

BOOK

ON THE UNEXPLORED
CULTURAL HERITAGE
IN COMMUNITIES
BY THE DANUBE

BOOK ON THE UNEXPLORED CULTURAL HERITAGE IN COMMUNITIES BY THE DANUBE

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KEYWORDS:

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**SPATIAL CONNECTIVITY
AND ITS IMPORTANCE FOR EUROPE**

The Danube - the second longest river in Europe, of 2,858 km length - crosses 10 countries with various historical, cultural, political and economic evolutions and features. In this territorial context, the river plays both the role of a separating physical boundary, largely placed on frontiers segments, and of a common denominator, a natural entity that provide fluvial landscape and accessibility across the entire European corridor it crosses. The latter two assets are partially capitalized by some of the localities along the river, but they are still little exploited resources, especially in the eastern territories along the Danube course, development of which was hampered by the geo-political and economic context of the second half of the 20th century.

The opportunity to capitalize on the fluvial landscape and on the cultural and material heritage of the riparian localities shows a high potential for liveability and tourism development along the Danube corridor. The achievement of this objective is based on two main directions for action:

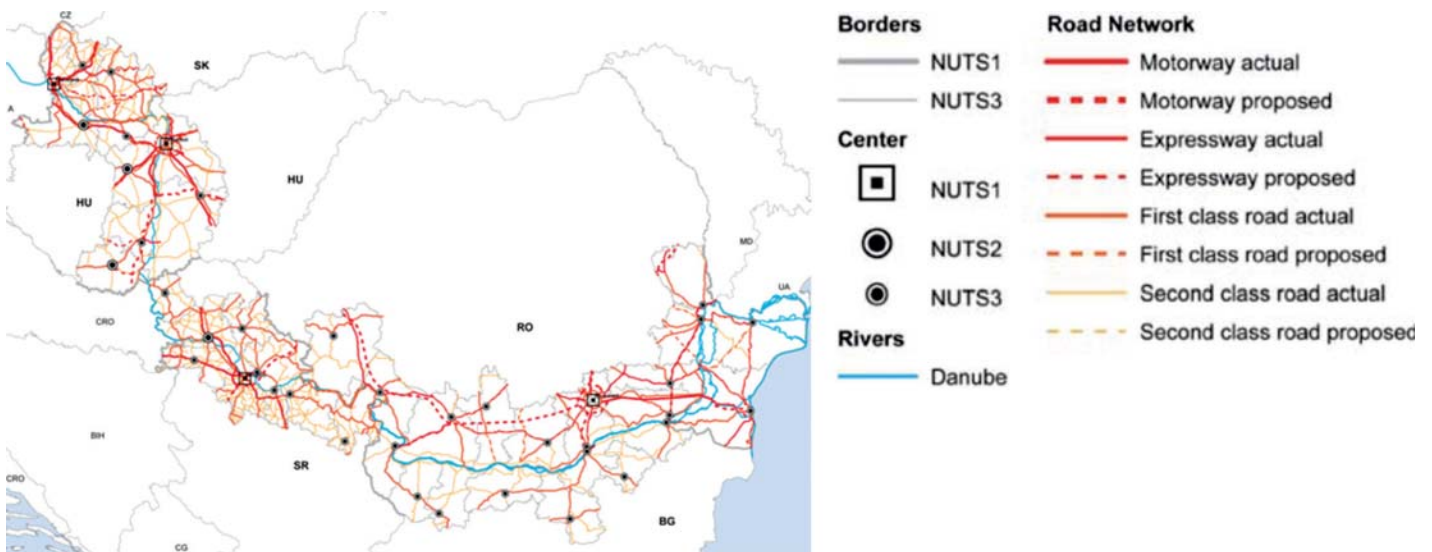
1. Ensuring good territorial accessibility of the localities, as well as ensuring good regional and local accessibility to the touristic objectives (Walter/Hansen 1959).
2. The development of a more diversified touristic offer, complementary to the one made up of the local patrimony (e.g. accommodation, leisure, business infrastructure)

One of the challenges that need to be achieved in order to perform these two actions includes the establishment of good connectivity at different spatial levels, as well as and in relation to different aspects. In general, the term connectivity is the state of being connected or interconnected. On the other side, "to connect" mean to "bring together or into contact so that a real or notional link is established and to join together so as to provide access and communication" (Oxford living Dictionary 2018). From the aspect of transport, where this term is intensively used connectivity refers to the density of connections in path or road networks, and the directness

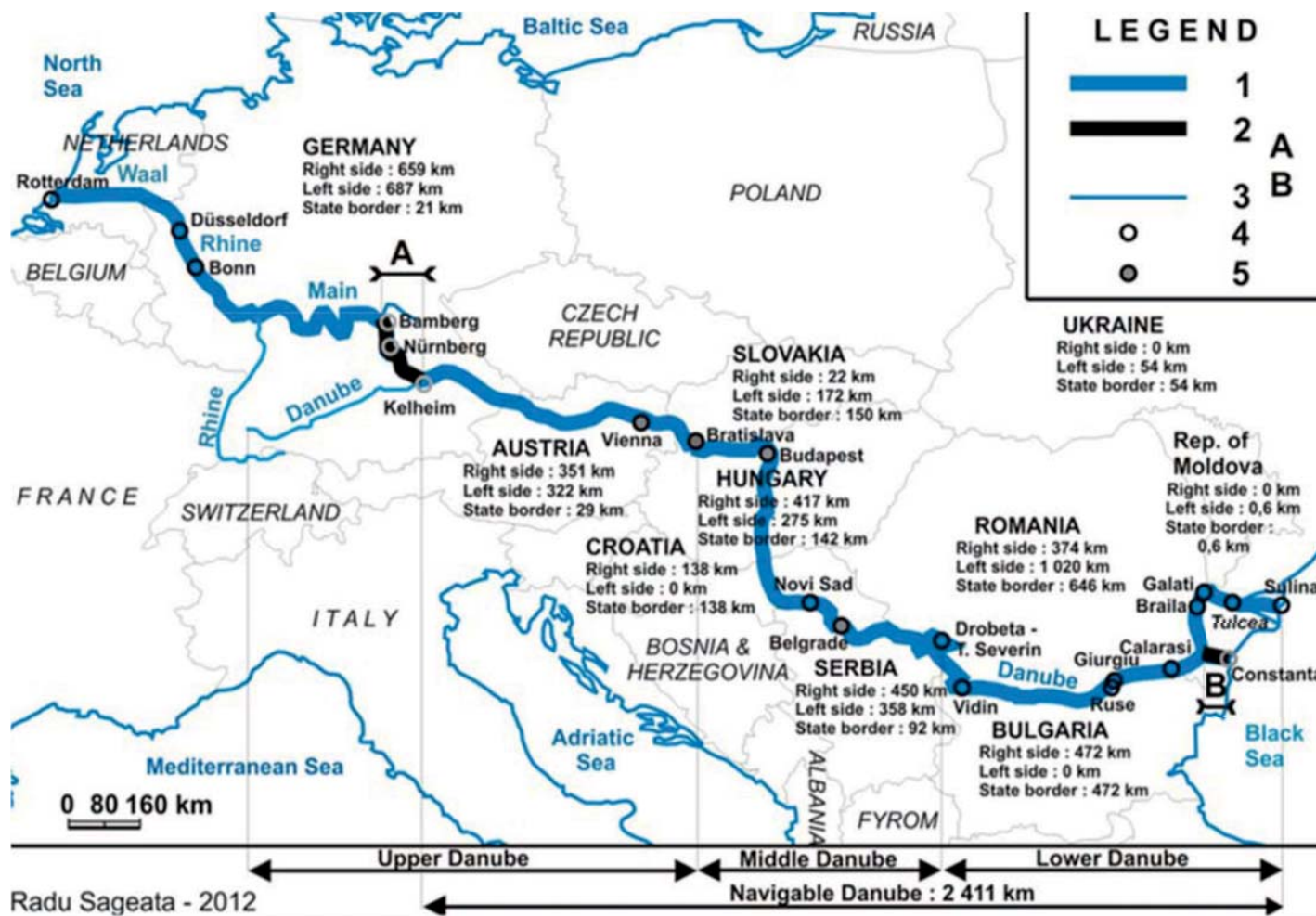
of links. A well-connected network has many short links, numerous intersections, and minimal dead-ends. As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations, creating a more accessible and resilient system." (Victoria Transport Institute 2017). Accessibility (or just access) mainly refers to the ease of reaching goods, services, activities and destinations, which together are called opportunities (Hansen 1959; Engwicht 1993) and the city gates as both technological-transport hubs as well as public spaces with strong identity.

Considering the Danube Region, Danube stretching from the Black Forest (Germany) to the river's delta in the Black Sea (Romania) is a connection in itself between EU and the regions of Caucasus and Central Asia. On the other side if we look at the connectivity as one of the criteria by which we can measure the spatial development of a certain area, it can clearly indicate significant differences.

By simply comparing the density of the network (see Figure 1.) of motorways, expressways, first and second class roads (Donauregionen+ 2012), it is possible to notice the differences between the west, central and eastern part of the Danube region, which also coincides with sections which are ascending as upper, middle and lower Danube (see Figure 2.).



1 | GENERAL SCHEME OF THE TRANSPORT AND TECHNICAL INFRASTRUCTURE ALONG DANUBE. SOURCE: DONAUREGIONEN +, 2012.



2 | THE RHINE-MAIN-DANUBE CORRIDOR AND THE ILLUSTRATION OF THE POSITION OF THE UPPER, MIDDLE AND LOWER DANUBE. SOURCE: SAGEATA, 2012.

Spatial connectivity is also regarded as a crucial development goal for Europe and the European Union (EU). In European Spatial Development Perspective (ESDP) the Danube is mentioned as one of identity-giving entities for the wider European areas. One of the main goals of ESDP is the development of polycentric spatial model at the continents primarily the extension and densification of Trans-European Networks (TENs). This includes more operative and mutually linked goals: better connectivity between larger and smaller towns, the easier accessibility of remote areas, facilitation of intra-regional linkages, and strengthening of secondary transport networks to TENs. In the case of the Danube as an important inland waterway in Europe, support to inter-modal junctions for transport, relating shipping and inland navigation, is a particularly valuable goal (EC, 1999).

THE DANUBE REGION

The Danube River has an immense importance for European continent as well as for the European Union. Being the longest river in the western half of Europe, one of the most advanced and richest global regions, the river is of great economic importance. "The Rhine-Main-Danube" corridor is certainly the main inland waterway on the continent. 70% goods transported on inland waters in the EU in 2010 were actually transported via this corridor. However, just 15% of this transport belonged to the Danube despite it is more than two times longer river than the Rhine (REWWay, 2014). Then, the importance of the Danube is not just limited to economic field. Passing through ten countries and encompassing nine more by its basin (EC, 2011), the Danube region has a complex and multi-level cultural and social background, presenting a perfect ground for permanent cooperation and exchange between entities and people. Considering the aforementioned disproportion between the length and transport utilisation of Rhine and the Danube, spatial connectivity is

crucial issue for the prospects of the Danube Region. This is clearly evident in the European Union Strategy for the Danube Region (EUSDR), which represents an umbrella policy for the Danube Region. The first two priority areas in the strategy are related to the better connectivity of the region: waterways mobility and rail-road-air mobility (ICPDR, 2014). Their targets fully correspond to the previously mentioned goals from ESDP. In its main document, the action plan of the strategy, the targets are elaborated and linked to the conventions that should be signed by all Danube countries involved, to enable appropriate integration at all levels (pan-European, macro-regional, state, and regional). Analysing the document, the meaning of spatial connectivity is embedded in the integration of different transport modes, including the issues of intermodal transport, elimination of bottlenecks in crossing the river, cross-border transport links and better urban-rural connections (ICPDR, 2010).

The connectivity of routes and transportation systems within Danube corridor is the main prerequisite for the continuous accessibility and valuation of the heritage. High distance and high-speed (inter)continental accessibility largely depends on the connectivity to the Trans-European Transport Network (TEN-T) – on road, rail, air, river/sea; for freight and passengers (European Commission, 2013b). From a good connection to the TEN-T network and in particular to the Rhine-Danube Corridor (component of the TEN-T core network) benefit the major capital cities along the Danube: Vienna, Bratislava, Budapest, Belgrade, and Bucharest (in the river's wider area of influence). The rest of the along-Danube smaller localities benefit from good European accessibility only to the extend they are well connected, by good routes and effective regional transport, to these major transport hubs – cities, especially to their stations on European transport routes (TEN-T railway stations, airports, ports) and to highways.

This was presented in the Danube regions project report (2012) in which 19 cross Danube regions CDR) were separated and further explored. Every CDR was analysed using the same methodology and each of them was given a strategy that included the theme of transport and technical infrastructure. Considering the aspect of connectivity, as an illustration, on the example of CDR07 Pécs-Szekszárd-Baja-Osijek-Sombor, (see Figure 3.).



3 | THE CDR NO. 07 PÉCS - SZEKSZÁRD - BAJA - OSIJEK - SOMBOR. SPATIAL DEVELOPMENT PROPOSAL. SOURCE: DONAUREGIONEN+, 2012.

which lies on the territory of three countries (Hungary, Croatia and Serbia), it was found that it has excellent geographical position for logistics and good accessibility, transport infrastructure for all existing means, but there are bad conditions existing railroad network and second class roads, multimodal transport infrastructure is underdeveloped and the use of waterways is insufficient.

The entire Danube region is traditionally divided in three inner regions (see Figure 2.) in accordance with natural borders and limits. The main division elements are mountains that intersect the river. Carpathian Mountains interrupt the flow of the Danube in both cases. Therefore, the upper Danube region encompasses the Danube from its source in Black Forest to Bratislava, where the westernmost hills of Carpathians touch the river. The middle region is between this, westernmost point and the southernmost point of Carpathians, divided by the Iron Gates/Đerdap gorge. The lower Danube region includes the region leaning to lower section of the river, from the Iron Gates Gorge (Figure 4) to its confluence into Black sea, with the length more than 1,000 km. The river in this section is characterised by significant width; the river is several-kilometre wide in some parts. Additionally, the Danube passes through Wallachian Plan and has a very small average gradient, which is approximately 0.00003% per km (ICPDR,

2002). Hence, riverside is usually a wetland, with often floods. This is in sharp contrast to its middle and, particularly, upper part, where river is narrower and with bigger average gradient.

For the purpose of the research of connectivity, this region is a bit changed, i.e. prolonged till Belgrade as an upper point. In this way, the coverage of the 'customised' lower Danube region adequately corresponds to the history related to the river connectivity. The part of the Danube from Belgrade to its confluence mainly follows national borders. In early modernity (16th-19th century), this was a border between Habsburg and Ottoman interest spheres (Jeftić and Šarčević 2012; Vezekov 2017). In particular,, the Danube was a border between two civilisations for centuries because this long-standing political division was deeply reflected into different social, economic and cultural customs and patterns (Tracy, 2015), (see Figure 4.).



4 | THE IRON GATES GORGE, THE LARGEST ON THE DANUBE, IS THE MAIN PHYSICAL BOUNDARY BETWEEN MIDDLE AND LOWER DANUBE SECTIONS. AUTHOR: B. ANTONIĆ.

The role of border was preserved even after the retreat and collapse of these empires in the late 19th and early 20th century; the most of the section of Lower Danube coincides with the national borders between Serbia and Romania, then Romania and Bulgaria and, finally, Romania and Ukraine (Vezekov, 2017). This position of the Danube as the overall 'limit' and 'boundary' in space has had profound consequences on connectivity at all levels: state, regional and urban level (Đukić and Antonić, 2017). Finally, this can be clearly proved by the number and frequency of bridges across the Danube in these three established regions by the following table:

| THE DANUBE REGION | LENGTH (in km) | INCLUDED COUNTRIES (number of bridges) | NUMBER OF BRIDGES per country | NUMBER OF BRIDGES | FREQUENCY (One bridge/km) |
|----------------------|----------------|--|-------------------------------|-------------------|---------------------------|
| Upper Danube Region | 890 | Germany | 115 | 163 | 5.46 |
| | | Austria | 48 | | |
| Middle Danube Region | 718 | Slovakia | 7 | 38 | 18.9 |
| | | Slovakia-Hungary | 5 | | |
| | | Hungary | 17 | | |
| | | Croatia-Serbia | 4 | | |
| | | Serbia till Belgrade | 7 | | |
| Lower Danube Region | 1,172 | Serbia from Belgrade | 2 | 9 | 130.2 |
| | | Serbia-Romania | 2 | | |
| | | Romania-Bulgaria | 2 | | |
| | | Romania | 3 | | |
| | | Romania-Moldova | 0 | | |
| | | Romania-Ukraine | 0 | | |

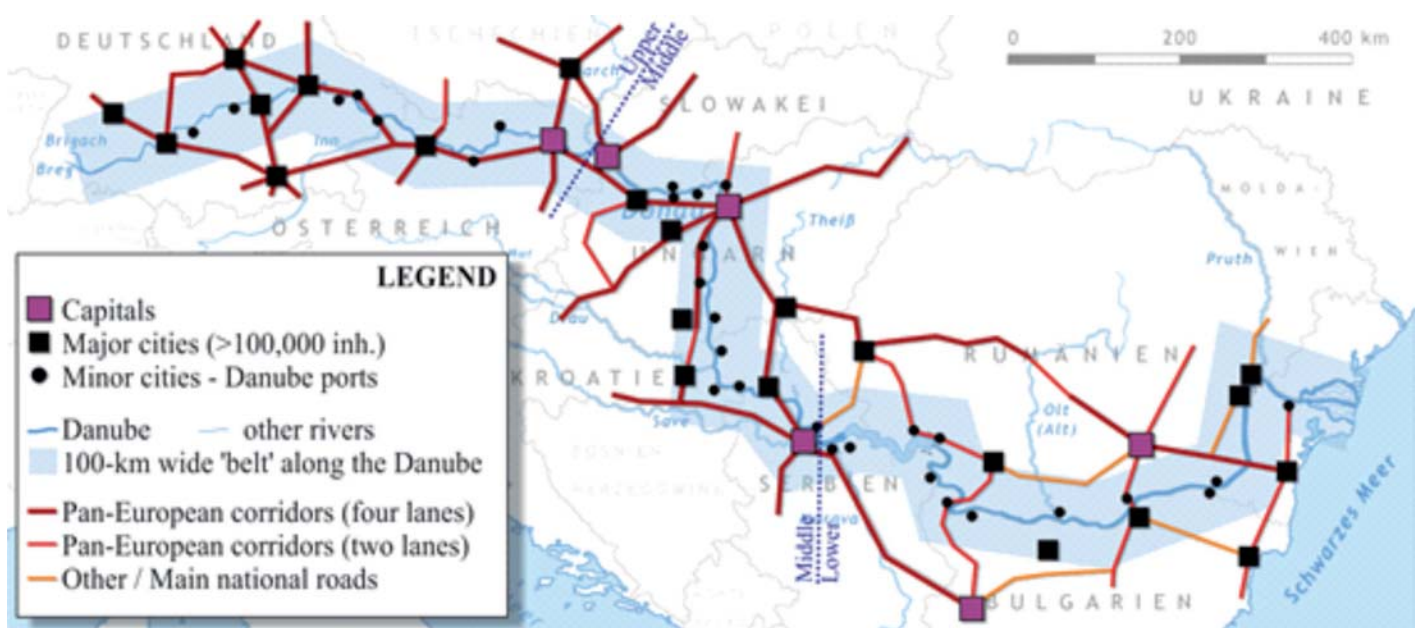
5 | THE NUMBER AND FREQUENCY OF EXISTING BRIDGES (INCLUDING THOSE WITHIN DAMS) CROSSING THE DANUBE. SOURCE: GOOGLEMAPS, 2018

This table shows that the bridges on the Middle and Lower Danube are mainly located in large centers, which further reduces connectivity, especially in connection with the possibility of creating a secondary road network that directly connects smaller settlements..

CONNECTIVITY AND TRANSPORT NETWORK - INTERNATIONAL, INTERREGIONAL AND NATIONAL LEVEL

In accordance with the previous goals from ESDP and the Danube Strategy, spatial connectivity will be checked comparing the mobility conditions between waterways and rail-road-air transport. The main objective is to understand whether cities and municipalities along the river exist as intermodal nodes to enable transport mobility as planned in policy documents.. This includes three analyses based on existing transport infrastructures:

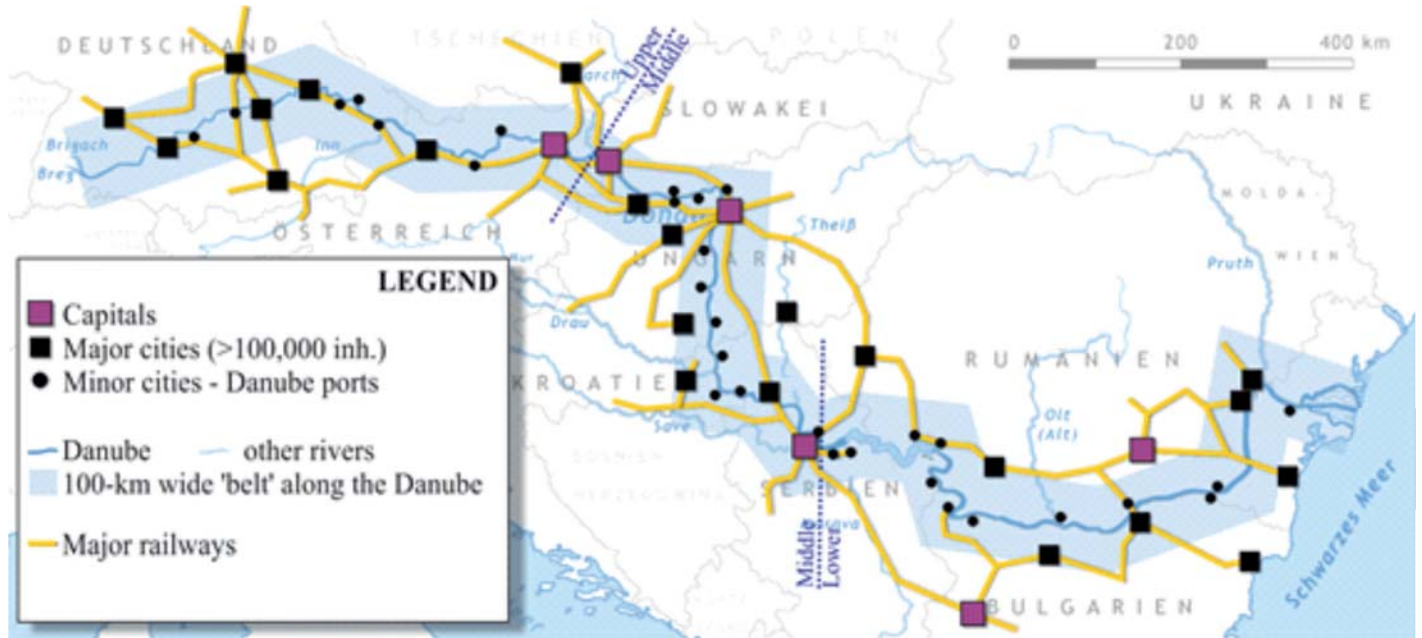
1. Connectivity between the river cities and towns and road network;
2. Connectivity between the river cities and towns and rail network; and
3. Connectivity between the river cities and towns and airport network.



6 | THE CONNECTIVITY BETWEEN THE DANUBE (WATERWAY) AND MAJOR ROADS IN 2018. SOURCE: B. ANTONIĆ; SUBSTRATE MAP: DANIEL ULLRICH/THREEDOTS, 2005.

The Figure 6. presents connectivity between the Danube and major roads, mostly belonging to the system of E-road network. For easier observation, 100-km wide 'belt' along the Danube is marked. With help of this belt, it is evident that the road network in the upper and middle sections of the Danube Region generally follows the river. This is especially noticeable in the middle section, where larger cities and national capitals are concentrated. In sharp contrast, the lower Danube has fewer main roads, which also have two lanes. Nevertheless, it is even more noticeable that they mostly do not follow the Danube; these roads usually intersect the river in a few places (Vidin-Calafat and Ruse-Giurgiu), which are actually the only places suitable for prospective intermodal nodes. Apart their case, the general connectivity of the cities in the Lower Danube is very limited. This was also noticed by Donauregionen+ Report (2012), where is pointed that road transport is mostly concentrated in the old EU Member States.

Similar patterns of spatial connectivity are visible in the case of the overlapping of railway network and the Danube as a major waterway (see Figure 7.).



7 | THE CONNECTIVITY BETWEEN THE DANUBE (WATERWAY) AND MAJOR RAILWAYS IN 2018.
SOURCE: B. ANTONIĆ; SUBSTRATE MAP: DANIEL ULLRICH/THREEDOTS/, 2005.

The selected railways are those that are electrified and have a status of major corridors in national systems. The density of railways decreases moving from Upper to Lower Danube sections. It is also observable that railway network is more fuzzy and with many deadlocks along this sections. However, it should be underlined that the entire Danube region faces a strong orientation towards monocentric railway system based on national capitals. This is particularly visible for Budapest and Belgrade in the Middle Danube area. Only the most western/German part of the region is developed as a polycentric system.

The last analysis is related to spatial connectivity as a result between the Danube as a major waterway and international airports, i.e. airports with at least one regular international flight (see Figure 8.).



8 | THE CONNECTIVITY BETWEEN THE DANUBE (WATERWAY) AND INTERNATIONAL AIRPORTS IN 2018
SOURCE: B. ANTONIĆ; SUBSTRATE MAP: DANIEL ULLRICH AND THREEDOTS/, 2005.

The results obtained confirm previous ones. There are no airports in the area of the Lower Danube, even in the cities with more than 100,000 inhabitants (Galati, Braila, Ruse, and Plevna). In addition, all nearby airports are mostly located on opposite sides of the respective cities. For example, Bucharest Otopeni Airport is located north of the city, i.e. on the opposite side towards the Danube. It is similar with the airport in Sofia. On the contrary, all the capital cities of the Middle Danube have international airports. All of them are close to the river, which can simplify the creation of intermodal nodes, especially for freight. The Upper Danube region is in the midst of various locations around the Danube. Finally, it is noteworthy that all airports in the Lower Danube region (with those in the Central Danube region) are not international hubs because their main customers are tourists and migrant communities. This is very different in comparison with Vienna and Munich in the Upper Danube region, where the entrepreneurs dominate (Donauregenen+ 2012).

At the end of this analysis, it can be concluded that political history has profoundly mirrored into spatial-connectivity issue in the Danube Region. This is especially visible in its lower section. Instead of the 'classic' closing remarks, the conclusion of an Eastern European specialist in the U.S. State Department, given several decades ago, after the World War II, is cited:

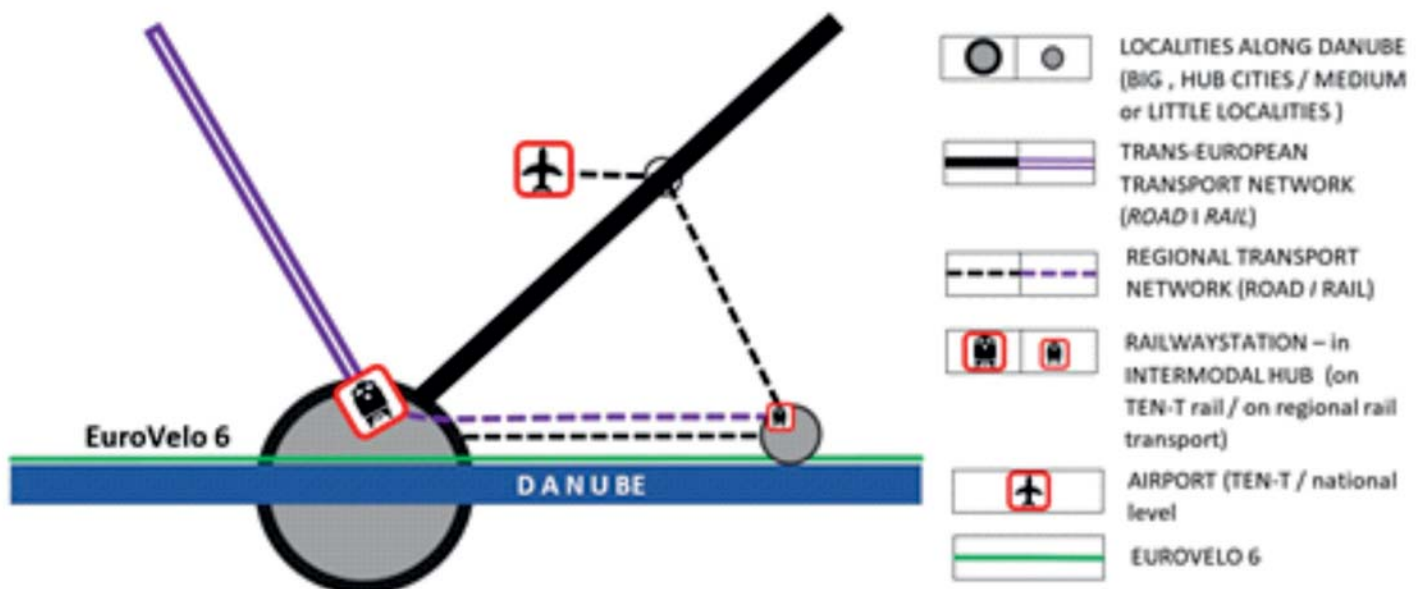
"[The Danube] has always been a political question. As a commercial route, it has never lived up to its potentialities. Those Powers which have been concerned with opening or closing it have been more interested in their influence and control in the Danube region than in navigation on the river itself" (Campbell, 1949, p. 315).

THE PRESENT REVIEW HIGHLIGHTS THE NEED TO IMPROVE THE SITUATION BY USING FAMILIAR TOOLS SUCH AS THE EXTENSION OF TRANSPORT NETWORKS AND THE INTRODUCTION OF ALTERNATIVE PROPOSALS AIMED AT ENHANCING CONNECTIVITY BETWEEN SETTLEMENTS ALONG THE DANUBE AND ACCESS TO A RICH HERITAGE. TOURIST DESTINATION NETWORK FOR HERITAGE ACCESIBILITY

The attractiveness of the touristic localities is considerably influenced by their accessibility in terms of time, comfort, and costs. The people's time budget for tourist activities is limited, precious, and therefore the share of time spent on non-recreational travels needs to be minimized. The reduction of distance-time at the territorial level is important and depends on the speed performance of transport technologies, on the quality of the infrastructure and the efficiency of transport services.

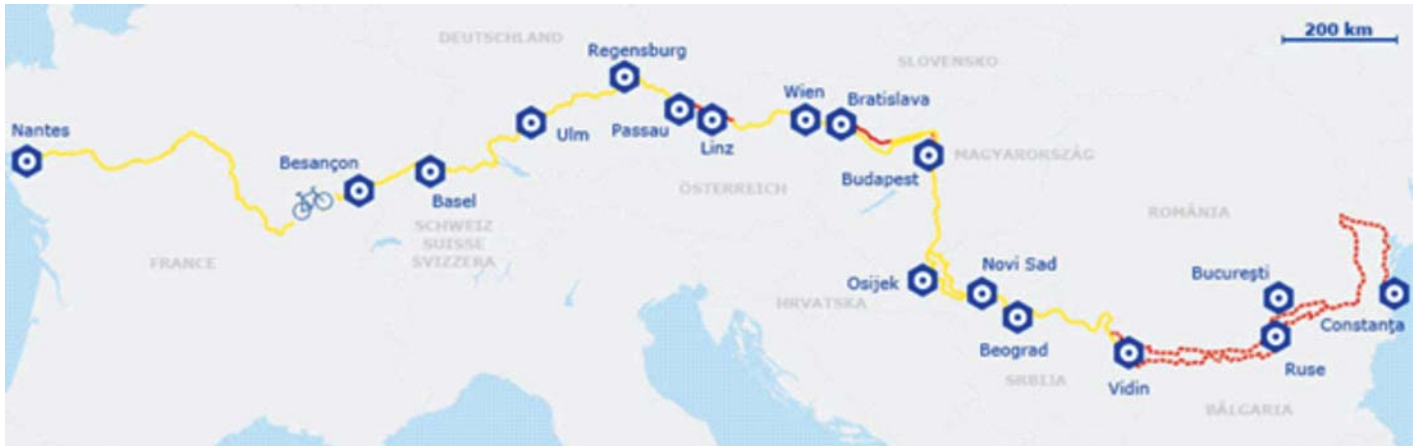
From this point of view, the connections to highways and high-speed transport infrastructures - such as TEN-T or high-speed infrastructures at national level - is essential. The large cities along the Danube already benefit from this type of accessibility and/or have prospects for improving it at a shorter time horizon, while smaller localities have a lack of accessibility at the territorial level, especially in the eastern part of the river course.

The improvement of the accessibility at the European, national and regional level of medium and small localities along the Danube can be achieved through the improvement of the regional transport networks – on road, rail, bicycle - between them and the nearby big, hub-cities. It also implies good connections of the regional transport with the main gates of the big cities – railway station, airports, and ports - some of which are related to the TEN-T (see Figure 9.).



9 | EUROPEAN & NATIONAL ACCESSIBILITY OF THE MEDIUM & LITTLE LOCALITIES ALONG DANUBE, THROUGH REGIONAL TRANSPORT & INTERMODAL CONNECTIONS. SOURCE: M. NEGULESCU.

Emphasis should be placed on improving the regional connections with less polluting means of transportation: electric vehicles (e.g. train, tram-train, tramway, electric buses) and bicycles (which implies the creation of regional/national bikeways). EuroVelo 6 is a European non-motorized connection along the Danube that is already largely carried out in the western part of the river course, but still to be developed in the eastern part of the river along both banks (see Figure 10).



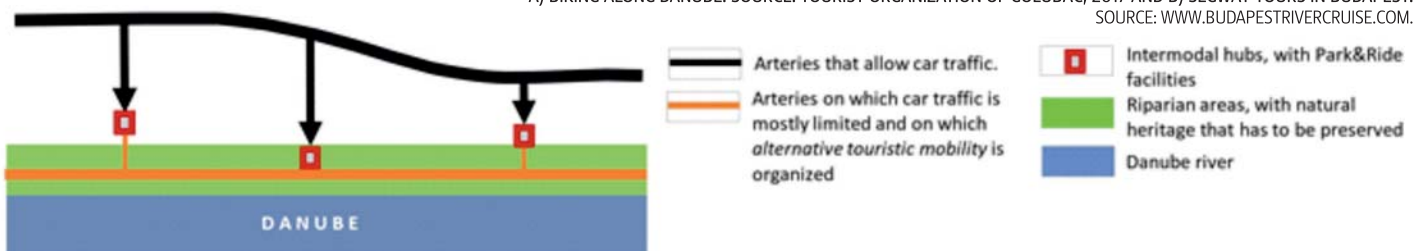
10 | EUROVELO 6 - ATLANTIC-BLACK SEA. THE RIVERS ROUTE, IS AN 3,653 KM EUROPEAN CYCLING ROUTE RUNNING ALONG 6 EUROPE'S RIVERS FROM NANTES TO CONSTANTA. SOURCE: EUROVELO 2018.

For preserving the accessibility on the roads along the Danube banks, the building-up process on the riparian areas should be controlled and limited in order to avoid future congestion effects and an undesirable anthropization of the natural corridor. It is not advisable to enlarge these arteries, not even where it would be largely possible, because an increased supply of road will attract a harmful, excessive dynamics of urbanization in a natural context to be protected, increased motorized flows and their negative effects: natural landscape degradation, ecosystem imbalances, and pollution. Tourist Transport Management (also called Resort Community Transport Management) it is needed to improve transportation options for recreational travel, reducing automobile traffic in resort areas (Victoria Transport Policy Institute 2014). It is suitable to develop touristic mobility schemes (DANURB, 2018) at the regional level (including trans-national territories), based on alternative-to the car-modes, as an attractive offer to meet the mobility needs of tourists (mini-buses, bike-sharing, mini-car rental, hop-on - hop-off services), intermodal points with "park and ride" facilities where the personal cars can be let and flexible transport services. Contextualized regional touristic mobility schemes should be identified to selectively limit, as it is possible, the circulation of private cars on the roads along the Danube's banks, by diverting the majority of the motorized traffic on alternative routes, bypassing the banks. Urban vehicle access regulations (UVAR) schemes (Ricci at al. 2017) could be implemented.

On the roads along the banks of the Danube, outside the localities, it is advisable to organize alternative transport systems for touristic trips, low polluting, low space consuming and with a less aggressive insertion in the valuable Danube landscape. For the tourists to give up their cars when travelling along the banks, some intermodal points should be organized, with "park and ride" facilities and an offer of alternative transport: mini-buses, public-bikes, various types of mini-electric vehicles. (Figures 11. and 12.).



11 | UNPOLLUTING AND LESS SPACE-CONSUMING MEANS OF TRANSPORTATION FOR TOURISTIC MOBILITY SCHEMES ALONG THE DANUBE. A) BIKING ALONG DANUBE. SOURCE: TOURIST ORGANIZATION OF GOLUBAC, 2017 AND B) SEGWAY TOURS IN BUDAPEST. SOURCE: WWW.BUDAPESTRIVERCRUISE.COM.



12 | SCHEME FOR ORGANIZING IDEAL MOBILITY ALONG THE DANUBE'S BANKS, FOR PROTECTING THE NATURAL HERITAGE. SOURCE: M. NEGULESCU.

The EuroVelo 6 route can and should become the longest non-motorized trans-national connection along the Danube. It is to develop its components on both sides of the river, related by trans-Danube connections that can be constructed on existing - road and rail bridges (on whose massive structure could be hooked a light metal structure for the bike-lanes) or on new bridges created exclusively for non-motorized over - Danube crossings (now the last one is in Vienna). Considering the issue of public transport the connectivity depends on the number and frequency of the lines, and whether it is conditioned by the development of the network of roads. However, there are some improvements of public transit in such a way to facilitate the movement of cyclists in certain parts of the route in the Lower Danube area (see Figure 12.).

On the other hand, there is the possibility of improving connectivity by introducing stronger mobility on the river and increasing the use of this type of movement, which would mean overcoming the river as an obstacle to merging costs and improving connections between settlements along the Danube. In this domain, special attention need to be given to problem of the existing roadways or railways along the Danube crating a physical obstacle between city and river for example in Budapest (Benkó and Garay, 2014) and Belgrade (Vukmirović 2015).



13 | BUSES FOR CYCLISTS. TOURIST ORGANIZATION OF GOLUBAC, 2017.

The connectivity at the territorial level (European, national) has to be completed by a good connectivity at the local level as support for a good accessibility of the local heritage (Negulescu 2011). This can only be achieved through the (re)organization of the city gates - railway stations, harbours, airports on the TEN-T as intermodal hubs that provide facilities for comfortable, safe, fast transfer from the transport at the territorial level to the multimodal mobility offer at the local level.

PUBLIC SPACE NETWORK - CONNECTIVITY AT THE LOCAL LEVEL

Considering walking as a day-to-day activity of most citizens and visitors to a particular town or city, the experiences that arise in this kind of the interaction with the place are of great importance because they affect the formation of a general impression of a certain place (Vukmirović et al., 2018). By placing an emphasis on public spaces and pedestrian environment, a light is put on the significance of small scale, often neglected in contemporary projects and development strategies. Visions that correspond to this perspective put focus on specific advantages of cities proportional to dimensions, senses and walking speed and form a basis for more complex and diverse relations (Vukmirović 2014).

Considering the ways of constructing cognitive maps, the formation of the network of pedestrian as well as public spaces is analysed on the basis of its simplified structure, which includes identification of paths/connections and destinations/nodes (Vukmirović/Folic 2017). This approach was used in Spatial Metro Project that has the objective to improve the centre of the

city for pedestrians (van der Spek 2007). Destinations are the places with the greatest intensity of users and correspond to the places that are located at the corners of the streets, main public spaces or dotted along the paths. On the other side, connections function as water canals and correspond to the streets in which the most of the movement takes place.

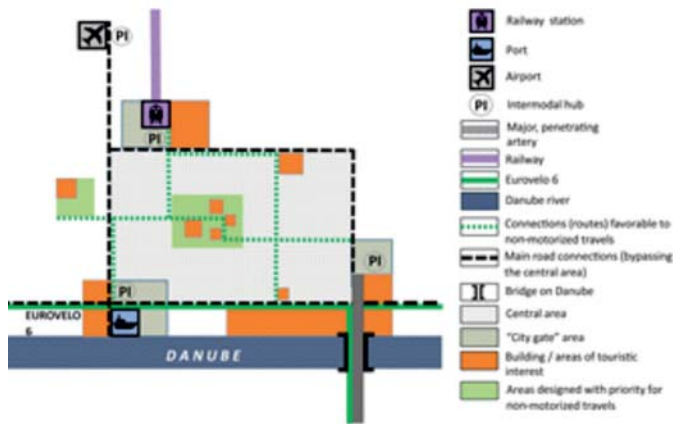
The connectivity at local level is investigated on the territory of Golubac during the student workshop specially designed for this purposes. Golubac is a small town and municipality in Serbia, situated on the right side of the Danube river. It has great tourist potential thanks to its spatial position and the Golubac fortress as a well-known heritage site. However, these potentials have not been sufficiently exploited due to the poor connection and attractiveness of the town. The research was supposed to show how this situation can be overcome by examining ways to improve the quality of the network and the connectivity of local open public spaces.

One of the results of the investigation of public spaces in Golubac was the map of the actual and the map of the future network of public spaces. It mapped the most of the public spaces and categorised them as destinations and connections. In addition to the above, a general impression of particular locations have been presented (both current and after transformation) using the defined structure that include: character, main attractor, main activity, number of approaching routes and the state of the exiting public space for destinations and character, main activity and the state of the exiting public space for connections.

Considering elements of the public space networks, in the actual state are recognised 10 destinations and 9 connections. Destinations are divided into three groups: public places, semi-public places and public objects.

Some of them also have character defined as main gathering place, commercial zone or promenade. On the other side, connections are divided into the public space and pedestrian connection, main motorway and secondary motorway.

Destinations that are recognised within the network in Golubac include (see Figure 14.).

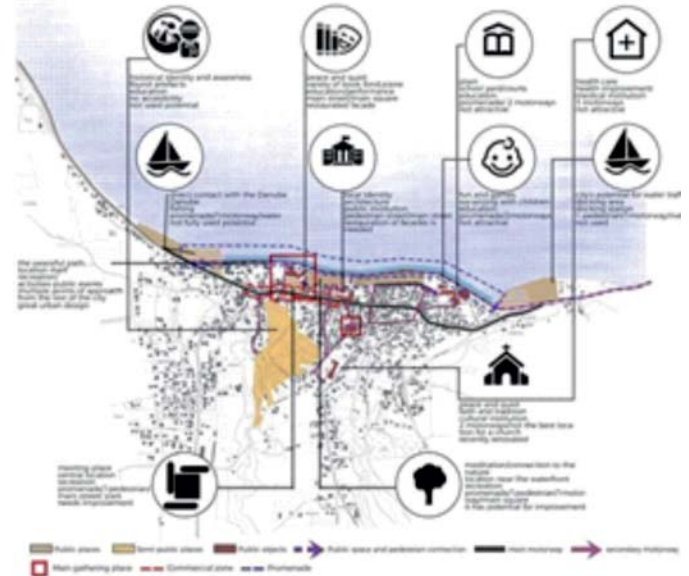


14 | CONNECTIVITY AND ACCESSIBILITY SUPPORTING TOURISTIC MOBILITY. AUTHOR: M. NEGULESCU.

- West marina with the direct contact with Danube, motorway and promenade and possibility for fishing, has the potential that is not fully used;
- Main square with a library, hotel and post office, a meeting place in direct contact with the main street and the public park, has the potential that could be further improved;
- A school with an accompanying environment next to the river, two courts with the direct links to the promenade and main street, in condition that is not attractive;
- East marina with docking area, has the potential for introduction of the water traffic and installing equipment that would complement this content, at the present, it is not in use;
- A theatre and cinema building with its surrounding, public institution places in the main street, the building is of an architectural value, but needs serious reconstruction and reorganisation in order to meet contemporary needs and become more attractive;
- A square in front of the church, another main meeting place, connected with two secondary motorways, peace and quiet, the church has recently been refurbished but the site needs improvement; Public park is a place for meditation and connection with nature in direct contact with the waterfront promenade and near the main street, has the potential and needs the improvement ;
- Health care centre, medical institution connected with three secondary motorways in condition that is not attractive and Historical site has the historical identity and awareness, founded artefacts, very poor accessibility, but with the strong unused potential. In relation to the connections there is river promenade, a peaceful path for relaxation and recreation, temporarily active with public events, has multiple approaching points and it is in good condition; and
- The main street with the commercial zone as some extension of the main city square, a strong and intensively used motorway that connect Golubac with other settlements and a few secondary streets leading to the main street.

General attitude is that all public spaces that are recognised within the network of public spaces own their strong character that is related to their location, but need a significant reconstruction and improvement. In this respect, the proposal of the future network of public spaces in Golubac strives to emphasize the existing character of the recognized spaces, to improve and advance their appearance and contents in order to meet contemporary needs and extend their influence and expansion into new areas.

The future network of public spaces in Golubac envisions 15 destinations and 11 connections (see Figure 15.).



15 | NETWORK OF PUBLIC SPACES IN GOLUBAC. SOURCE: U. MARKOVIĆ, I. KISIN, J. JOFOLDI, T. HEKSCH, C. SAMARANDA AND P. CONDRUT, 2017.

The main improvement is seen in a proposal of the new transit route that would remove heavy and intense traffic from the main street. West marina will get two new contents - aquarium and museum of the specific fauna of the Danube area, it will be recognised as an educational and cultural point in order to highlight its new character; A school with an accompanying environment will be transformed in an area with a strong sense of community and complementary activities, while the area will be arranged in accordance with new needs and the place in front of the church will be renewed and improved.

It was concluded that the network could be complemented by two new destinations in the southern part of the city in the historic site. It will cover a historic site with a special building structure that will protect artifacts and give local residents and visitors the opportunity to see heritage and learn. Next to it, there should be a place for a new park of natural wealth for relaxation and recreation. These destinations will be connected with other places by two new connections. One will be completely new, connecting the historic site with the main street, and another will be the expansion of the existing Kraljevića Marka Street.

The potential for transformation could be in the area of the commercial zone of the high street that is proposed to be extended and treated as a shared space in the future. This will contribute to the integrated interconnection and integration of the main street, the Main Square and the green area along the Danube promenade. All the proposed interventions are conceived in the spirit of contemporary design and public space treatment, (see Figure 16.), which could additionally contribute to the revival, and attractiveness of the entire public space network in Golubac.

REFERENCES

CAMPBELL, John C. 1949. Diplomacy on the Danube. *Foreign Affairs*. 27(2), pp. 315–327.

DONAUREGIONEN+. 2012. The Spatial Development Concept of Interregional Cooperation in the Danube Space. [Accessed 16.04.2018]. Available at: https://www.b2match.eu/system/danubeinonetjpiurbaneurope/files/BG_Interreg_III_B_Projekt_Donauregionen.pdf?1490191709

ĐUKIĆ, Aleksandra and ANTONIĆ, Branislav, 2017. Territorial Planning as a Creative Tool for the Upgrading of Cultural Tourism in Golubac, Serbia. In: *The International Conference on Tourism and Business - The Book of Abstracts*. Lucerne, Lucerne: Lucerne university of Applied Sciences and Arts, p. 21.

EAA et al. 2014. TRANSDANUBE - Sustainable Transport and Tourism along the Danube. SEE - South East Europe Transnational Cooperation Programme.

EUROPEAN COMMISSION – EC. 1999. ESDP: European Spatial Development Perspective. [Accessed 16.04.2018]. Available at: http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf

EUROPEAN COMMISSION – EC. 2011. EU Strategy for the Danube Region. [Accessed 16.04.2018]. Available at: <http://www.danube-region.eu/attachments/article/590643/EUSDR-EN.PDF>.

EUROPEAN COMMISSION 2013b. TEN-T Guidelines.

EVERT, Klaus-Jürgen, (Ed.), 2010. *Encyclopedic Dictionary of Landscape and Urban Planning*. Multilingual Reference Book in English, Spanish, French, and German, Springer-Verlag Berlin Heidelberg, p.168.

GARAY, Márton and BENKŐ, Melinda, 2014. Between Waterway and Railway – Industry along the Danube Riverside in Budapest. *Periodica Polytechnica Architecture*, 45 (2), pp. 53-58. accessed online. <https://pp.bme.hu/ar/article/view/7554/6694>

HANSEN Walter G., 1959. "How Accessibility Shapes Land Use". *Journal of the American Institute of Planners*. 35(2).

INTERNATIONAL COMMISSION FOR THE PROTECTION OF THE DANUBE RIVER - ICPDR. 2002. Joint Danube Survey. Technical Report of the International Commission for the Protection of the Danube River. Vienna: ICPDR.

INTERNATIONAL COMMISSION FOR THE PROTECTION OF THE DANUBE RIVER - ICPDR. 2010. European Union Strategy for the Danube Region: ActionPlan. [Accessed 16.04.2018]. Available at: http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/danube/action_plan_danube.pdf

INTERNATIONAL COMMISSION FOR THE PROTECTION OF THE DANUBE RIVER - ICPDR. 2014. Joint Paper on Cooperation and Synergy for the EUSDR Implementation. Vienna: ICPDR.

JEFTIĆ ŠARČEVIĆ, Nevenka, 2012. Is it Possible Synergies between the Danube and Black Sea Region: The Geopolitical Position of Serbia. In: Jeftić Sarčević, N. and Stojić Karanović, E. (Eds.) *Danube Strategy – Strategic Significance for Serbia*. Belgrade: The Institute of International Politics and Economics, pp. 156-163.

NEGULESCU, Mihaela Hermina, 2011. *Mobility and urban form - theoretical aspects*. Bucharest: "Ion Mincu" Academic Publishing House.

OXFORD LIVING DICTIONARY, <https://en.oxforddictionaries.com/definition/connect>

REWWay - Research & Education in Inland Waterway Logistics. 2014. Reader – The Danube Waterway – Economic Geography. [Accessed 16.04.2018]. Available at: <https://www.rewway.at/files/eba2d3c4f7f424bac676f2cdec27a52/>.

RICCI A., GAGGI S., ENEI R., TOMASSINI M., FIORETTO M., GARGANI F., DI STEFANO A., GASPARI E. 2017. "Study on Urban Vehicle Access Regulations", European Union.

SAGEATA, Radu, 2012. River and Sea Transports in Romania in the European Union Strategy for the Danube Region Perspective. *Romanian Journal of Geography*, 56(2), pp. 157-166.

TRACY, James D. 2015. The Habsburg Monarchy in Conflict with the Ottoman Empire, 1527-1593: A Clash of Civilizations. *Austrian History Yearbook*, 46, pp. 1-26. DOI: 10.1017/S0067237814000071.

VAN DER SPEK Stefan, 2007. Legible city–walkable city–liveable city: Observation of walking patterns in city centres. In Introductory paper, Urbanism On Track–Expert meeting on the application in urban design and planning of GPS-based and other tracking-based research, Delft.

VEZENKOV, Alexander. 2017. Entangled Geographies of the Balkans: the Boundaries of the Region and the Limits of the Discipline. In: Daskalov R. and Marinov T. (Eds.) Entangled Histories of the Balkans: Volume Four. Leiden, Brill, pp. 115-256.

VICTORIA TRANSPORT POLICY INSTITUTE, 2014. Tourist Transport Management-Improving Leisure Travel Choices – TDM Encyclopedia. <https://www.vtpi.org/tm/tm46.htm>

VICTORIA TRANSPORT POLICY INSTITUTE 2017 "Roadway connectivity" in TDM Encyclopedia, [Accessed 16.04.2018]. Available at: <http://www.vtpi.org/tm/tm116.htm>

VUKMIROVIĆ, Milena, Folic, Branislav Ljubiša, 2017. "Cognitive performances of pedestrian spaces", Facta Universitatis Series: Architecture and Civil Engineering, 15(1), pp. 43-57.

VUKMIROVIĆ, Milena, 2015. Belgrade: The Quest for Desired City Image. In: Doytchinov G. Djukic A. and Ionita C. (Eds.) Planning Capital Cities: Belgrade, Bucharest, Sofia, pp. 188-212.

VUKMIROVIĆ, Milena, 2014. Pešački prostor i kompetitivni idenitet grada, Beograd: Zadužbina Andrejević.

VUKMIROVIĆ, Milena, DJUKIC, Aleksandra and ANTONIC Branislav, 2018. Place networks. Experience the city on foot, Research Report on Student Workshop in Golubac, DANURB Project, Belgrade: University of Belgrade - Faculty of Architecture.