



**DANURB+ DANube Urban Brand + Building Regional and Local
Resilience through the Valorization of Danube's Cultural Heritage**

D+Atlas

**ATLAS of Hidden Urban Values
along the Danube**

Editors // A. Djukić, B. Kádár, A. Stan, B. Antonić



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D+ Atlas

ATLAS
of Hidden Urban Values
along the Danube — 2022

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DANube Urban Brand + Building Regional and Local Resilience through the Valorization of Danube's Cultural Heritage

DANUrB+

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4.1

CONCEPTUALISING THE NETWORKS OF SHRINKING CITIES IN THE DANUBE REGION

Branislav Antonić
Aleksandra Djukić

THE PROSPECTS of small and medium-sized cities and towns in the Danube Region is not just related to their internal potential, such as their socio-economic capital, preserved cultural diversity, cultural and natural heritage, urban fabric and rising tourism. Their development is also related to their networking, clustering, transport connectivity, relation to the nearest bigger cities and the permeability of nearby national borders settled on the river. Only considering both groups of the mentioned factors – external and internal ones – the future of the region and its urban settlements can be adequately planned and directed for both local people and prospective visitors.



Fig. 247 / Hard borders along the Danube are especially problematic for twin cities, such as Bačka Palanka in Serbia (background) and Ilok in Croatia (a tower on the right) (Author: B. Antonić, 2018).

Fig. 248 / Burgenland Region in the Upper-Middle Danube was politically divided between Austria, Slovakia and Hungary after the World War I. Its towns, including pictured Eisenstadt, have witnessed the redevelopment after the recent softening national borders. (Author: A. Szabo, 2021).

National borders have a significant impact on cities and towns in the Middle and Lower Danube Region, as 50% of the river flow is a national border at the same time. In the most of cases, these borders are so-called “hard” ones, with strict border control and slower permeability thereof. Such hard borders significantly fuel urban shrinkage (Haase et al, 2014; Antonić et al, 2020), as affected cities usually have smaller gravitation zones and their connectivity is disrupted (Bruneckiene & Sinkiene, 2015). Perhaps, this is particularly evident in the case of twin cities, as they are even physically interconnected (Fig. 247). The change of border regime

from “hard” to “soft” one can significantly improve local urban conditions. A good example are recently revived towns in Burgenland Region, politically divided between Austria, Slovakia and Hungary (Fig. 248).

In these considerations, borderland and border cities/towns should be differentiated. The European Union uses 25-km distance to nearest national border as a threshold to define a borderland region and cities (ESO, 2018). Border-cities and towns are those ones which cadastral territories touch national borders. Such cities and towns are numerous in the Danube Region, as it was underlined that the river is often a national border, too (Fig. 249). Among 89 research cities and towns, more than half (45 or 51%) are border cities, while even more are located in borderland regions – 70 (79%).

In contrast to the aforementioned negative effects of the proximity to national borders, proximity to national capitals brings positive impact on small cities and towns. This is especially important in the countries which aspires to get for-



R

- Antonić, B., Djukić, A. & Marić, J. (2020). Borderland Shrinking Cities: “Uncharted Territory” in International Research of Urban Shrinkage. In: V. Georgiev & I. Stoyanova (Eds.), VSU’2020 Conference Proceedings – Volume II (pp. 29-34). Sofia: USEA “Lyuben Karavelov”.
- Bruneckiene, J. & Sinkiene, J. (2015). The economic competitiveness of Lithuanian-Polish border region’s cities: the specific of urban shrinkage. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 10(4), 133-149. DOI: 10.12775/EQUIL.2015.039.
- European Statistical Office. Glossary: Border region. Eurostat, Brussels, 2018. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Border_region.
- Haase, A., Rink, D., Grossmann, K., Bernt, M. & Mykhenko, V. (2014). Conceptualizing urban shrinkage. *Environment and Planning A*, 46(7), 1519-1534. DOI: 10.1068/a46269.

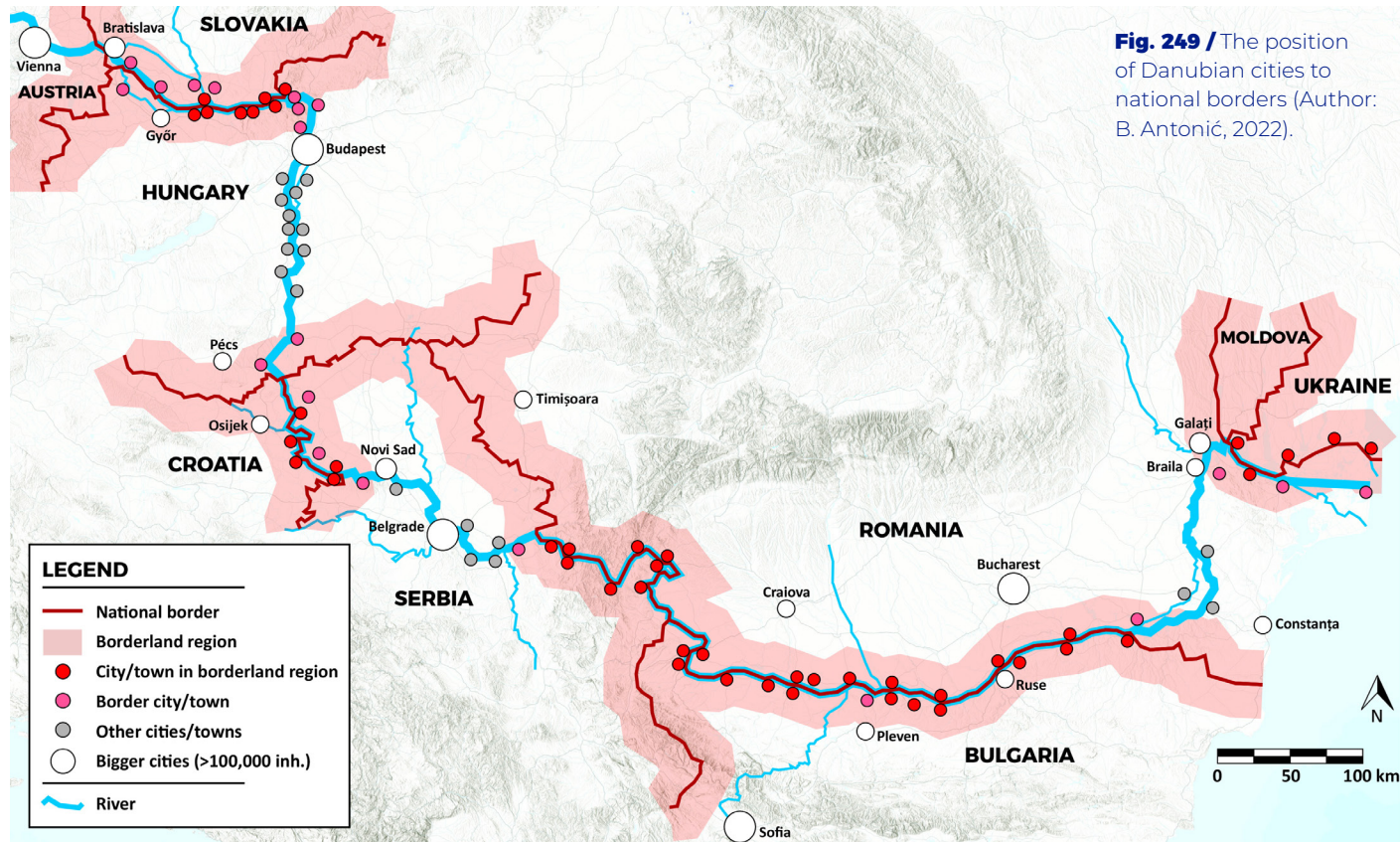


Fig. 249 / The position of Danubian cities to national borders (Author: B. AntoniĆ, 2022).

foreign investments, where many East-European countries belong. Simply speaking, proximity to the national capital cities enables better contacts and higher exchange regarding to knowledge and technology (Hutzschenreuter & Harhoff, 2019).

This can be applied to the Danube Region, too. The Danube flows through ten European countries, but only five national capitals can be labelled as “Danubian” ones: Vienna, Bratislava, Budapest, Belgrade and, with a less degree, Bucharest, which is not on the river, but is close enough to have mutual influences (Fig. 250). In the other side, Vienna and Bratislava are also specific, as they are the closest capitals in the continent, with just 50 km in between. Thus, they form a two-capital region (Fig. 251).

In line with the previous observations, middle-sized and small cities and towns in the Middle Danube Region are better positioned if more capital cities are located in their vicinity (Fig. 251). The Lower Danube Region is with one capital (Bucharest) only, which left a huge void in many parts of this region.



Fig. 250 / Although Bucharest is 60 km far away from the Danube, its strong influence is visible on many cities in the Lower Danube (Author: B. AntoniĆ, 2018)

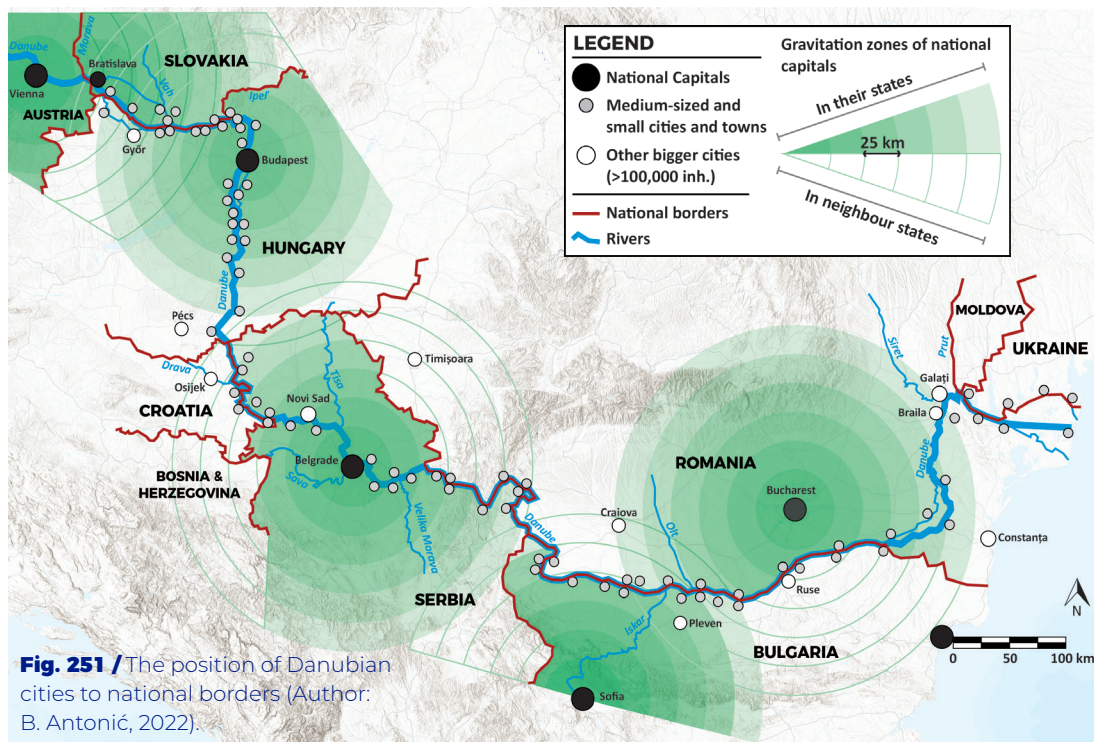


Fig. 251 / The position of Danubian cities to national borders (Author: B. AntoniĆ, 2022).

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Hutzschenreuter, T. & Harhoff, P-L. (2019). The Effect of Geographic Proximity to the National Capital City at Inception on the Speed of Subsequent Investments in Emerging and Advanced Economies. In S. Taneja (Ed.), *Academy of Management Proceedings*. DOI: 10.5465/AMBPP.2019.13236.

Fig. 252 / Timișoara is the main regional centre of Western Romania. Therefore, its influence can be identified in all towns in the western section of the Danube Region in this country despite the city is 150 km far away from the Danube (Author: A. Radulescu, 2022).



Fig. 253 / Petrovaradin Fortress above the Danube in Novi Sad, the regional centre of northern Serbia and the administrative seat of the Autonomous Province of Vojvodina (Author: P. Morgenstein, 2021).

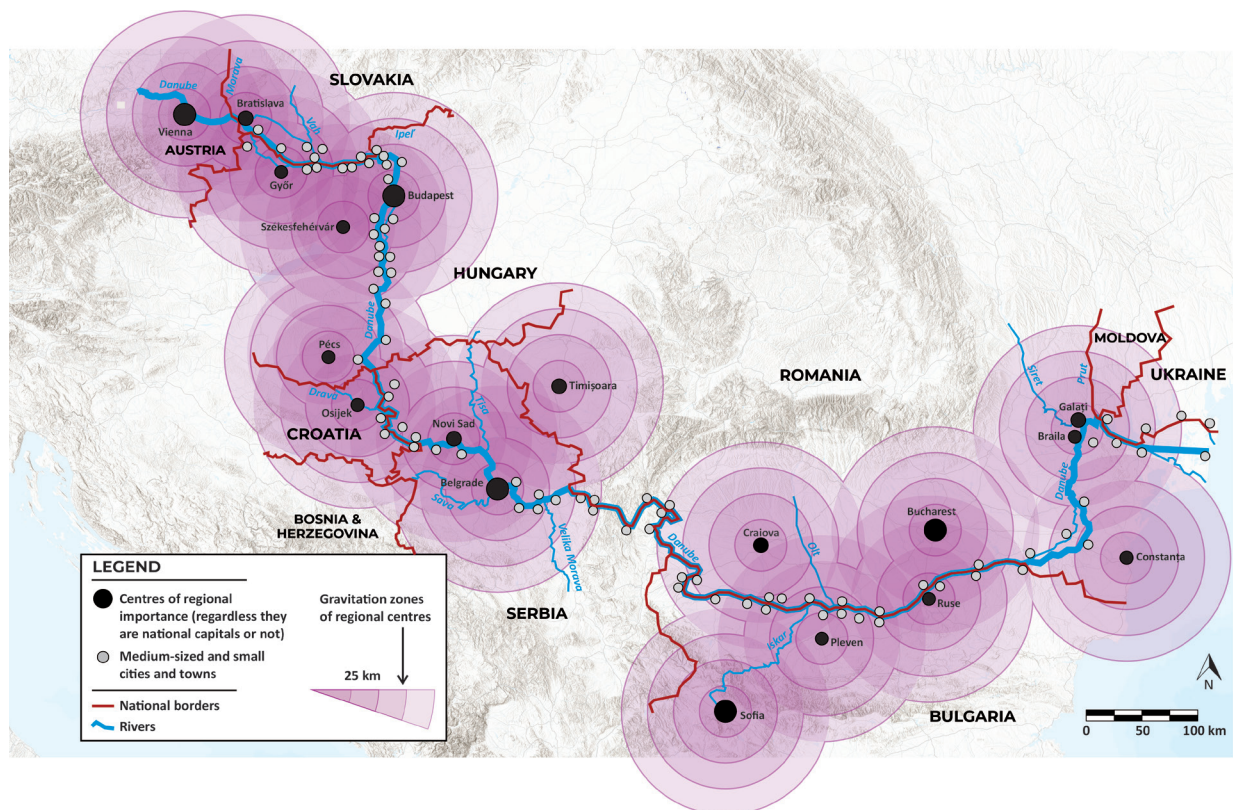
Apart from the contrasting effects of proximity to national capitals and national borders, medium-sized and small cities and towns are also under the strong influence of regional centres, especially in the regions far away from national capitals (Fig. 252). The role of a regional level has emerged as important recently across the European Union, where its territorial cohesion is actually equalised with regional policy, based on minimising regional disparities across the EU space. This is especially evident in the EU support to Euro-regions, i.e., cross-border region between sovereign EU states (EC, 2021).

The significance of regional centres is especially important in the cases where this is combined with the elements of regional autonomy, such as the case of the City of Novi Sad as the administrative seat of the Autonomous Province of Vojvodina in northern Serbia (Fig. 253). This city has had

the faster demographic growth than Belgrade as a national capital during the post-socialist transition (Djukić et al, 2017).

This means that proximity to the centres of regional importance, regardless they are national capitals or not, also plays a significant impact on the socio-economic prospects of Danubian medium-sized and small cities and towns (Fig. 254). Regional centres are considered all cities which are the main urban settlements in NUTS 2 regions. All of them have more than 100,000 inhabitants.

Fig. 254 / The accessibility of Danubian cities to regional centres (Author: B. Antonić, 2022)



R

- Djukić, A., Antonić, B. & Vujičić, T. (2017). Urban Shrinkage in a 'Shrinking' Serbia – The Approach to a Global Phenomenon in a Local Context. *Geodetski Vestnik*, 61(4), 614-629. DOI: 10.15292/geodetski-vestnik.2017.04.614-629.
- European Commission – EC (2021). Territorial Agenda 2030 - A future for all places. Brussels: EC. Retrieved from https://ec.europa.eu/regional_policy/sources/docgener/brochure/territorial_agenda_2030_en.pdf.

An important factor for the connectiveness and networking of medium-sized and small cities and towns in along the Danube is modern transport corridors. Poor transport connections, combined with a small size and distance from major cities, often led to the contested model of “single city”, i.e., a small and remote city especially prone to rapid urban shrinkage. Such examples are widespread among cities in post-socialist Europe (Restrepo Cadavid et al, 2017). Hence, advanced transport network is a prerequisite to establish developed urban network.

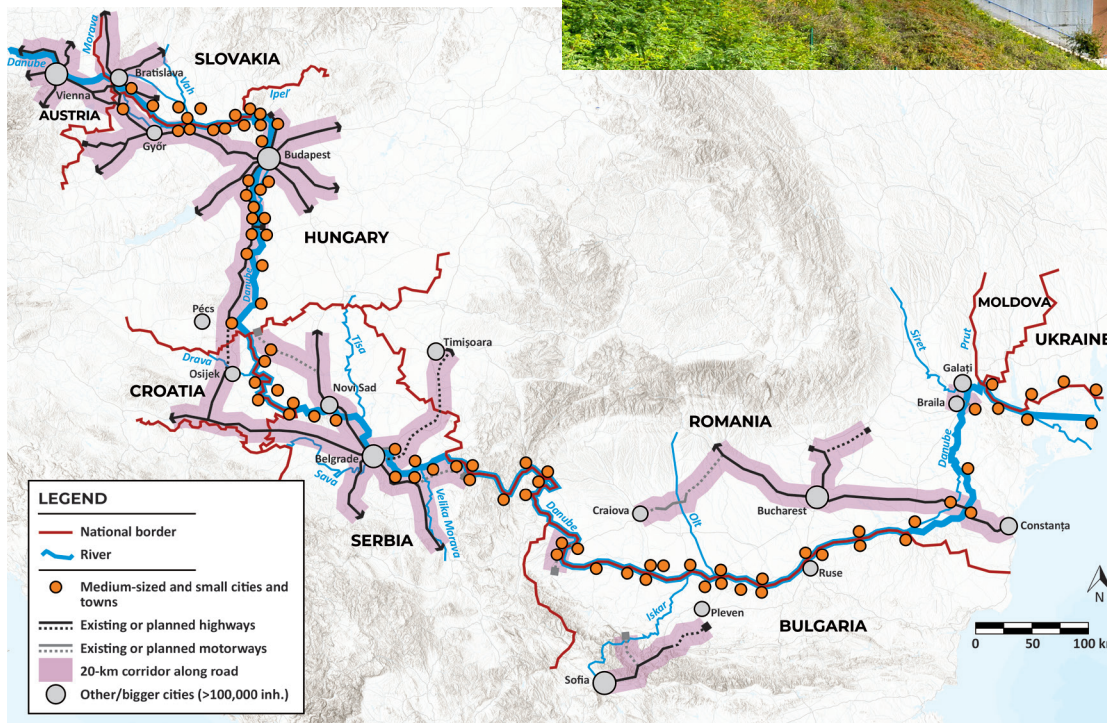
All states in the region of the Middle and Lower Danube have invested significant resources since the beginnings of post-socialist transition to improve their accessibility. This usually means the development of modern roads, highways and 4-line motorways, as road transport dominates in the region. Railway system lost their primate after the World War II, whereas waterways – the Danube and its tributaries and canals – at the end of 19th century. However, the recent projects have tried to make a balance between the different modes of transport. A good example is a “New Europe” Bridge across the Danube between Vidin, Bulgaria, and Calafat, Romania, which combines road and railway (Fig. 255).



Fig. 255 / “New Europe” Bridge across the Danube bridge between Vidin, Bulgaria, and Calafat, Romania, combines road and railway (Author: Bulgarian Guide, 2022).

Speaking about transport connections, both connections that are parallel to or pass the Danube are important for the future development. The second type is more challenging for development, as it implies the construction of a link across the Danube, which is a pretty wide river in most sections downstream Vienna. These links are long bridges or dams with road connection, such as Gabčíkovo Dam in Slovakia (Fig. 256) or two Iron Gates dams between Romania and Serbia. In this study, both types of road connections are analysed (Fig. 257).

Fig. 256 / Gabčíkovo Dam in Slovakia is also an important transport link across the Danube (Author: A. Radulescu, 2021).



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Restrepo Cadavid, P., Zhukova, S., Cineas, G. & Quintero, L. (2017). Cities in Europe and Central Asia: A Shifting Story of Urban Growth and Decline. Washington, DC: World Bank.

Fig. 257 / The accessibility of Danubian cities to modern roads (Author: B. AntoniĆ, 2022)

Fig. 259 / The rectorate building of “Selye János” University in Hungarian language in Komarno, Slovakia. Komarno is the smallest city in the state with a public university as the city is the centre of Hungarian minority in Slovakia (Author: A. Radulescu, 2021).



Fig. 260 / Dunaujvaros was modelled as a socialist city with heavy industry during socialist era. The city dependence to industry, without significant administrative status, has caused severe urban shrinkage after the fall of socialism (Author: P. Wolf, 2022).

The next factor which can significantly enhance the potentials of cities and towns in the Danube Region is their (higher) position in national political-administrative hierarchy (Fig. 258). It is already mentioned that the regional centres that are the seats of regional government at the same time have better conditions for the overall development and external completeness. This can be applied to smaller cities and towns, too. The status of an administrative seat brings higher urban functions (Servillo et al, 2017). For instance, for larger administrative system, such cities usually have additional institutions, such as a district hospital, theatre, the variety of secondary schools, one or two research and development institutes or faculties or even a small university (Fig. 259). The afore mentioned facilities belong to the tertiary and quaternary sectors of the economy, which bring the significant number of high-educated jobs in smaller cities, which is becoming a prerequisite for their urban development in the present-day globalised world.

However, the most of smaller cities and towns are in an opposite situation in the Danube Region, as they face the lack of these economic fields and high-quality jobs, shrinking as a consequence. The example of Dunaujvaros (Fig. 260), a model-socialist city with heavy industry and one of the largest cities in Hungary without a country seat; the city has been among the fastest shrinking medium-sized Hungarian cities. This is not a new problem. After the collapse of the former Habsburg Empire in 1918, several cities with higher administrative functions, such as Komarno in Slovakia, Esztergom in Hungary and Sombor in Serbia (Fig. 261), lost this status and stalled during interwar years.



Fig. 261 / “Županija” (District Court) in Sombor is one of the largest historic administrative buildings in Serbia. It shows the former glory of Sombor as the seat of large Bacs-Bodrog Country in the Kingdom of Hungary. With its abolishment after the World War I, Sombor stagnated for several decades (Author: M. Đurđević, 2022).

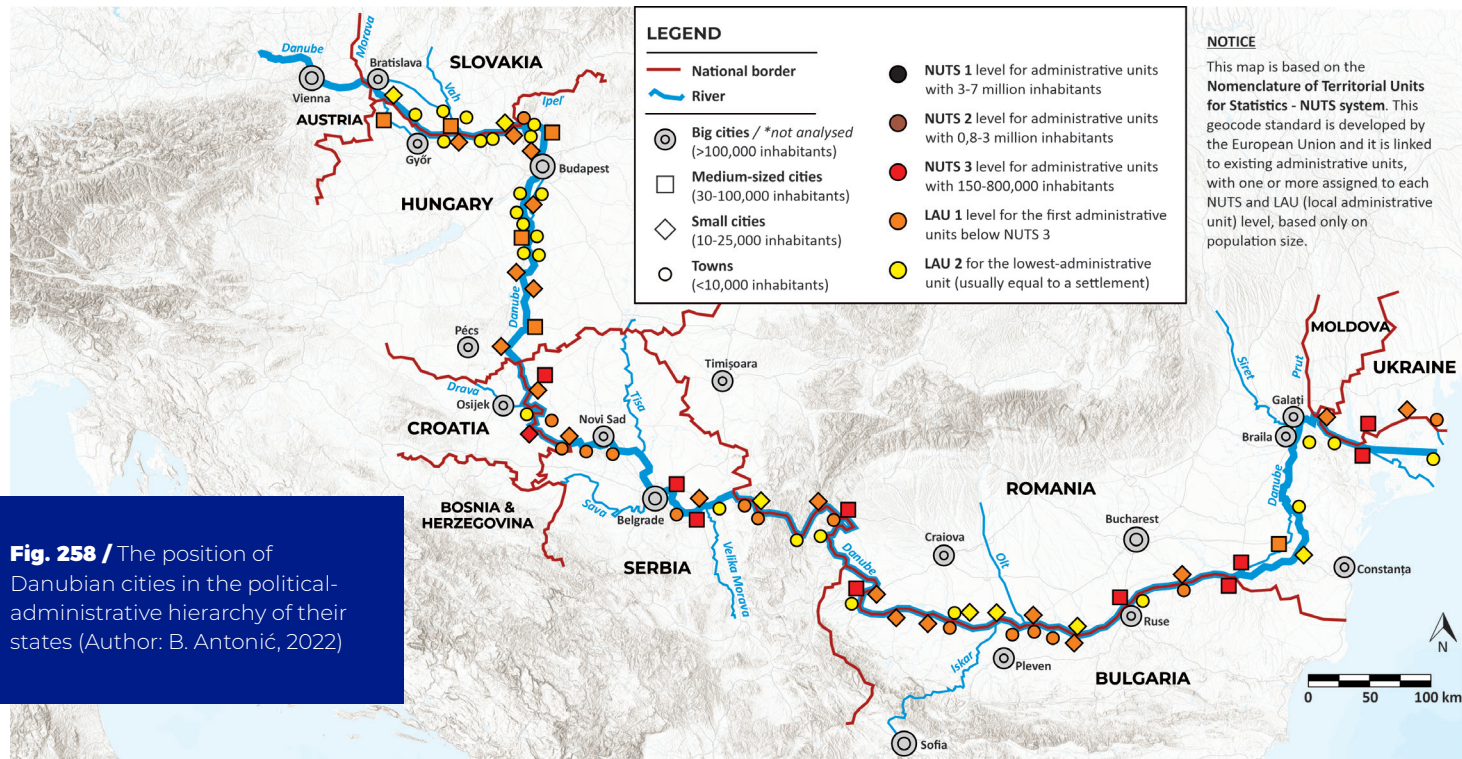


Fig. 258 / The position of Danubian cities in the political-administrative hierarchy of their states (Author: B. AntoniĆ, 2022)

The last factor to be included into consideration on how medium-sized and small cities and towns along the Danube can cooperate and network is their specialisation and thematisation, i.e., having special characteristics which has influenced their uniqueness comparing to the other Danubian cities (Fig. 262). It is already identified that cities and towns with the higher degree of specialisation are more prone to be extremes from economic and productivity perspective, both in positive or negative way (Wolff & Wiechmann, 2018). Basically, the “special” character of a city or town is very important for shrinking urban communities as it is related to their attractiveness and showing a ‘positive image’, which is a precondition to attract external interest and investments (Wang et al, 2021).

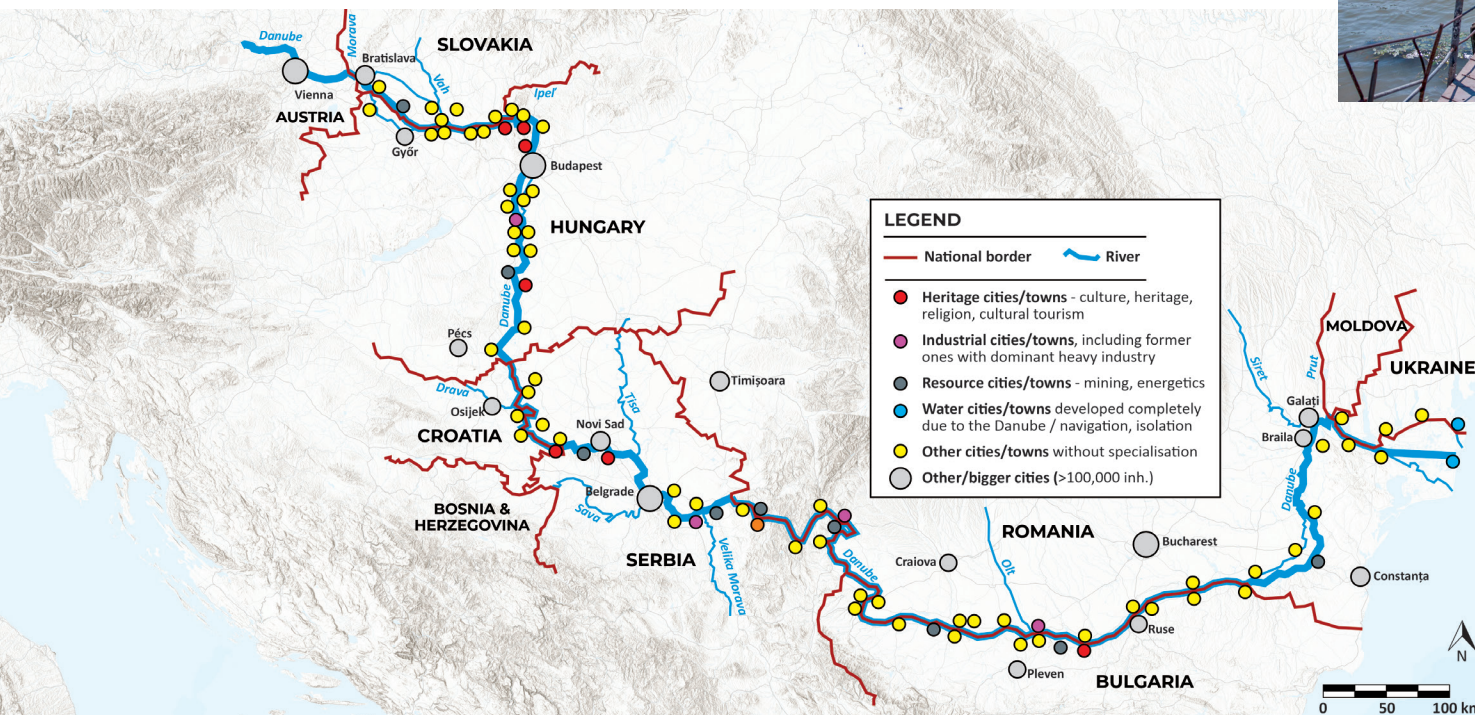
The regions of the Middle and Lower Danube belong to less developed ones in Europe, so intensive industrialisation has omitted many small cities and towns in these regions. Consequently, many of them have retained many historic and traditional features, both tangible and intangible. The recent rise of cultural tourism along the Danube has been a driving force of the revitalisation of these cities, such as Esztergom in Hungary, Ilok in Croatia or Golubac in Serbia (Fig. 263). The other specialised cities and towns have more challenging situation. This is especially visible in new settlements developed during socialism, which industrial base has collapsed

with the post-socialist transition – for instance, Moldova Noua in West Romania (Fig. 264). At the end, there are a few very specific cases of specialised towns, established completely due to the Danube, such as Romanian Sulina as the lowest town on the river, developed to control always difficult navigation through the Danube Delta (Fig. 265).

Fig. 263-264 / Danubian twin towns in the Iron Gates Region with specialisation, but with opposite development trajectories, too; Golubac in Serbia (up) is a historic town recently revived by cultural tourism along the Danube (Author: D. Miletić, 2022), while Moldova Noua in Romania (down) is a new, socialist town with development problems due to the post-socialist collapse of key mining activities (Author: A. Szabo, 2022).



Fig. 265 / Sulina in Romania, the lowest town on the Danube, is a special urban settlement developed to control navigation through the Danube Delta (author: A. Radulescu, 2021).



R Wang Y., Lin, M., Gao, J. & Zhou, Z. (2021). Fading Attraction of the Shrinking City: An Empirical Study from an Urban Resource Perspective. *Sustainability*, 13, 11550. DOI: 10.3390/su132011550.

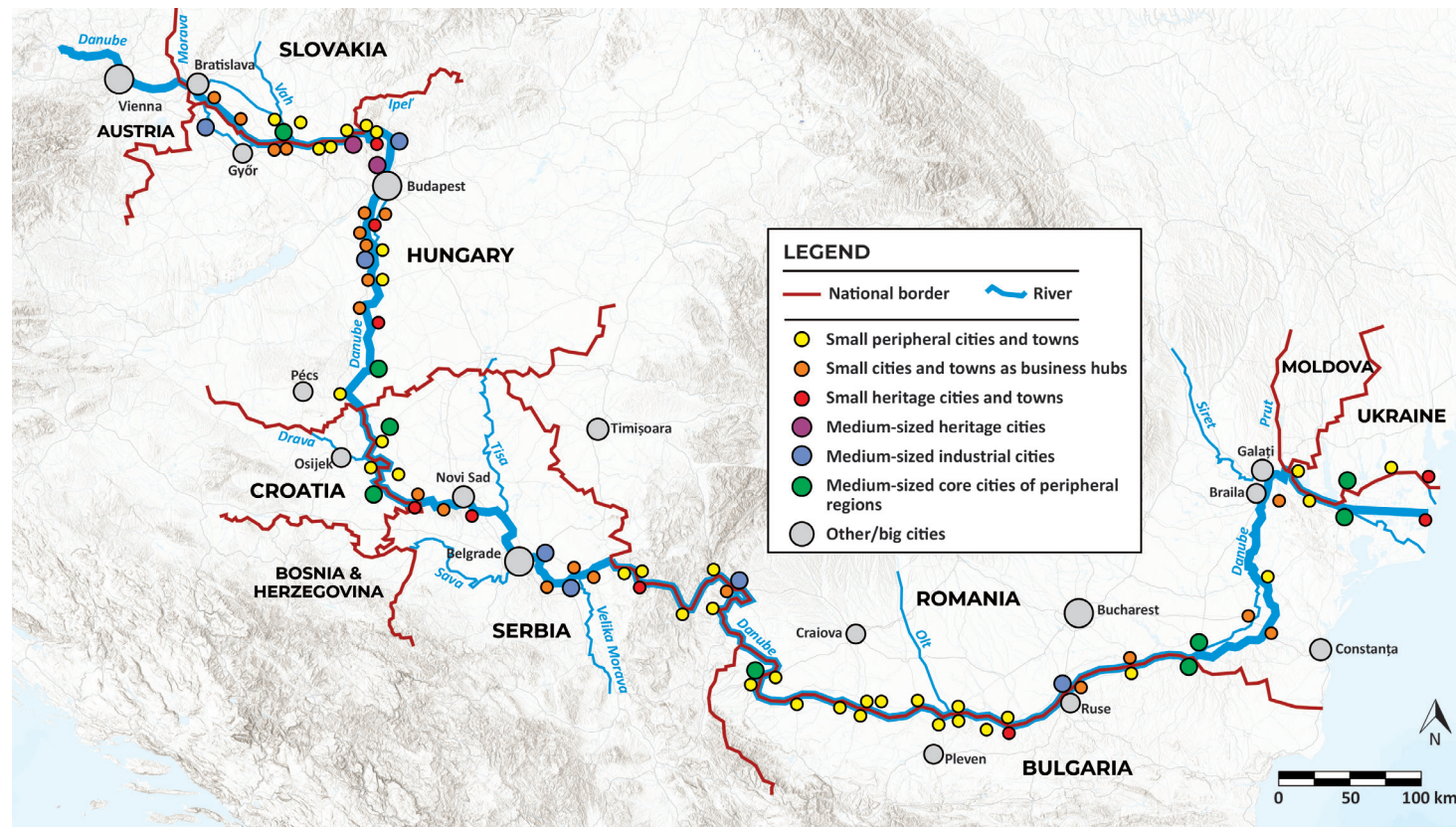
Wolff, M. & Wiechmann, T. (2018). Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990-2010. *European Urban and Regional Studies*, 25(2), 122-139, DOI: 10.1177/0969776417694680.

Fig. 262 / Map: Danubian medium-sized and small cities and towns with special characteristics (Author: B. Antonić, 2022)

The Danube as the second longest European river and the most international river passing through ten European states, has been both a huge potential and huge obstacle for cooperation during history. With transition in transport from waterways to rail and then roads in the late 19th and 20th centuries the importance of Danube was noticeably reduced (Dávid & Madudová, 2019). This was just jeopardised by many new national borders and frequent political disturbances in the Danube Region during the 20th century.

Since the 2010, urban population has prevailed across the World. Hence, forming urban clusters and networks is a critical element in a general socio-economic development. This can be applied for cities and towns in the Danube Region, especially smaller ones, which cannot independently function in present-day globalised society. Their mutual cooperation and partnership through the creation of clusters and networking within them is a key potential to prevent their overshadow by major cities and national capitals today (Fig. 266).

Fig. 266 / Map: Clusters and networks of Danubian medium-sized and small cities and towns (Author: B. AntoniĆ, 2022)



CLUSTER 1: SMALL PERIPHERAL CITIES AND TOWNS (Fig. 267)

This is the cluster where the largest number of Danubian small cities and towns belongs (43%). They are on the Danube sections which are national borders, too. However, some of them are located in “internal peripheries”. Their future development is related to a balance between their rural-natural hinterlands and better connectivity through nearby border and/or to nearest major cities.



Fig. 267 / Example of Cluster 1: Orșova, Romania (Author: A. Radulescu, 2022)

CLUSTER 2: SMALL CITIES AND TOWNS AS BUSINESS HUBS (Fig. 268)

The most of small cities and towns along the Danube that are located along highways and in proximity to the largest cities in the region are in this cluster (25%). Many of them have relatively strong economic base: light industry, energetics, logistics and transportation. Their future is more pertained to the development of central and leisure-related activities, to improve local urban life.



Fig. 268 / Example of Cluster 2: Šamorin, Slovakia (Author: M. Danciu, 2022)

CLUSTER 3: SMALL HERITAGE CITIES AND TOWNS (Fig. 269)

The cities and towns that belong to this smaller cluster (11%) are those ones recognisable by already present rich cultural and natural heritage, preserved traditional urban elements and religious legacy. Therefore, these cities and towns are usually unique at regional level. Their future is the sustainable tourism development regarding to the prevalent heritage activities and facilities, with a special respect to local population and their needs.



Fig. 269 / Example of Cluster 3: Ilok, Croatia
(Source: Tourist Office of Ilok, 2022)

CLUSTER 5: MEDIUM-SIZED INDUSTRIAL CITIES (Fig. 271)

Several Danubian cities (8%) fits to this cluster. All these cities have had an advanced (heavy) industrial capital, they are located on the main international roads, which reduced their peripherality. These characteristics had to be preserved in the further development of these cities, adding the quality of local life and better service sector as necessity in their future prospects.

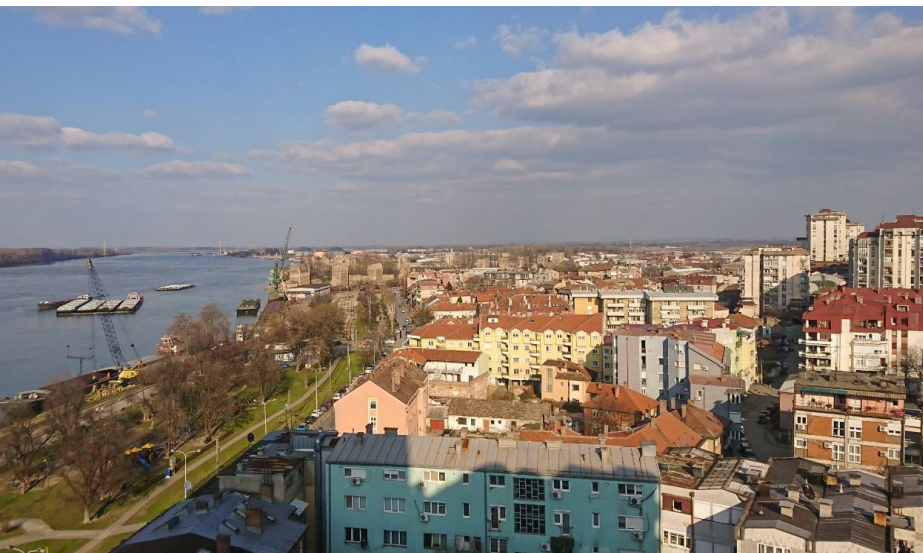


Fig. 271 / Example of Cluster 3: Ilok, Croatia
(Source: Tourist Office of Ilok, 2022)



· Dávid, A. & Madudová, E. (2019). The Danube River and its importance on the Danube countries in cargo transport. In J. Bujňák & M. Guagliano (Eds.), *Transportation Research Procedia* 40 (pp. 1010-1016). DOI: 10.1016/j.trpro.2019.07.141.



Fig. 270 / Example of Cluster 4: Esztergom, Hungary
(Author: B. AntoniĆ, 2019)

CLUSTER 4: MEDIUM-SIZED HERITAGE CITIES (Fig. 270)

Just two cities – Esztergom and Szentendre in the vicinity of Budapest – make this ‘rarest’ cluster (2%). These cities are in the shadow of a national capital, but their cultural and religious significance has secured their important role in national urban system. The future of these cities is the similar to the small heritage cities and towns – the sustainable development of cultural tourism – but linked with the development of other urban functions, such light industry, service economy and local administration.



Fig. 272 / Example of Cluster 3: Ilok, Croatia
(Source: Tourist Office of Ilok, 2022)

CLUSTER 6: MEDIUM-SIZED CORE CITIES OF PERIPHERAL REGIONS (Fig. 272)

The cities in this cluster (11%) are typical medium-sized European cities which district seats with the even share of light industry, services, culture, administration, and education. Their location in peripheral regions brings both pros and cons, as they are not under the strong influence of major cities, but far away from the transport corridors and capital investments, too. Their future is connected to the support of upper levels (national, European, regional) to enhance their position. This includes the formation business and technology hubs and the improvements of local education sector.

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