation
- concentration to Košice region
- Košice region
 - growth
 - demographic decline in migration source regions
 - Will be able to attract migrants from the west?
 - Will international migration compensate migration loss?



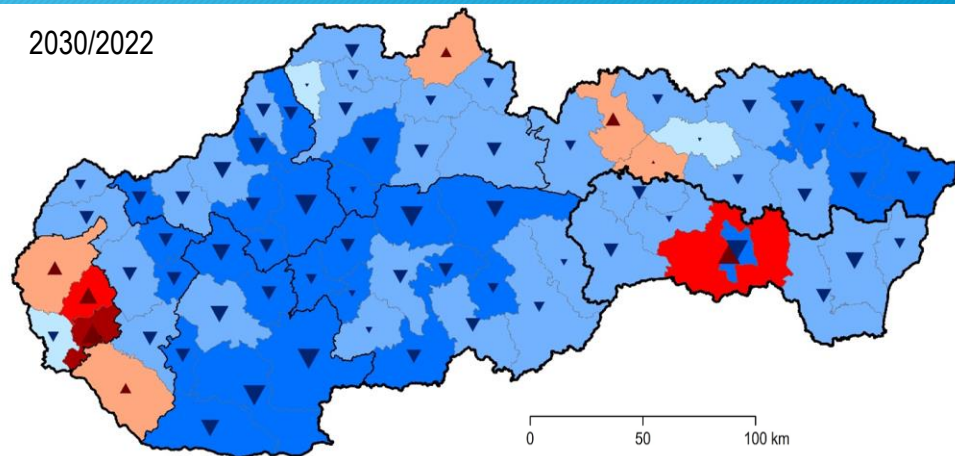
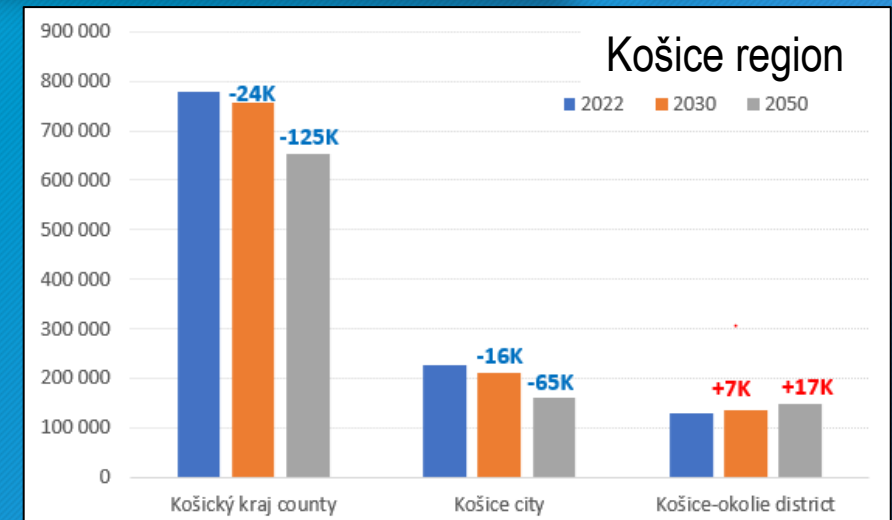
Population projection 2030 and 2050

- cohort-component method (how the population would evolve with current trends)
 - the components of population change included:
 - **fertility**
 - **mortality**
 - **internal migration**
 - not included:
 - international migration
 - potential changes in fertility, mortality, migration intensity and spatial patterns
 - basic spatial unit
 - community (municipality)

Population projection 2030 and 2050



- rapid population decline
- growth limited to suburban regions

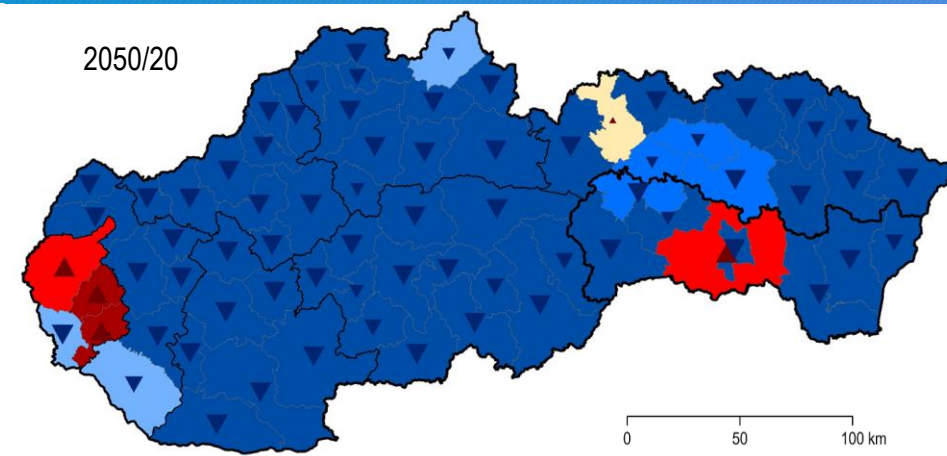


growth rate in %

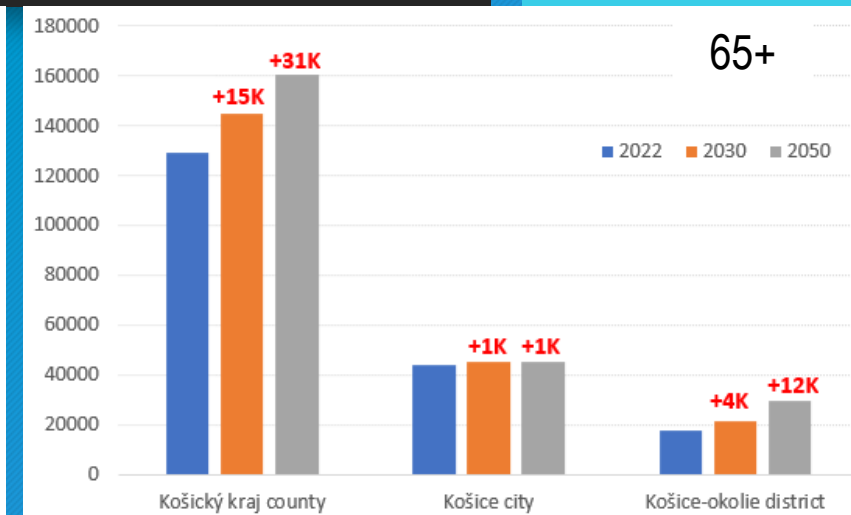
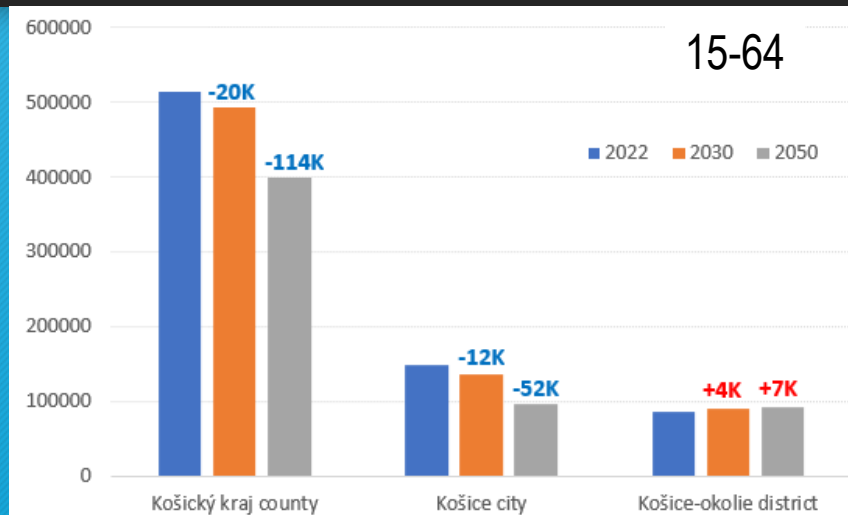
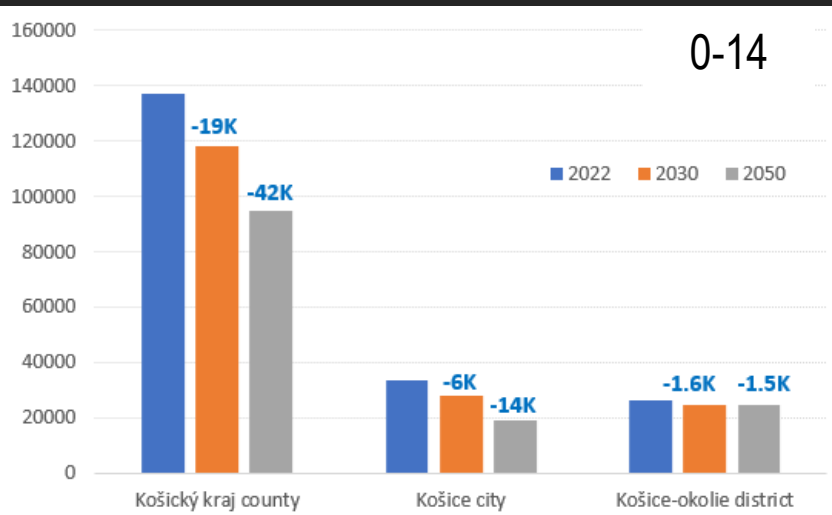
-10,0 and less	0,1 - 1,0
-9,9 - -5,0	1,1 - 5,0
-4,9 - -1,0	5,1 - 10,0
-0,9 - 0,0	10,1 and more

change in persons

▼ -6000 and less	• 0 - 499
▼ -5999 - -4000	▲ 500 - 999
▼ -3999 - -2000	▲ 1000 - 1999
▼ -1999 - -1000	▲ 2000 - 3999
▼ -999 - -500	▲ 4000 - 5999
• -499 - 0	▲ 6000 and more



Projection for population categories by age in KSK



- optimization of the school network – ensuring availability
- decrease in workforce – increase in commuting
- increased need for social and health services for elderly

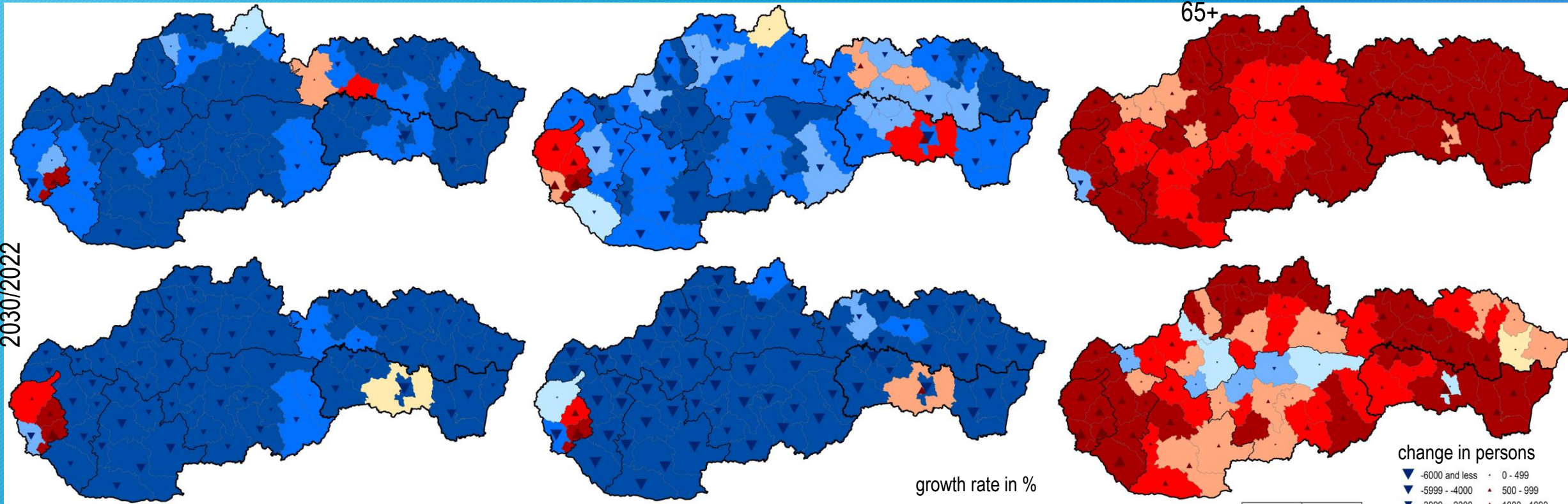
Projection for population categories by age

0-14

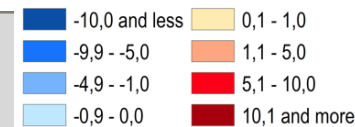
15-64

65+

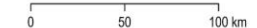
2030/2022
2050/2030



growth rate in %



change in persons

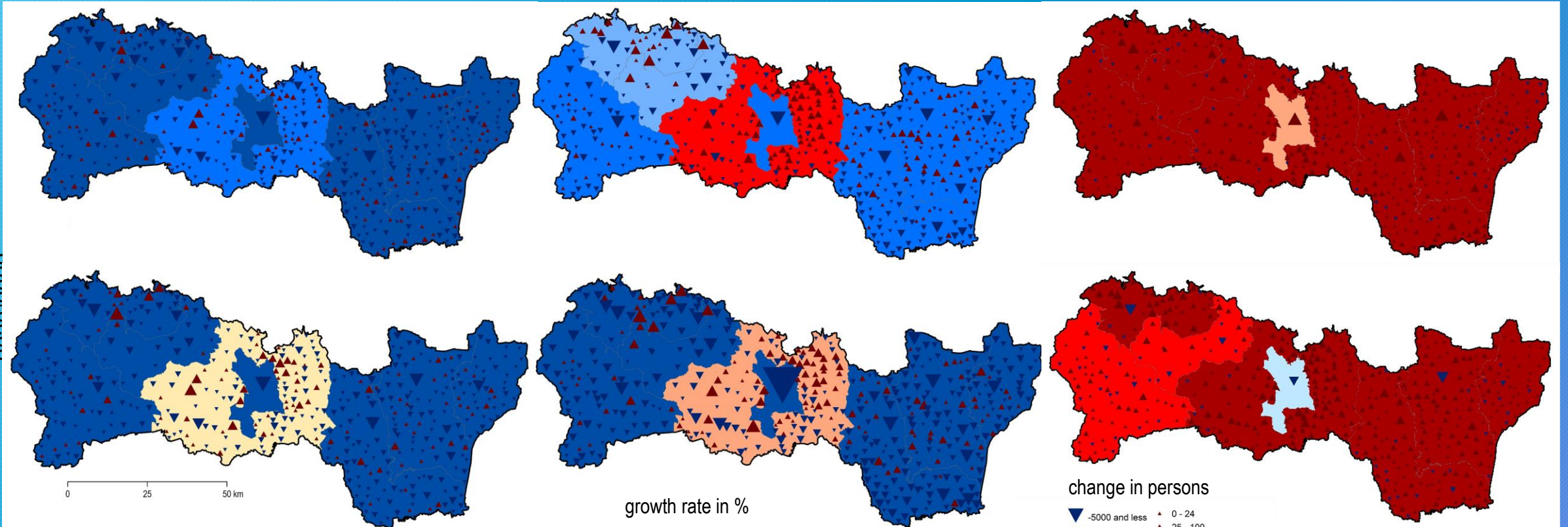


- optimization of the school network – ensuring availability
- decrease in workforce – increase in commuting
- increased need for social and health services for elderly

Projection for population categories in KSK

0-14

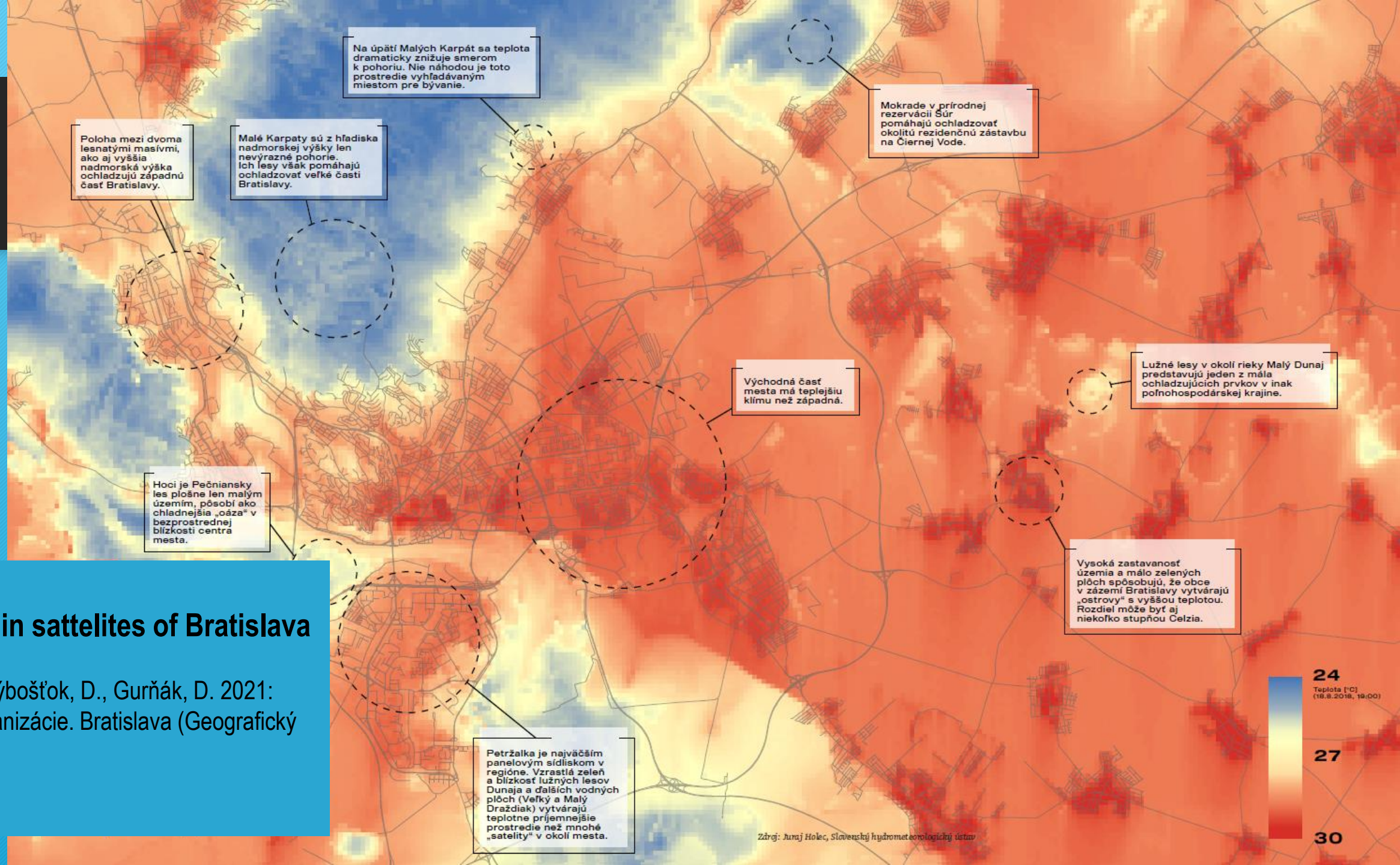
15-64



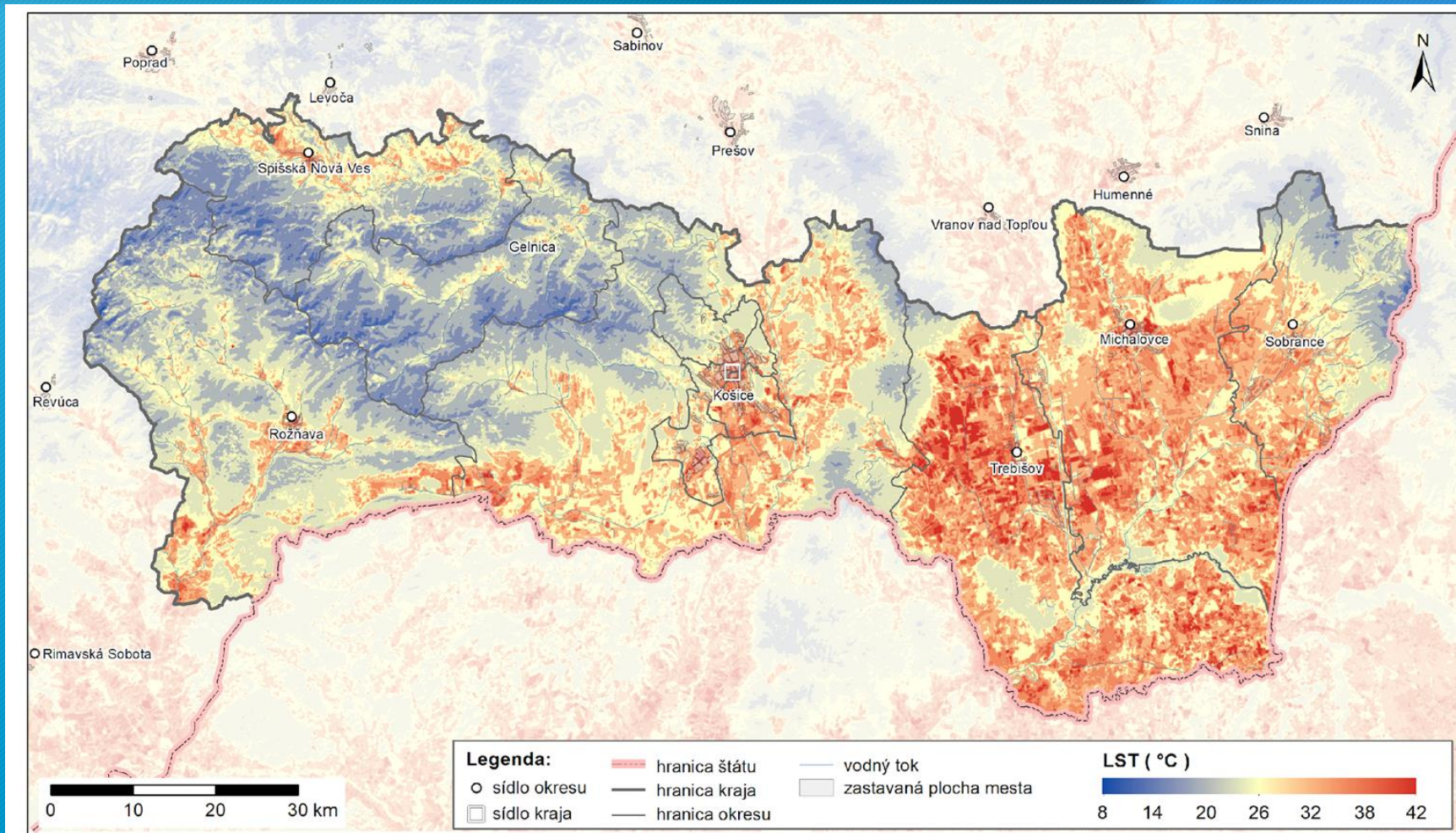
- optimization of the school network – availability & commuting
- decrease in workforce – increase in commuting
- increased need for social and health services for elderly

Hot living in satellites of Bratislava

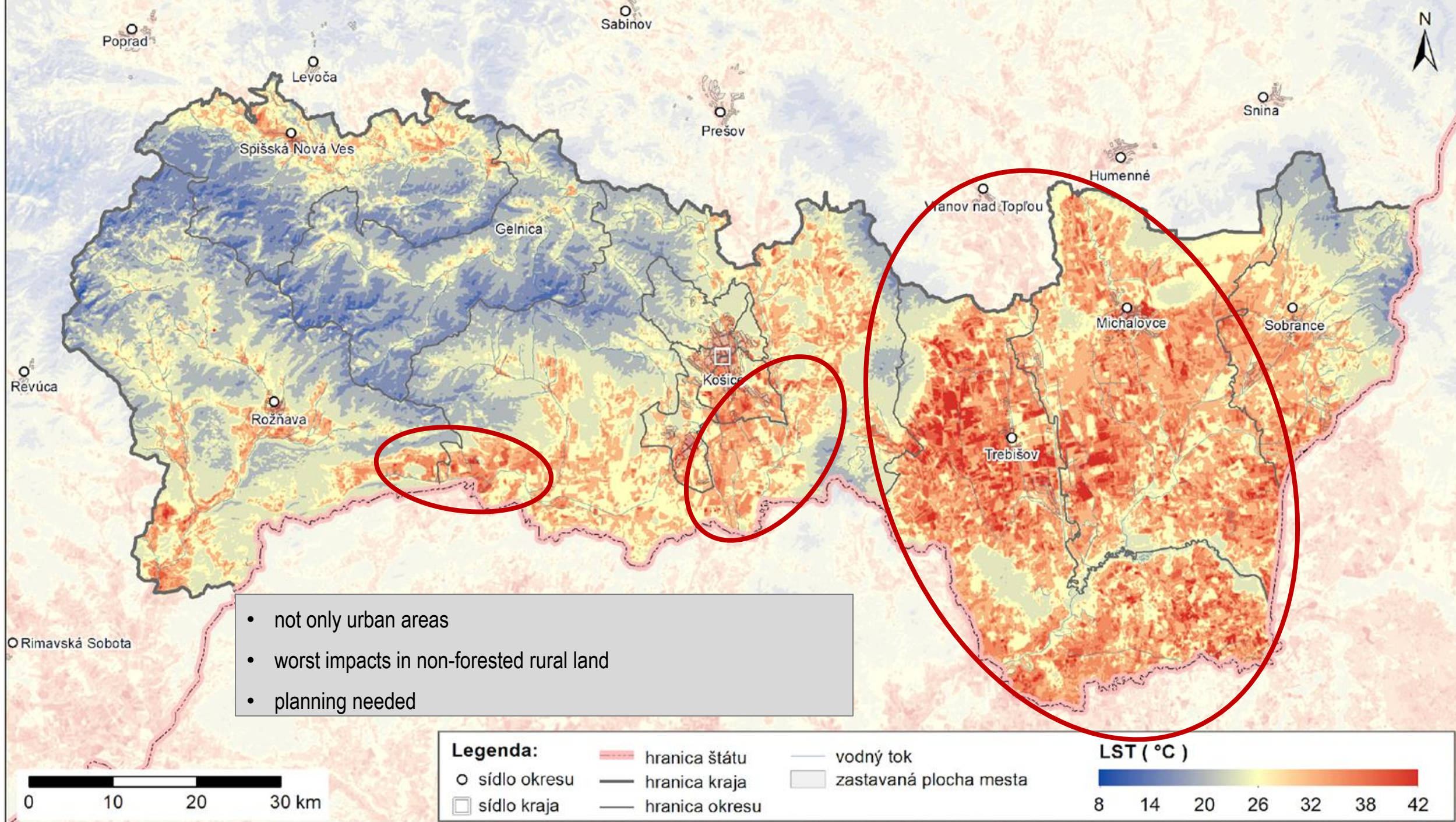
Šveda, M., Výboštok, D., Gurňák, D. 2021:
Atlas suburbanizácie. Bratislava (Geografický
ústav SAV)

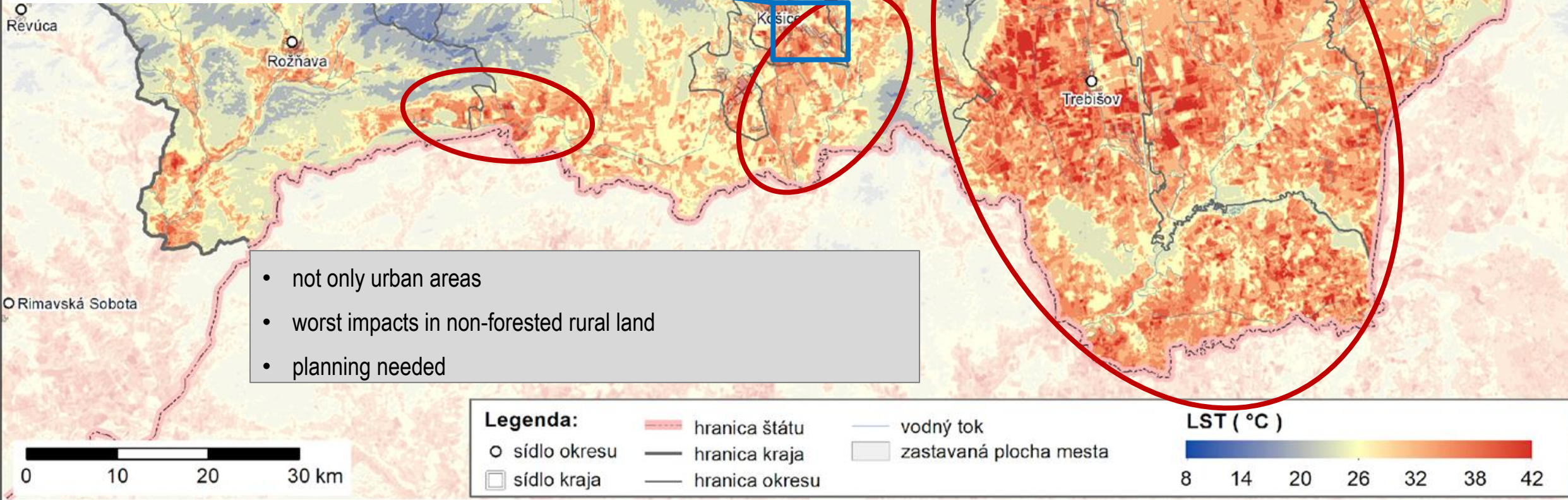
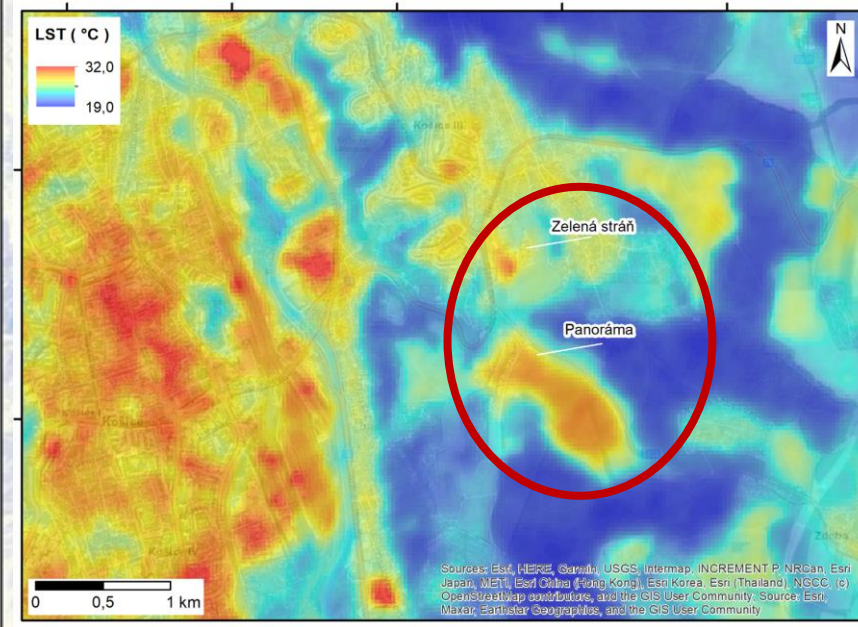


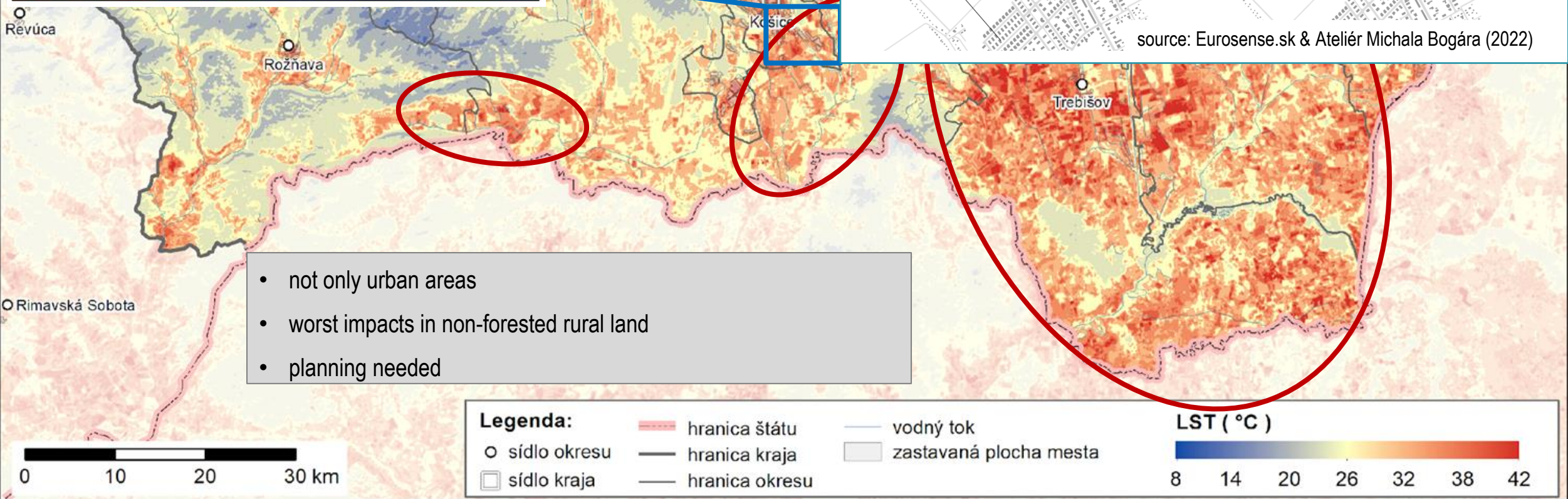
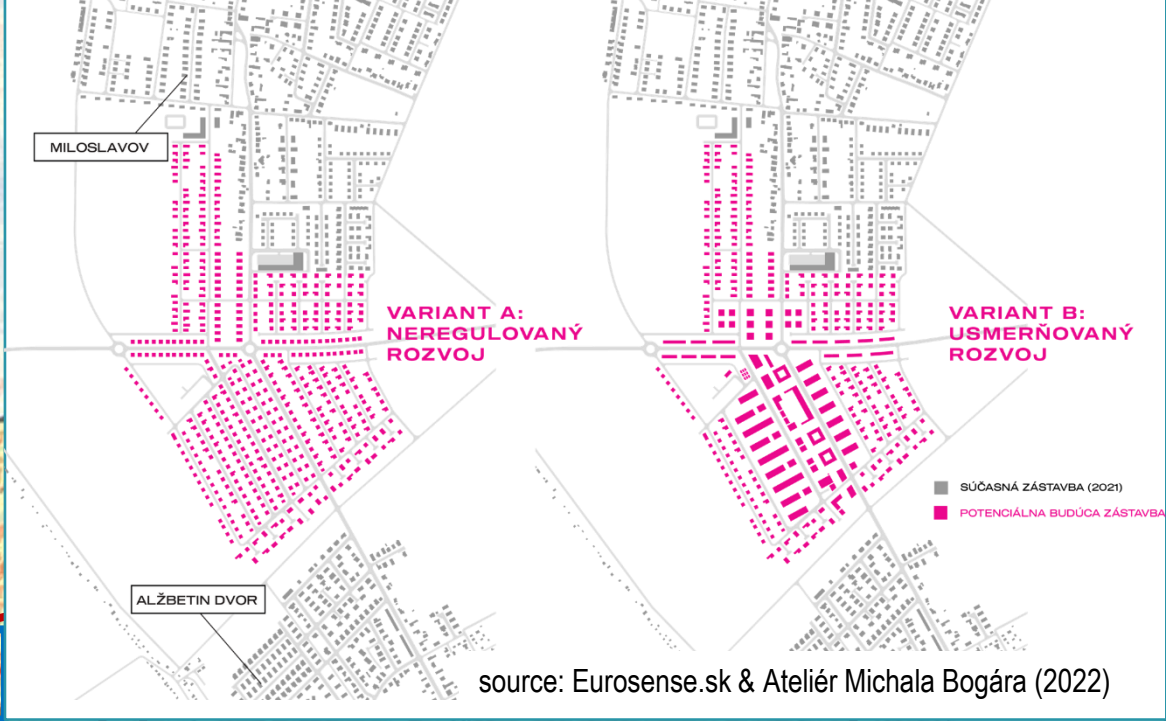
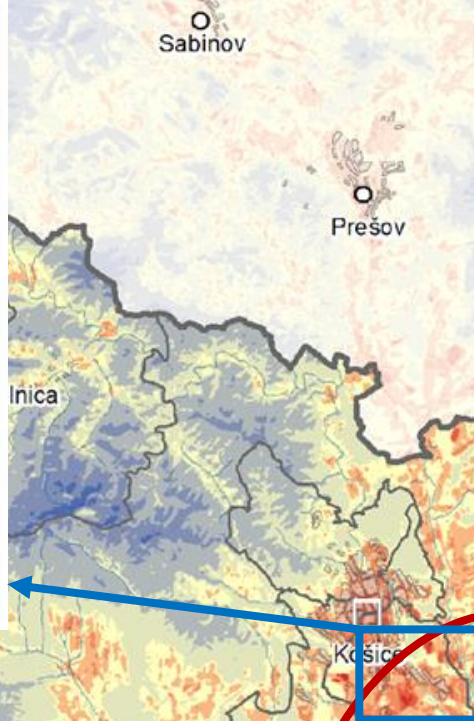
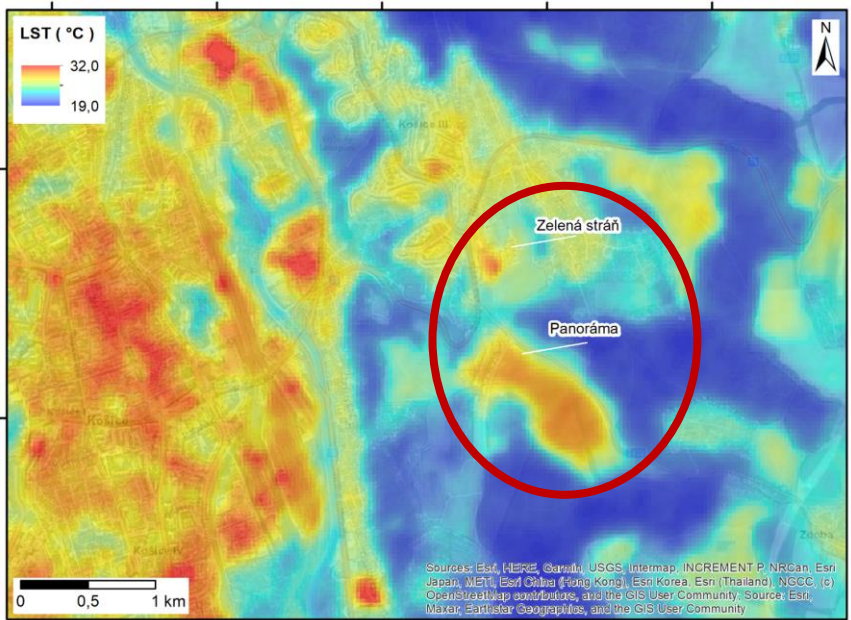
Overheating and heat islands



The surface temperature of the landscape cover based on thermal zones no. 10 of the Landsat-8/-9 satellites for September 5, 2023

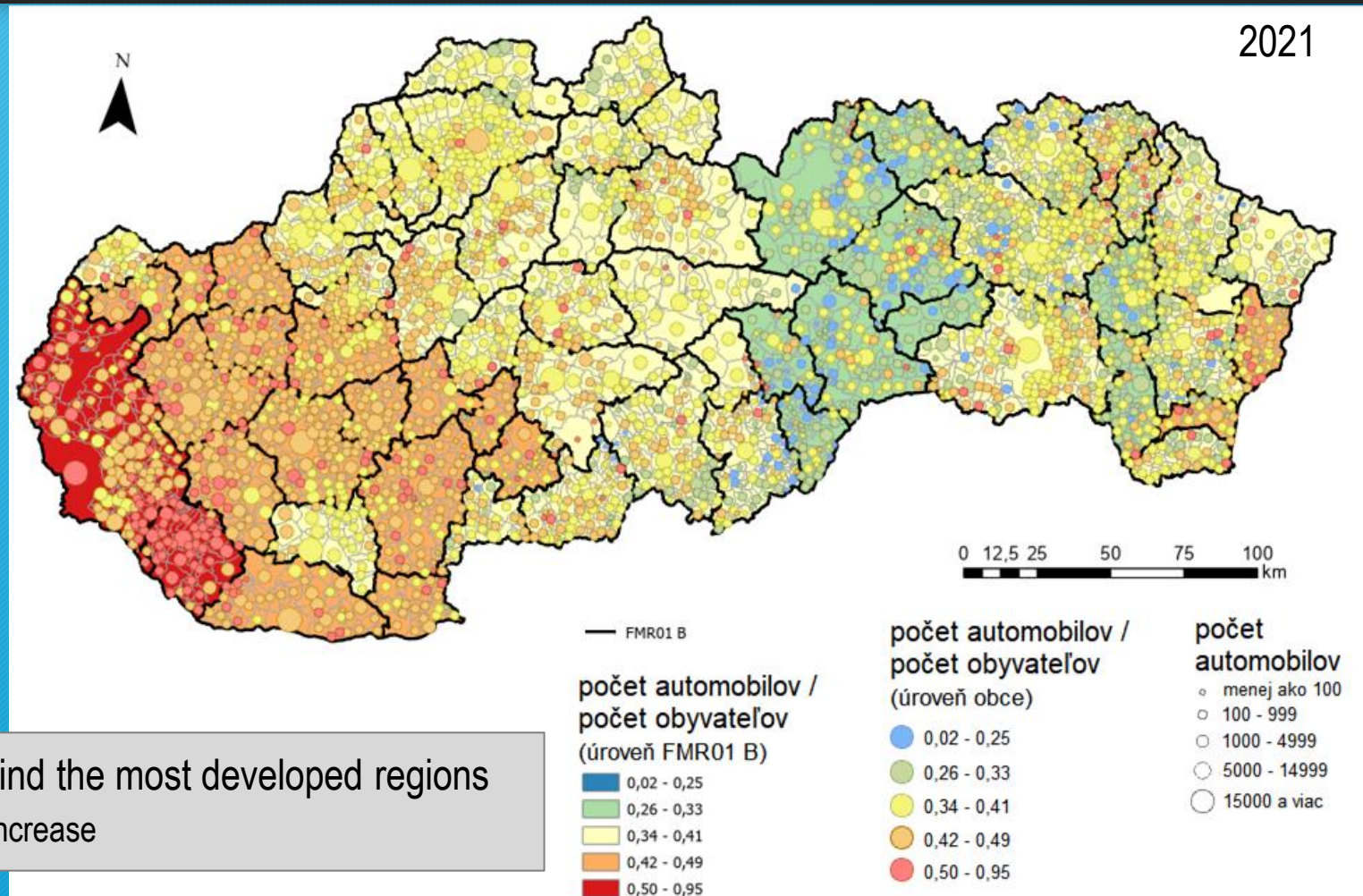






burden on infrastructure and the environment

rate of motorisation (number of cars per inhabitant) in regions and municipalities of Slovakia

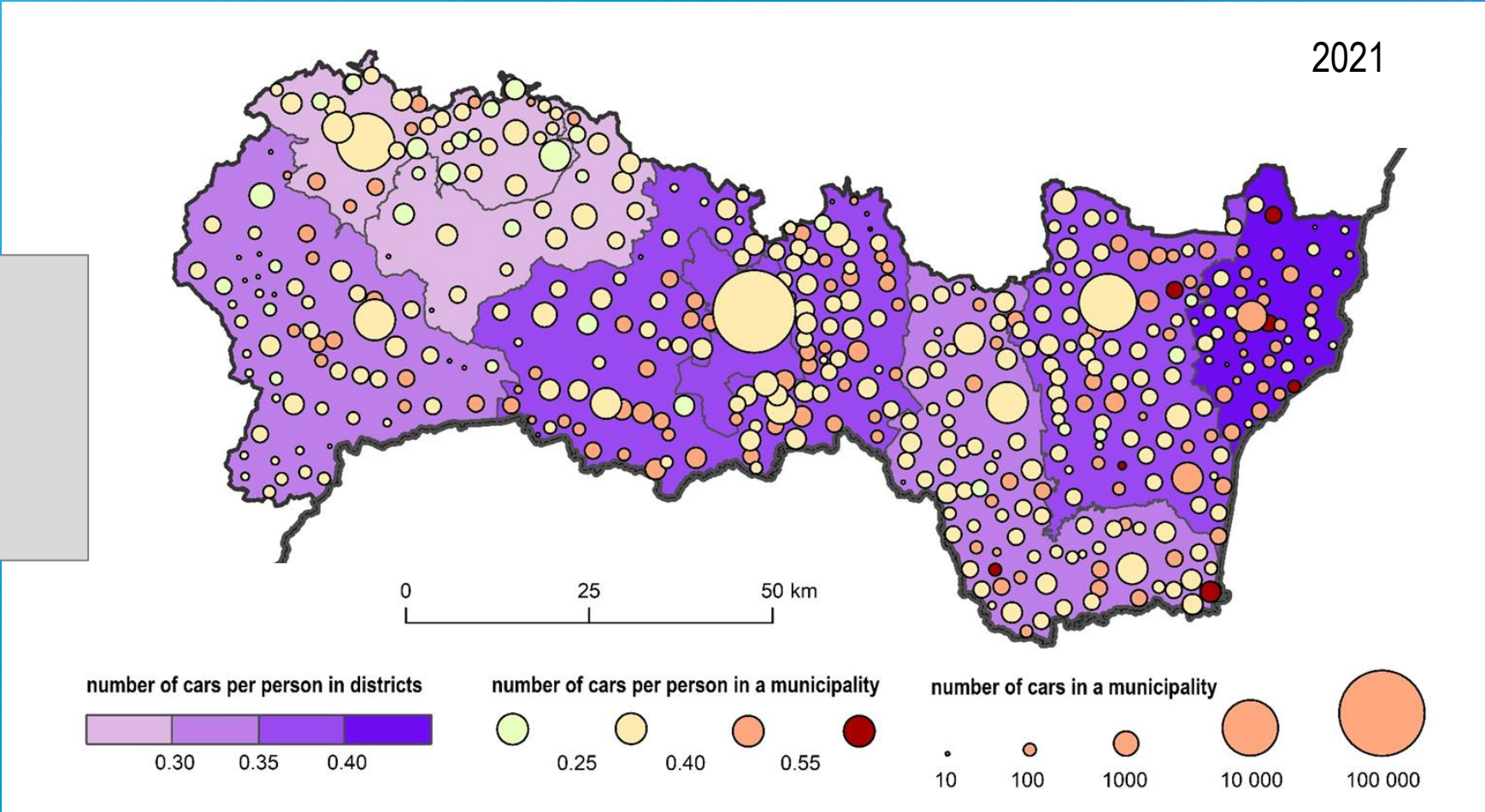


- in KSK lags behind the most developed regions
 - potential to increase

burden on infrastructure and the environment

rate of motorisation (number of cars per inhabitant) in regions and municipalities of KSK

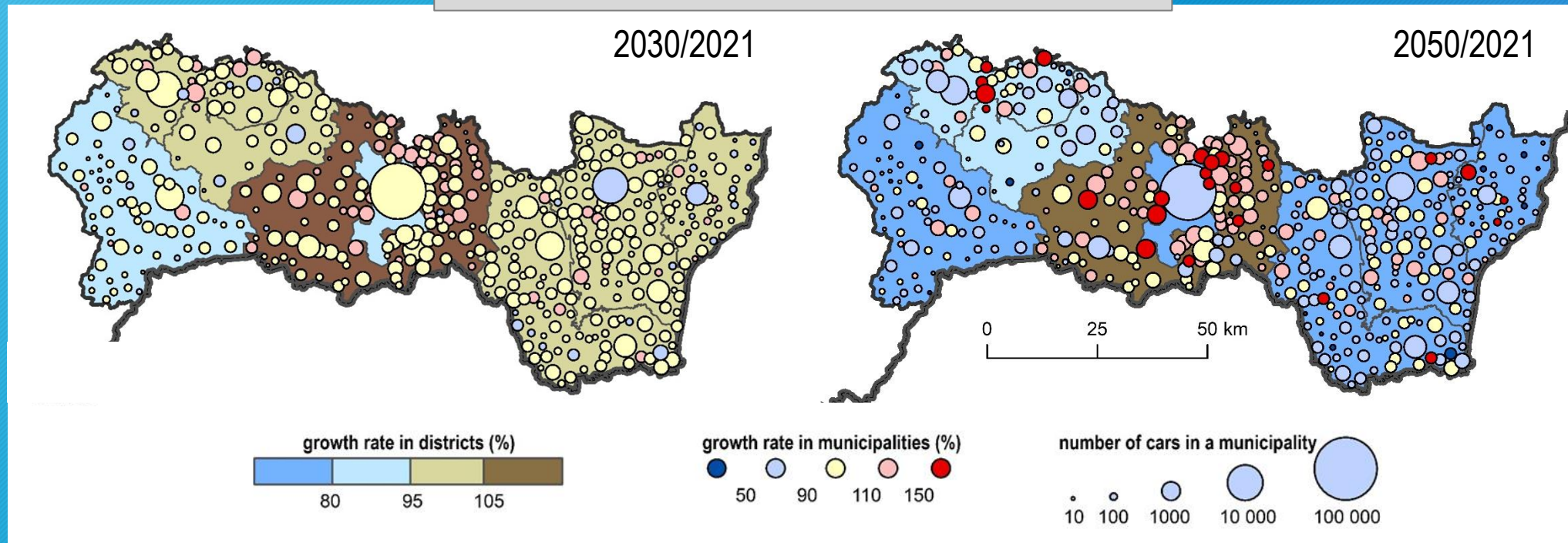
- lowest in municipalities with large marginalised Roma communities
- medium in Košice and bigger towns
- high in suburban municipalities



burden on infrastructure and the environment

rate of motorisation (number of cars per inhabitant) in regions and municipalities of KSK

- culmination and decline
- increase in the Košice suburban area
- increase in municipalities with large marginalised Roma communities



burden on infrastructure and the environment

commuting to work



FlowmapBlue 

Commuting to work in Košice Region by modes of transport in 2021

Daily commuting to work (less than 100 km) in Košice region in 2021

total

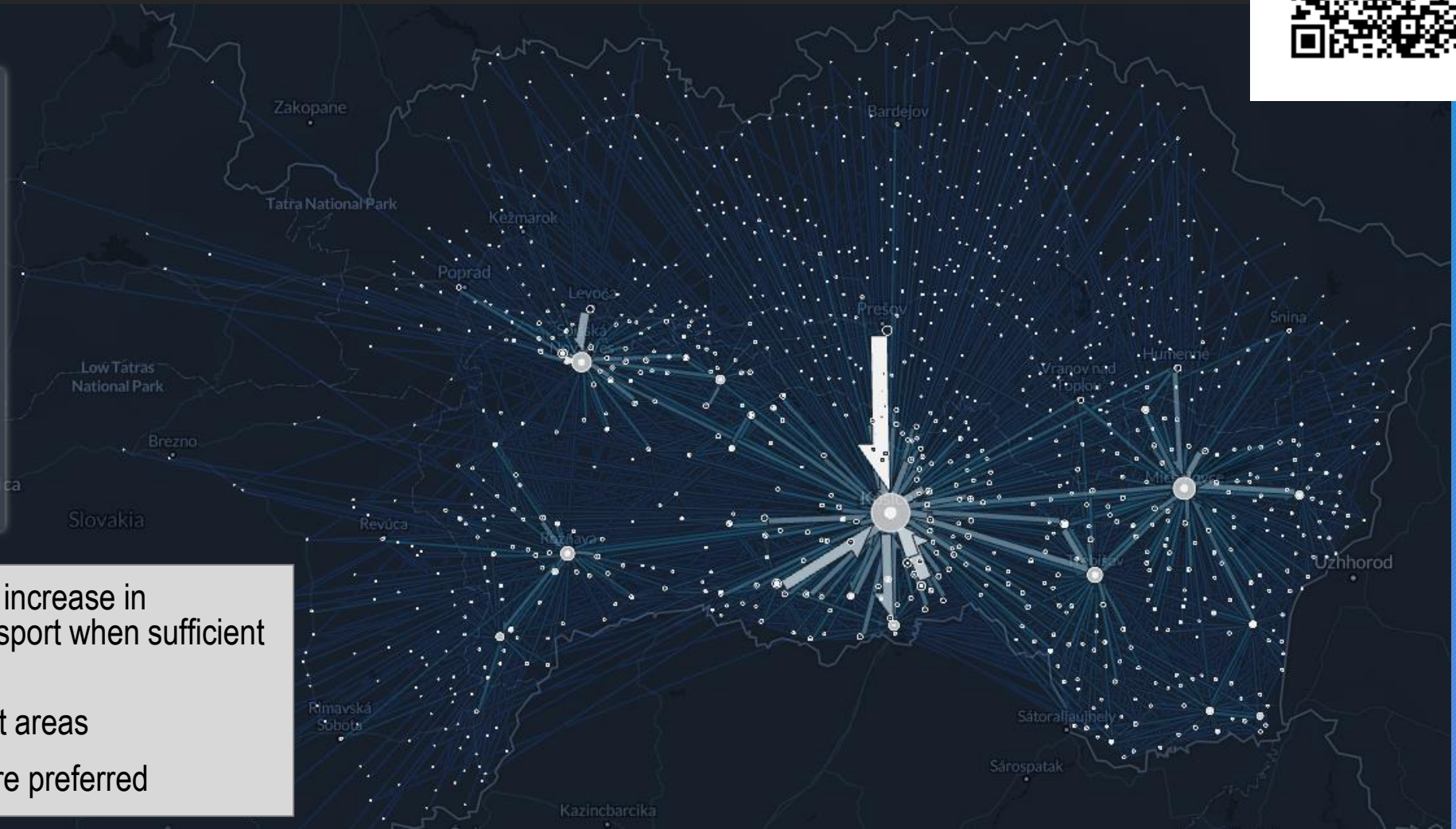
Created by: Loránt Pergi

Original data source: Sčítanie obyvateľov, domov a bytov 2021

Data behind this map is in this spreadsheet. You can publish your own map too.

63,188 trips

[Open in Flowmap City](#)



- decentralisation of population – increase in commuting – individual car transport when sufficient public transport not available
- potential for bike transport in flat areas
- younger generations – cars more preferred

Ďakujem za pozornosť!

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