



**Interreg**



**Danube Transnational Programme**  
**DIONYSUS**

**Integrating Danube Region into Smart & Sustainable  
Multi-modal & Intermodal Transport Chains**

**O.T3.9 Consolidated Danube Region  
Infrastructure Master Plan, including  
recommendations for sustainable growth  
of River Cruise Industry**

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### 3 Abbreviations

Abbreviation	Explanation
<b>IWT</b>	Inland water transport
<b>RCI</b>	river cruise industry
<b>DR</b>	Danube region
<b>HR (RH)</b>	Republika Hrvatska (Republic of Croatia)
<b>AT</b>	Austria
<b>BMK</b>	Federal Ministry Republic of Austria
<b>EAMA</b>	Executive Agency Maritime Administration
<b>Nts</b>	Notices to Skippers
<b>DC</b>	Danube Commission
<b>CCNR</b>	Central Commission for the Navigation of Rhine
<b>RSOE</b>	National Association of Radio Distress-Signalling and Infocommunications
<b>NNS</b>	National Navigation Strategy (2012)
<b>Strategy</b>	National Transport Development Strategy
<b>Concept</b>	<i>2030 Budapest Long Term Urban Development Concept.</i>
<b>Plan</b>	Balázs Mór Plan
<b>Study</b>	Budapest's riverside development study
<b>Program</b>	Transport development and investment program

## 4 Overview

This study analyses the situation of cruises on the Danube, based on reports from Austria, Bulgaria, Croatia, the Republic of Moldova, Romania and Hungary.

The Danube has a huge potential from a commercial, economic, cultural and tourism point of view.

The Danube is one of the most important rivers in the world, the second in size, and has favoured economic, commercial links and, last but not least, cultural exchanges between states since ancient times.

In the context in which European tourism is developing more and more in the direction of river cruise tourism, it is becoming more and more appropriate to approach this topic. The transport of passengers on inland waters must be approached in close connection with cruise tourism. Cruise tourism represents a milestone in the socio-economic, cultural development of a country and implicitly represents an optimal way of promoting it.

Cruises are attractive from a tourist point of view, tourists visit the cities, participate in shows and recreational activities, but at the same time they can enjoy the beaches of the seas in the resorts.

Concerts, contests, shows and other entertainment programs can be organized on board the ships.

Along with the development of cruise tourism and its promotion, investments in infrastructure, shipbuilding and national and regional economies will be attracted.

The main objectives of the cruise industry should consider the development of competitive tourism products on the domestic and world markets and the increase in the availability of cruise vacations.

This project aims to find the best practices for improving and promoting passenger transport on inland waterways, especially on the Danube.

In Europe there are more than 1 million passengers who sail on river cruises, but for many countries the cruise industry, although it has solid traditions and presents considerable potential, has not presented a topic of interest in recent years. Considering that cruise tourism is not financially attractive, for example in Bulgaria, even in the Integrated Transport Strategy, the subject of river cruises is addressed briefly, without a strategic development plan.

Considering that river cruises experienced an increase with the construction of the first passenger ports, it can be concluded that infrastructure development has an important role in the growth of tourism on river cruises.

There are ports that face problems due to the change of seasons and fluctuations in the water level.

Ships have a long lifespan, which means that changing technologies requires long transition periods. Among the environmentally friendly options are renewable fuels, electric drive systems, rechargeable batteries.

The development of the infrastructure must take into account the supply of energy on land.

Transport on the Danube makes a significant contribution to the sustainable development of transport.

The objectives considered in the strategies for the development of transport on the Danube are the management of the waterways, the improvement of the navigation channel, the increase of the competitiveness of the Danube river transport in the logistics networks and the increase of traffic safety and safe operation.

The potential of passenger transport on the Danube is increasing, while land transport is congested and tourism begins to grow.

Tour operators play an important role in increasing cruises on the Danube.

The Danube passes through 4 European capitals: Budapest, Prague, Bratislava and Vienna. The fact that cities like Budapest allow ships to dock in the city center is a plus for the development of cruises.

The new passenger traffic quays, the development of the existing conditions, the appropriate establishment of pedestrian access from the shore to the ships offer possibilities for cruises and local tourism and improve the urban landscape.

A spectacular objective in some capital cities is represented by international hotel ships and restaurant ships.

The cruise development strategy must take into account:

- building new mooring facilities for hotel ships
- purchase of vehicles
- implementation of transfer connections
- development of port infrastructure.

The Budapest 2030 mobility plan takes into account public water transport and the development of the lower and upper quays. At the same time, we are considering finding the best locations for ports for cruise ships.

The demand for the ports in the city center exceeds the supply, the fact that the ships are anchored next to each other at the pontoon creates inconvenience for passengers.

The collection of waste water is poorly facilitated in some ports, there is no international solution to the problem of bilge water and the handling of oily waste.

The river cruise transport in some areas is affected by the following aspects: the riverbed narrows in the city center, the ships generate traffic after sunset, the city lighting being a center of attraction, the boats have a strict schedule.

It should also be taken into account that there are tributaries of the Danube that have a high unexploited potential, as is the case with the Tisa river.

The water depth on certain sections is not sufficient for cruise ships when the water level drops.

There are ports such as the Port of Vukovar and Ilok that offer water supply and electricity services for passenger ships, as well as the reception of waste from passenger ships, an example that should be taken up by other countries.

An attempt was made to use an E-PORT system for traffic control, but currently it no longer works, due to technical problems with its maintenance.

An important role in the development of river cruises and river tourism is played by the construction of tourist ships. For example, Croatia has started a contract for the purchase of an electric ship. Croatia participates in river cruise programs in the lower Danube basin. The cruises start from Budapest or Vienna to the Black Sea, passing through Austria, Hungary, Croatia, Serbia, Romania and Bulgaria, lasting between 11-13 days.

The analysed countries intend to focus on the full use of the potential of the Danube and on the improvement of tourism. These objectives can be achieved through the following measures:

- the development of port infrastructure and connections with the city
- improving and diversifying cruise offers
- strategic planning
- monitoring the development of tourism
- developing partnerships with interested parties
- improving relations between ports and cities

- the cooperation of countries for the promotion of the region.

## 5 Projection of cruise traffic

Over time the river cruise industry has had significant potential for development. Based on these circumstances, the sector has followed a stable development trajectory. However, the current situation is dramatically different.

However, what should be highlighted as a positive trend is the fact that river cruises before the COVID-19 pandemic have generated increasing numbers of passengers in some of the river ports. However, the coronavirus crisis has proven to be a new and substantial challenge for the cruise industry in 2020 and for tourism in general. The pandemic has greatly affected cruises to the Danube Delta due to the fact that countries in this section of the river had rapid increases in cases of infected citizens, they were gradually included in the so-called "Black List" for travel in the first months, the pandemic spread throughout Europe.

The attractiveness of the Danube region could be affected by the war in Ukraine, disturbing even more the European cruise market. Tourists from America could associate the war in Ukraine as a phenomenon related to Europe in general.

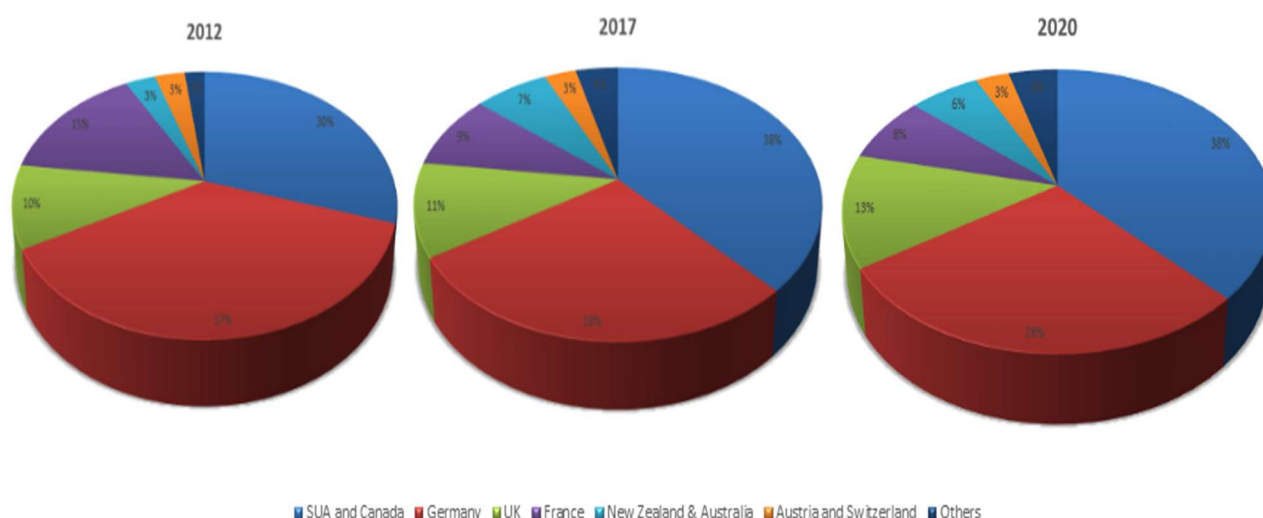
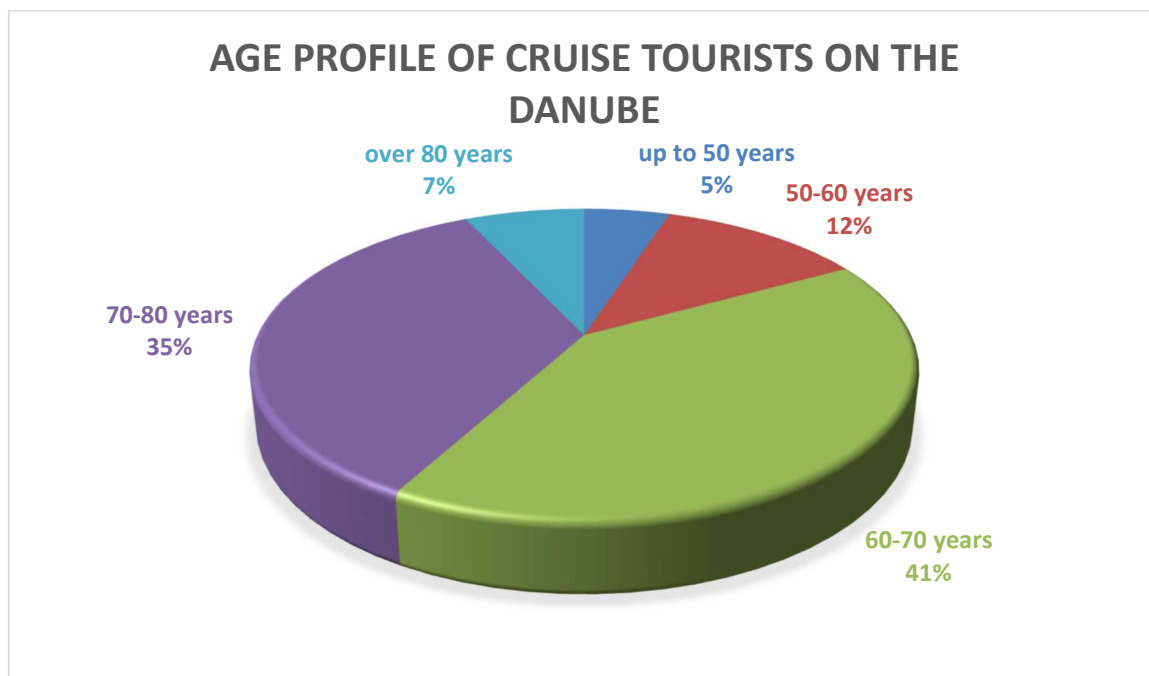


Figure 1 The evolution of tourists structure on Europe river cruises by market

Source: CCNR Annual report 2022 and other sources

As can be seen in figure 1, the structure of tourists on river cruises from Europe by market has not changed considerably in recent years, there have been small changes. It is expected that following the recent events, the number of European tourists will increase.

Danube cruise trends are also influenced by the type of passengers, taking into account various factors: cultural, social, psychological or age.



*Figure 2 Age profile of cruise tourists on the Danube*

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*

An important fact that must be taken into account is that currently there are countries like Bulgaria where there is no regular passenger transport on the Danube. This makes cruise tourism the only area of activity involving the movement of people on inland waterways, which in turn makes investment in the reconstruction and modernization of port facilities financially unattractive both from the perspective private and public actors.

Forecasts for river cruises take into account that their market has registered a growth of 10% in the last 5 years, the incomes of the population may increase, as well as the massive decrease in sales in the last 2 years.

At the same time, fuel costs have increased, which could lead to higher costs for cruises and affect the number of passengers.

The continued growth of the Danube fleet will slow down in the next few years, along with the entire European fleet.



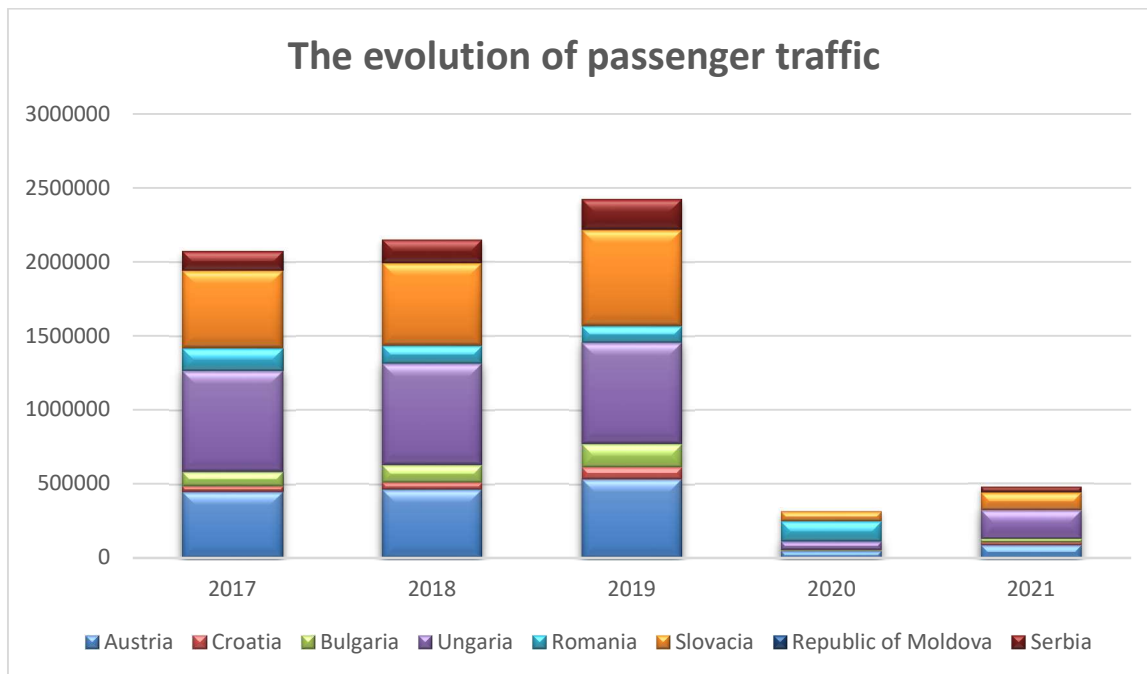
In the current situation (COVID, the (economic) consequences of the war in Ukraine), long-term predictions on the performance of Danube cruises, especially until 2040, may be wrong.

At the same time, the cruise sector is recovering quickly, it can only be influenced by events of global importance.

The cruise traffic projection is based on the latest data. The accumulated data reflects the number of dockings and the number of passengers who interacted with the ports.

The projection models and results used to forecast traffic are based on current knowledge and historical data collected during the assessment process up to 2040.

The following graph shows the evolution of passenger transport in the studied countries, the analysis carried out with the data provided by the participating countries. For a correct analysis, it is necessary to review the data provided and harmonize them so that there are no more differences (for example, there are countries that provided certain data in the tables, but other data in the analysis).



*Figure 3 The evolution of passenger traffic on Danube*

Source: based on national reports, *D.T3.4.3 - National Infrastructure Master Plans*, Dionysus Project



As far as can be seen from the evolution of passenger traffic, the last 2 years did not follow the trend of the previous years, the reason being the pandemic created by COVID 19, but an increase is observed from the critical year 2020 to 2021.

According to the graph above, it can be seen that the number of passengers increased from year to year, except for 2020, when there was an 87% decrease in the number of passengers.

In 2018, the increase was 3.68%, followed by an increase of 12.77% in 2019. In 2021, the increase in the number of passengers was 50%, which is not relevant for a traffic prediction, the year 2020 being affected by the pandemic.

According to historical data and without important global events, the upward trend will continue.

By 2025, passenger ships are expected to regain their position on the Danube, for this it is necessary that the upward trend between 2020 and 2021 continue until 2025, with an annual increase of 50%.

In an optimistic scenario, if the cruise ship market makes every effort to promote, develop and improve, an annual growth of 7.5% is expected until 2030, followed by an annual growth of 5% until 2035, and an annual growth of 2.5% until 2040.

Following this probabilistic trend, the evolution graph of the number of passengers on the Danube can look like the following figure.

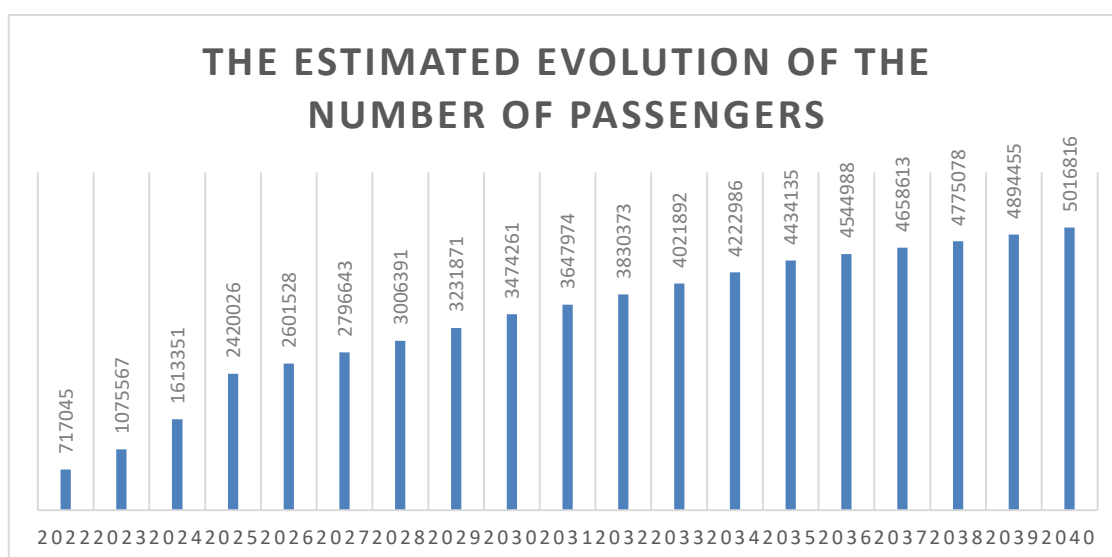


Figure 4 Forecasted evolution of the number of passengers on Danube

The Danube Commission periodically publishes reports on the observation of the navigation market on the Danube<sup>1</sup>. In the last report it is shown that in the direction to the Danube Delta, the movement of passenger ships started in April, registering 63 voyages (upstream/downstream) including the transport of 6,000 passengers, in May registering 132 voyages with 13.4 thousands of passengers.

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<sup>1</sup> <https://www.danubecommission.org/dc/en/danube-navigation/market-observation-for-danube-navigation/>

## 6 Cruise berth demand

### 6.1 Cruise vessel trends

The technical parameters of cruise ships are influenced by the specifics of the waterway, correlated with economic efficiency and technology.

At this moment, the cruise ships frequently used on the Danube are:

- Small ships less than 110 m long - old ships less than 110 m long and up to 11 m wide. Their capacity is limited and therefore their production is limited. They are used for the low-cost segment of cruises.
- Ships with a length of 110 m - their production is widespread after the year 2000, when the length of 110 m and the width of 11.5 m are the maximum accepted values. The width dimension is defined by the width of the European river and canal locks.
- Ships with a length of 135 m - on inland waterways, the largest ships are 135 m long and 11.5 m wide.
- Over-beam ships - In recent years, some ships have been manufactured with a standard length of 135 m, but with a width that exceeds the usual and with "over-beam" of 17, 20 or even 23 m. Due to their inability to pass through the canal locks, these vessels are limited to navigating only the waterway where they were originally placed on the water. A typical example of such a vessel is the AmaMagna of AmaWaterways launched on the Danube in 2019 and its width is 22 meters.

The capacity of cruise ships on the Danube is limited, generally due to the optimal physical dimensions of a ship (135 m length/11.5 m width). With these dimensions, the average capacity of a ship is 166.7 passenger accommodations.

Europe's river cruise fleet represents more than 40% of the world's active river cruise fleet. This is mainly concentrated on Central European waterways (almost 75% of the total EU river cruise fleet).

In 2021, the number of river cruise ships in Europe reached 405, totaling 59,750 berths (compared to 397 active ships in 2020 with 57,940 berths).

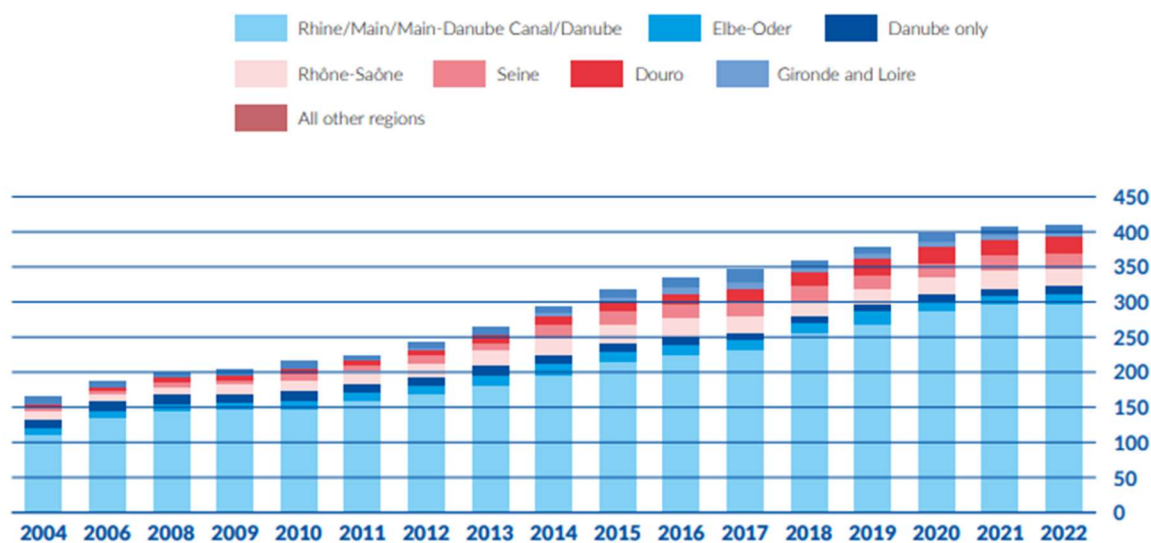


Figure 5 Number of river cruise vessels in the EU by region of operation  
Source: CCNR Annual report, 2022

The downward trend in newbuilding orders reflects reduced passenger demand due to the pandemic. This is expected to continue in 2022, as only three new ships are due to be delivered in 2022, as well as the other two that have been delayed from 2021 to 2022.

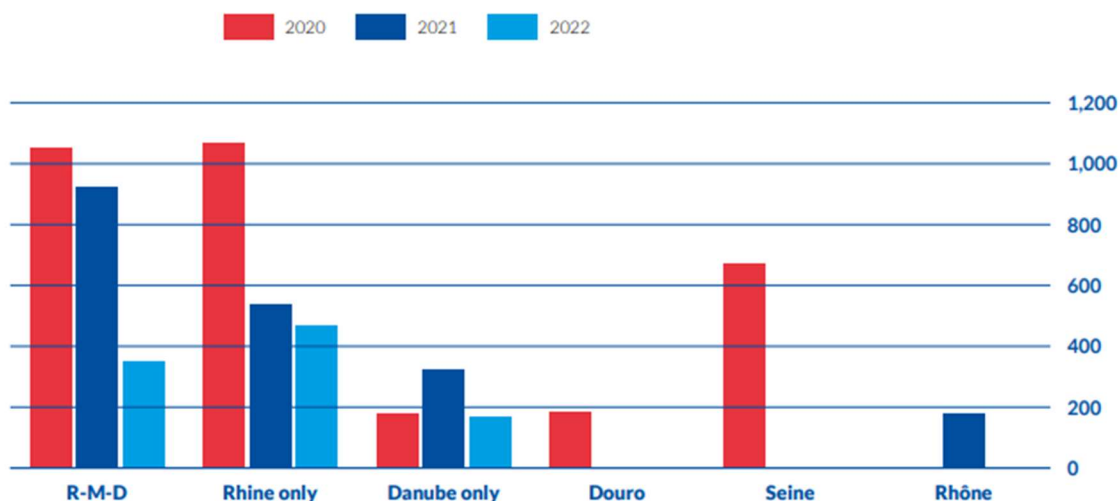


Figure 6 New cruise capacities in 2020, 2021 and 2022 per region of operation (number of beds)  
Source: CCNR Annual report, 2022

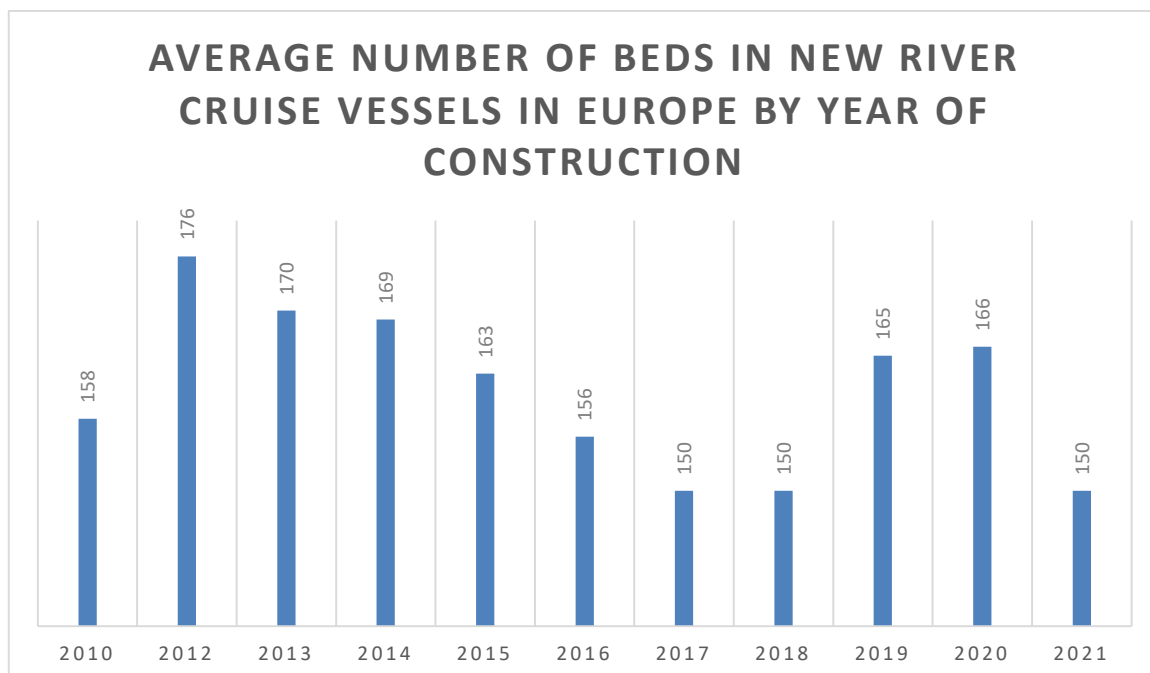
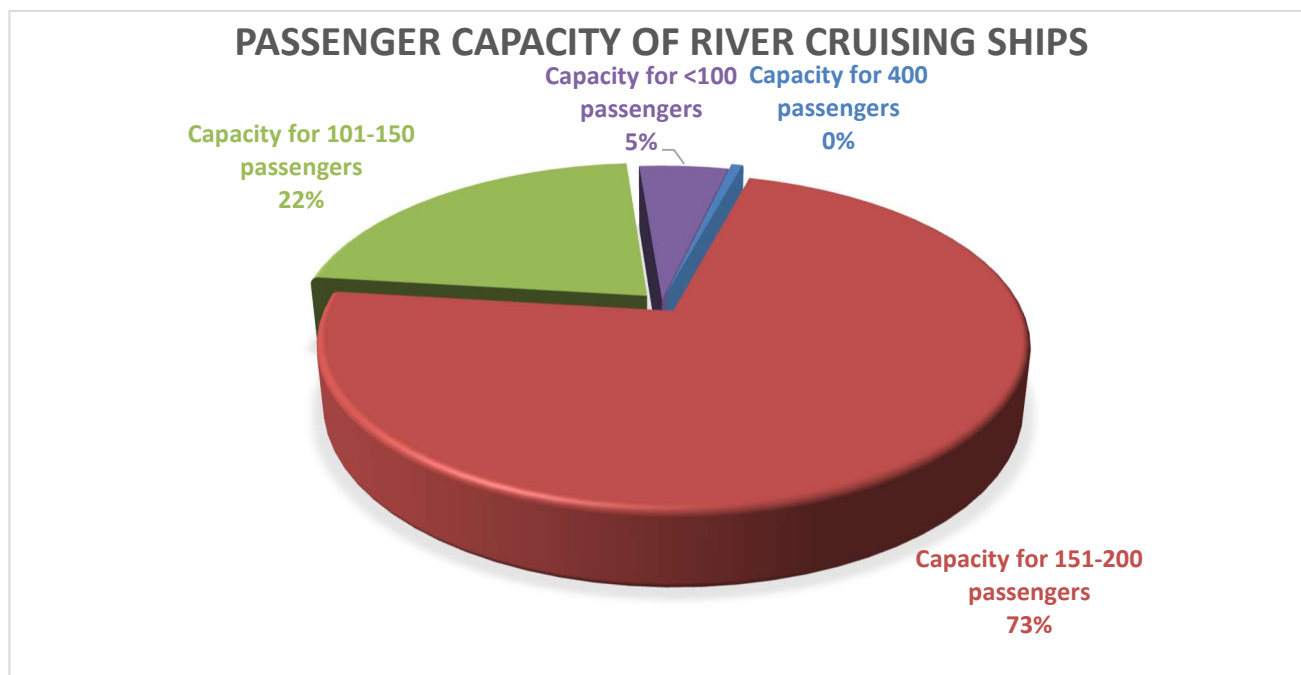


Figure 7 Average number of beds in new river cruise vessels in Europe by year of construction

Source: CCNR Annual report, 2022

In terms of capacity, the ships of the Danube fleet are dominated by ships with accommodation for between 151 and 200 passengers, their number is 120 ships, representing 68% of all ships. Ships with a capacity between 101 and 150 accommodation places represent 21% of the number of ships, totaling 36 ships. There are 8 ships with a capacity of up to 100 seats, representing a percentage of 5%. There is also a ship with a capacity of 400 seats, the ship Rosa Victoria, belonging to Ukraine, carrying out cruises on the Lower Danube.

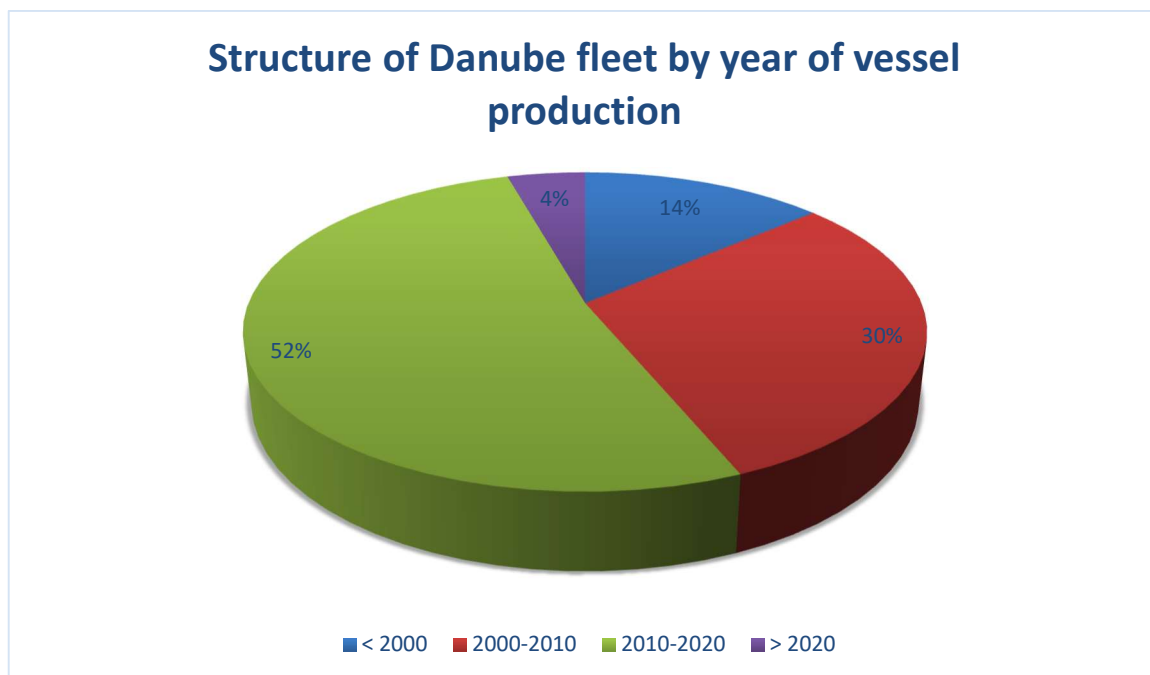


*Figure 8 Passenger capacity of river cruising ships*

Source: based on national reports, *D.T3.4.3 - National Infrastructure Master Plans*, Dionysus Project

In addition, it should be noted that the maximum number of decks registered on Danube ships is 3 decks with cabins. This is also the predominant number of decks for most ships (only 20 are 2-deck ships with cabins). Increasing the capacity of the Danube Fleet is possible, in these limiting conditions, mainly by increasing the number of ships.

According to the data provided at this time, it can be seen that the majority of cruise ships on the Danube were built after 2010 (103 ships), those built before 2000 having the lowest share (23 ships). The following graph shows the share of ships according to the year of construction.



*Figure 9 Structure of Danube fleet by year of vessel construction*

Source: CCNR Annual report, 2022

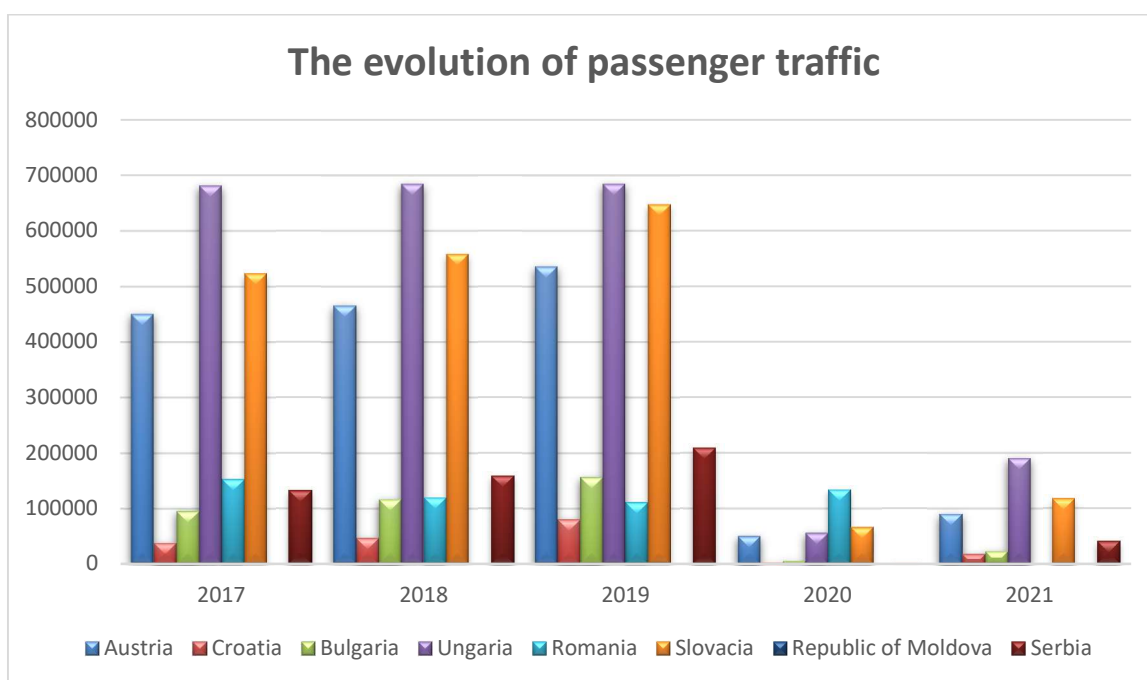
The relevant data in this chapter highlight the interest for cruise ships and for investments in new constructions and capacity development.

As can be seen, on the Danube, most of the active cruise ships were built between 2010 and 2020, their most common capacity being between 151 and 200 beds.

The development of ships will have to take into account in the future the demand of cruise tourism, the port capacities, as well as the international regulations regarding the reduction of pollution and the encouragement of sustainable transport.

## 6.2 Traffic data analysis

The seasonality of the cruises, their length, the fluctuations, as well as the knowledge of the ports of call could help to analyse the evolution of the traffic, as well as to predict it.



*Figure 10 Passenger traffic analysis*

Source: based on national reports, *D.T3.4.3 - National Infrastructure Master Plans*, Dionysus Project

Overall, the analysis shows that the industry has weathered the second year of the pandemic and is on a path to recovery.

Overriding negative effects of the pandemic for European river cruises have been the inability of United States tourists to book European river cruises in 2021.

It is worth noting that the industry considers the transition to a greener fleet very relevant to its future.



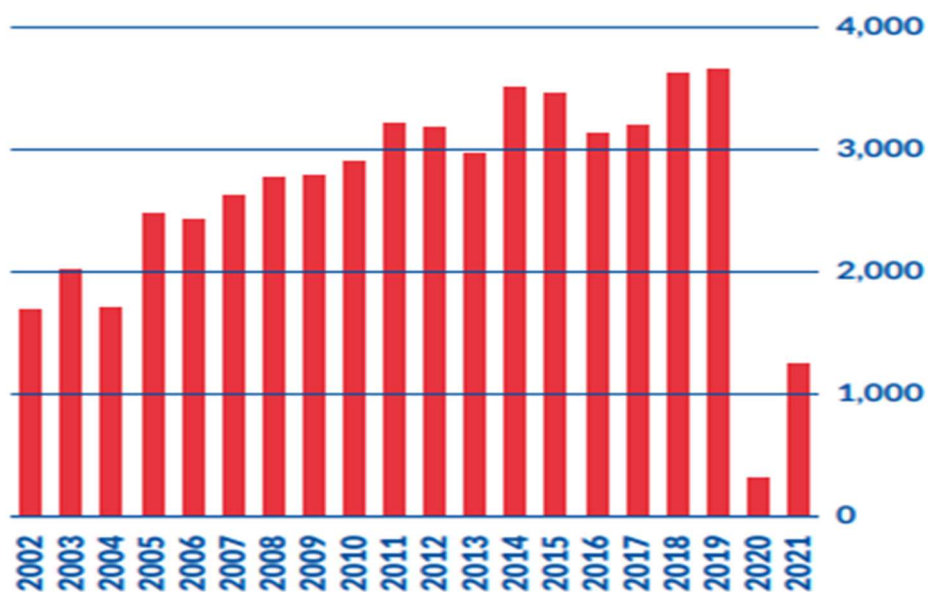


Figure 11 Yearly number of cruise vessel transits on Danube  
 Source: CCNR Annual report, 2022

Cruise duration is an important factor in traffic analysis. This is highlighted in Figure 12. As you can see, the most common are the 6-9 night cruises.

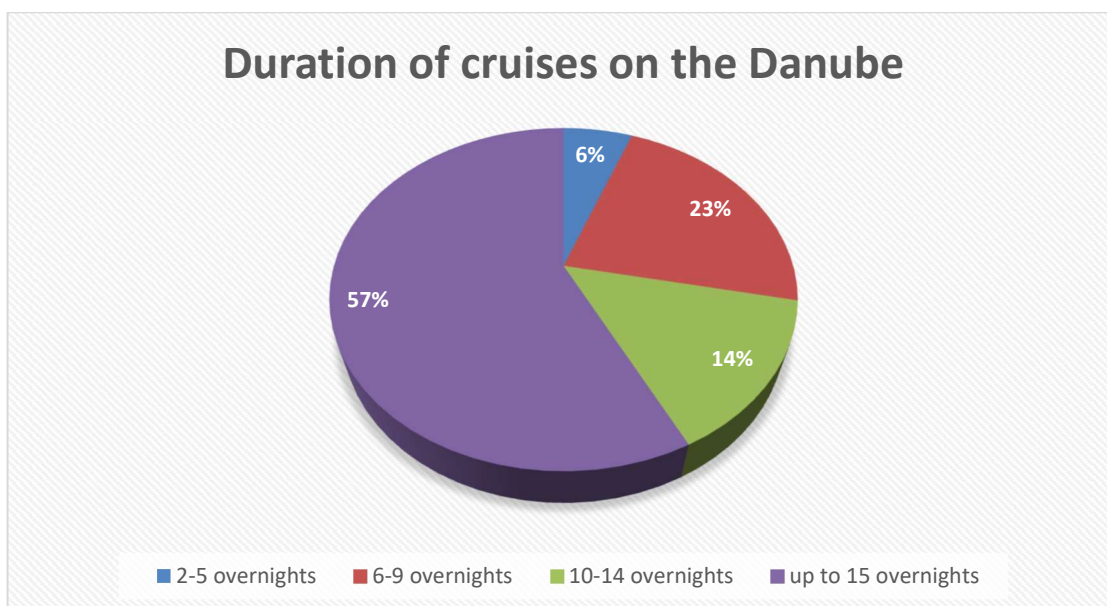
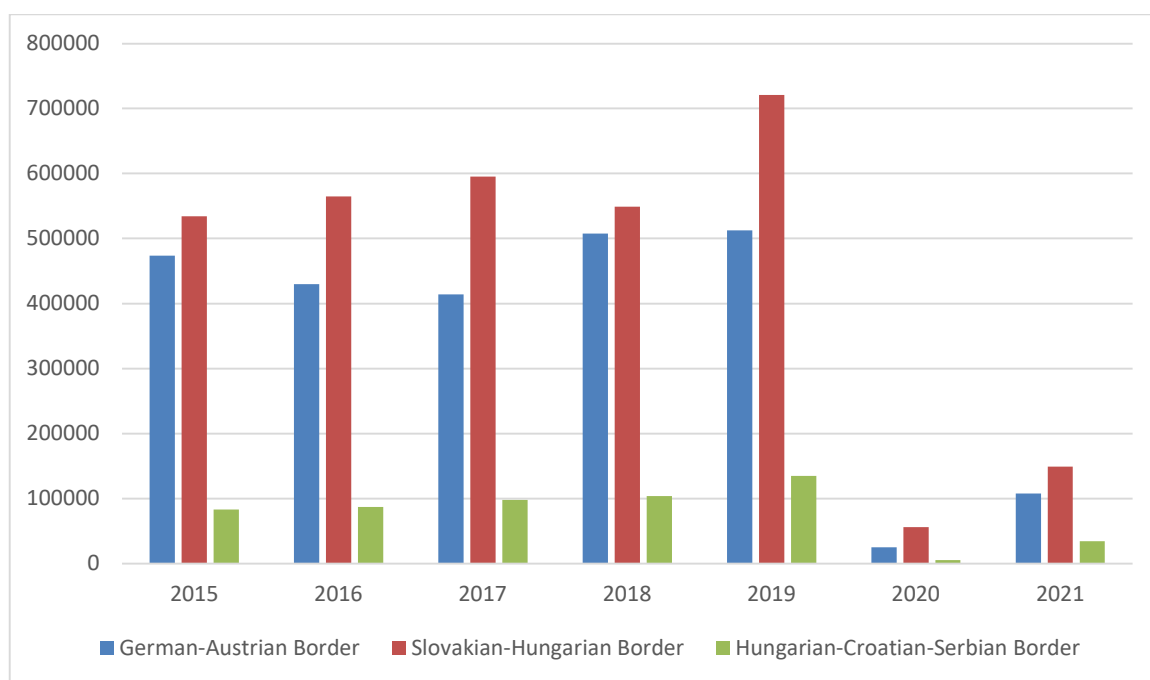


Figure 12 Duration of cruises on the Danube  
 Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region*, 2019

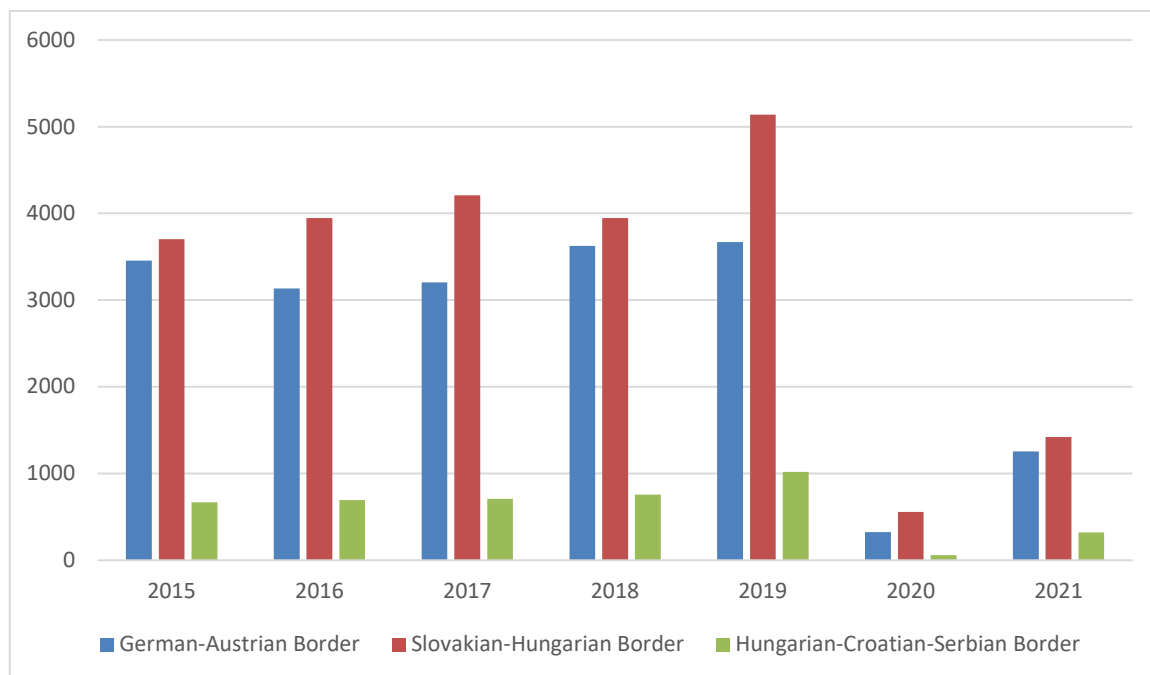
For the Danube, the following graphs show the evolution of the number of passengers and the number of ships in a higher geographical resolution. Three measurement points are distinguished along the Danube: the German-Austrian border, the Slovak-Hungarian border and the Hungarian-Croatian-Serbian border.



*Figure 13 The evolution of the number of cruise passengers on the Danube at the German-Austrian border, at the Slovakian-Hungarian border and at the Hungarian-Croatian-Serbian border*

Source: CCNR Annual report, 2022

By means of this geographical distinction, the areas of intensity and differences in the intensity of cruising on the Danube can be observed. Based on the graph, it can be seen that the activity is the highest between Vienna and Budapest. Cruise activity south of Budapest is lower than on the stretches of the Danube upstream of Budapest.



*Figure 14 The evolution of the number of cruise ships on the Danube at the German-Austrian border, at the Slovak-Hungarian border and at the Hungarian-Croatian-Serbian border*

Source: CCNR Annual report, 2022

## 6.3 Facility/infrastructure demand

Along the banks of the Danube, in all its sections, there are a total of 98 ports with 268 quays that have means of accepting river cruise ships. The total density of ports along the banks of the Danube is on average one port for every 25 kilometers of waterways of the river, from the Rhine-Main-Danube canal to its delta in Romania.

The inclusion of Danube ports and berths in the programs of cruise operators according to the affiliation of individual countries on the Danube is mentioned in the following table. The distribution of the ports on the Danube that are included in the cruise programs does not indicate more significant deviations than the general distribution of the ports.

*Table 1 The number of Danube ports and berths included in the Danube cruise lines*

Country	Ports		Berths	
	Total	Included in Cruise program	Total	Included in Cruise program
Austria	29	19	66	56
Bulgaria	20	15	35	30
Croatia	5	5	5	5
Moldova	1	1	1	1
Romania	20	15	35	30
Slovakia	4	4	29	29
Hungary	13	9	51	47

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*

### 6.3.1 Austria

The port of Ennschafen in Austria has only one berth, serving small passenger ships. During the winter, the port provides the quay for ships without passengers.

The Port of Vienna has a passenger terminal at Handelskai, Reichsbrücke location.

*Table 2 Ports and wharves for passenger ships in Austria*

Location	KM	Bank	No of berths
Engelhartzell	2200,600 – 2200,100	right	3
Niederranna	2194,700 – 2194,600	left	1
Wesenufer	2198,800 bis 2192,700	right	1
Schlögen	2186,800 bis 2186,700	right	1
Obermühl	2177,800 – 2177,700	left	1
Untermühl	2168 – 2167,9	left	1
Aschach an der Donau	2160,500 – 2160,400	right	1
Brandstatt	2157 – 2156,900	right	1
Ottensheim	2144,100 – 2144	left	1
Linz	2135,300 – 2134,400	right	6
Mauthausen	2112,500 – 2112,400	left	1
Enns	1,6 (river Enns)	left	1
Wallsee/Altarm	2093,61	right	1
Grein	2079,200 – 2079	left	2
Sarmingstein	2072,400 – 2072,300	left	1
Ybbs	2058,800 – 2058,700	right	1
Marbach	2049,500 – 2049,300	left	1
Pöchlarn	2044,600 – 2044,400	right	1
Melk	2036,500 – 2035,700	right	7
Emmersdorf	2036,200 – 2035	left	2
Aggsbach-Dorf	2027,650 – 2027,530	right	1
Spitz	2019,390 – 2019,200	left	2
Weißkirchen	2013,400 – 2013,200	left	2
Rosatz	2008,100 - 2008	right	1
Dürnstein	2009 – 2007,800	left	3
Krems	2003,100 – 2002,100	left	5
Tulln	1964 – 1963,800	right	1
Wien	1934,500 – 1927,8	right	15

Hainburg	1884,200 – 1884	right	1
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Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*



Figure 15 Passenger terminal in Port of Vienna

Source: National Infrastructure Master Plan Austria for sustainable development of River Cruise industry, Dionysus Project

Electricity is organized by the customer. The Port of Vienna takes care of the provision of water. Here the past consumption is from 400 cubic meters to 2500 cubic meters. In addition, the Port of Vienna organizes the waste management by means of skips. The respective company has its headquarters at the Port of Vienna, whereby the necessary distances are very short. Depending on the consumption, the skips are organized by the Port of Vienna.

### 6.3.2 Bulgaria

In Bulgaria there are currently 11 ports and terminals on the Danube, in 9 locations that have the necessary facilities and whose operators are registered to service passenger ships.

The main ports are:

- Ruse Port Complex, which operates in 3 terminals - Ruse Central Passenger Quay (Ruse Port Terminal - Center), Silistra Port and Tutrakan Port
- Vidin Port - Center.





*Figure 16 Port terminal Vidin – Center*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry

Bulgarian ports do not fully comply with European quality standards in terms of infrastructure, which demonstrates the need for an appropriate state policy for the modernization and renovation of existing facilities.

In terms of passenger capacity, the greatest opportunities lie in the Port of Public Transport of National Importance - Ruse, due to the existence of a large number of passenger ports and ferry terminals.

The ports/port facilities dedicated exclusively to cruise ships in Bulgaria are described in the following table.

*Table 3 The ports facilities for cruise ships in Bulgaria*

Port and Terminal Name	Location (km no.)	Terminal capacity	Quay length or No. of simultaneous ships
Vidin	791.300	2	140 m
Lom	742.600	2	140 m
	742,750	3	140 m
Oryahovo	678,050	2	140 m
Somovit	607.550	4	100 m.
Nikopol	597.500	3	100 m
Svishtov	553,950	4	80 m

Ruse	495.700	4	110 m
	494,800	3	130 m
	494,620	4	130 m
Tutrakan	432.670	4	135 m
Silistra	375.800	3	140 m

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry

*Table 4 Characteristics of cruise ships operating on the Bulgarian sector of the Danube*

Ship	Length	Width
<b>MS AMAVERDE</b>	135 m	11,58 m
<b>MS Thomas Hardy</b>	135 m	12 m
<b>MS Oscar Wilde</b>	135 m	12 m
<b>MS Esprit</b>	110 m	12 m
<b>S.S. BEATRICE</b>	131 m	11,4 m
<b>Viking Lif</b>	135 m	29 m
<b>MS Thurgau Prestige</b>	110 m	11,4 m
<b>Avalon Passion</b>	135 m	12 m

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry

The capacity of the existing port facilities specialized in providing services for passenger ships is sufficient, considering the average number of ships and the number of passengers, which remain relatively low. No significant difference was recorded in the intensity of cruise ship activities in Bulgarian ports during weekdays and weekends.

In the past two years, between 200 and 300 cruise ships have arrived in the main Bulgarian Danube ports throughout the tourist season, which lasts about seven months. These numbers could increase if Bulgaria becomes more attractive as a destination for foreign tourists. To be successful in this aspect, existing tourism programs should be developed and expanded, and new products and services should be created and promoted.

Another important prerequisite for achieving constant growth in the field of tourism is the development of initiatives to renovate and modernize the infrastructure in the port



area, which includes port facilities, as well as road and rail links. In this regard, improving connectivity with the regions of the country would be of significant importance, considering the vast opportunities for various tourism activities that Bulgaria offers.

If passenger transport will be renewed between the Danube Bulgarian cities and regular passenger lines are restored, this could lead to a positive trend in the development of the movement of people by inland waterway transport in the country in general.

The Danube region of Bulgaria also has significant growth potential in the field of transnational transport, given its geographical proximity to Romania, and therefore the establishment of regular passenger lines between Bulgarian and Romanian cities is also, an opportunity that would be extremely beneficial for the port.

### 6.3.3 Croatia

The Port of Vukovar is the main Croatian port on the Danube. In 2006, a passenger terminal was built within it. Port passenger terminals also are operated in the cities of Ilok, Batina and Aljmaš.

*Table 5 Ports and wharves for passenger ships in Croatia*

Location	KM	Bank	No of berths
Batina	1425 + 500	right	1
Aljmas	1380,2	right	1
Osijek	21,400-21,282,Drava	right	1
Vukovar	1333	right	1
Ilok	1298,68	right	1

Source: National Infrastructure Master Plan Croatia for sustainable development of River Cruise industry

Although not directly located on the Danube, the port of Osijek (river Drava, km 21) is present in many cruise programs and should also be considered as part of the Danube ports.

**Table 6 Technical information for Port of Vukovar**

Technical information	
<b>Position of the passenger terminal Vukovar</b>	rkm 1333 + 000 right bank of the Danube
<b>Purpose</b>	Berthing of passenger vessels
<b>Embankment</b>	Entirely
<b>Bank type</b>	Sloped
<b>Pontoon type</b>	Floating facility – steel
<b>The number of berths</b>	1 berth
<b>The permitted number of vessels on a berth</b>	4 vessels (the floating facility +3 vessels)
<b>The length of the floating facility</b>	75,20 m
<b>The maximum width of the floating facility</b>	10,00 m
<b>Additional services at the passenger terminal</b>	Water supply Electricity supply Waste disposal

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region*, 2019

The Vukovar passenger port is built from a steel floating facility (pontoon) that can accommodate up to three ships at a time (in addition to berthing). The simplistic design indicates that infrastructure and superstructure requirements are currently sufficient for current demand. As with most ports, demand for berths in ports most often varies from early spring to mid-autumn or late fall.

From another point of view, it should also be mentioned that in the late autumn and winter months the traffic is reduced or non-existent. Any investments must consider the fact that 25% of the year the river cruise berth is not needed in Vukovar.

The peak months are June, July, August and September, when almost every day at least one ship docks in the port of Vukovar. There are a substantial number of days where 3 or 4 ships are scheduled in a day. Peak days vary, most often weekends and early weekdays, which seems logical if your travel route ends at the Black Sea and Croatian ports are at the beginning or middle of your planned route.

As the port of Vukovar operates with only one passenger terminal, demand on peak days would really benefit from the second pontoon. Current demand is sufficient, but if projections are realized, dockage increases would range from +20% in the

pessimistic scenario to +70% in the optimistic scenario, while passenger increases would move in a similar range.

These scenarios would push the current port's capabilities out of scope as all the traffic would congest the port and not be able to accommodate all the ships.

If an additional pontoon or terminal were to be built, as the port's current capacities are capable of handling the workload, two terminals could handle double the workload (docks and passengers).

From the point of view of investment, under the current conditions, the construction of the new terminal would not be a justified expense, but if the traffic in the port of Vukovar grows by only about 2.88% on average in the next 15-20 years, it will almost double from its current position and if the port wants to remain competitive, new infrastructure and superstructure will be needed.

*Table 7 Technical information for Port of Ilok*

<b>Technical information</b>	
<b>Position of the passenger terminal Ilok</b>	rkm 1298 + 680 right bank of the Danube
<b>Purpose</b>	Berthing of passenger vessels
<b>Embankment</b>	Entirely
<b>Bank type</b>	Sloped
<b>Pontoon type</b>	Floating facility – steel
<b>The number of berths</b>	1 berth
<b>The permitted number of vessels on a berth</b>	3 vessels (the floating facility +2 vessels)
<b>The length of the floating facility</b>	57,22 m
<b>The maximum width of the floating facility</b>	7,93 m
<b>Additional services at the passenger terminal</b>	Water supply Electricity supply Waste disposal

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region*, 2019

**Table 8 Technical information for Batina and Aljmas**

<b>Technical information</b>	
<b>Position of the passenger terminal Batina</b>	rkm 1425 + 500 right bank of the Danube
<b>Purpose</b>	Berthing of passenger vessels
<b>Embankment</b>	Entirely
<b>Bank type</b>	Sloped
<b>Pontoon type</b>	Floating facility – steel
<b>The number of berths</b>	1 berth
<b>The permitted number of vessels on a berth</b>	2 vessels (the floating facility +1 vessel)
<b>The length of the floating facility</b>	14,53 m
<b>The maximum width of the floating facility</b>	8,02 m
<b>Additional services at the passenger terminal</b>	Water supply Electricity supply Waste disposal

<b>Technical information</b>	
<b>Position of the passenger terminal Aljmaš</b>	rkm 1380 + 200 right bank of the Danube
<b>Purpose</b>	Berthing of passenger vessels
<b>Embankment</b>	Entirely
<b>Bank type</b>	Sloped
<b>Pontoon type</b>	Floating facility – steel
<b>The number of berths</b>	1 berth
<b>The permitted number of vessels on a berth</b>	2 vessels (the floating facility +1 vessel)
<b>The length of the floating facility</b>	14,53 m
<b>The maximum width of the floating facility</b>	8,02 m
<b>Additional services at the passenger terminal</b>	Water supply Electricity supply Waste disposal

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region*, 2019

### 6.3.4 Moldova

Moldova is the country with the shortest access to the Danube, which it received in 1998 based on an agreement with Ukraine. Its length is only 570 meters, but it is enough because the Ro-Ro terminals are not included in the construction of the Giurgiulesti port. The port complex consists of a passenger terminal and a cargo wharf on the Prut River operated by the state-owned enterprise Ungheni River Port and Giurgiulesti International Free Ports (GIFP) consisting of six terminals at the confluence of the Danube and the Prut, as well as a business park.

The passenger terminal was built as a strategic point with the financial support of the country's budget, especially for foreign tourists visiting the Republic of Moldova on cruise ships.

*Table 9 Ports and wharves for passenger ships in Moldova*

Location	KM	Bank	No of berths
Giurgiulesti	133.8	left	1

Source: National Infrastructure Master Plan Moldova for sustainable development of River Cruise industry

The port can accommodate ships with a capacity of up to 300 passengers.

At 250 km from the port of Giurgiulesti there are cities and tourist sites with a large number of attractions.

The choice of cruise ships for cruise travel is largely determined by the capabilities of the waterway, the capacity of the river passenger terminal, as well as the required passenger capacity of the ship.

The basis of the operational passenger fleet in the Lower Danube region is three-deck ships with a length of 110-135 meters and a capacity of 120-200 passengers.

The passenger terminal in Giurgiulesti port is able to receive almost all cruise ships available in the Lower Danube region.

### 6.3.5 Romania

The Ministry of Transport is the state authority in the field of water transport. The Administration of the Danube Maritime Ports (Administration of the Maritime Danube Ports CN) operates under the authority of the Ministry of Transport and manages the entire port infrastructure located on the fluvial sea sector of the Danube river from km 0 to km 255.

The Danube River Ports Administration - Giurgiu plays the role of port authority in almost all the ports located on the Danube between Bazias and Cernavoda.

The Maritime Ports Administration has the role of port authority for the Romanian maritime ports of Constanta, Midia and Mangalia. In Romania, the Danube flows for 1,075 kilometers, which represents more than 1/3 of the total length of the river. This is also the longest stretch in a single country compared to any other country along the Danube River.

*Table 10 Ports and wharves for passenger ships in Romania*

Location	KM	Bank	No of berths
Moldova Veche	1050-1047	left	1
Orșova	953 – 957	left	2
Drobeta Turnu Severin	927- 931	left	3
Cetate	810-811	left	1
Calafat	793 – 796	left	1
Turnu Magurele	597	left	1
Giurgiu	489-497	left	5
Oltenița	428-431	left	3
Calarasi	371-376	left	1
Cernavoda	298-299	right	3
Fetesti	48 (Borcea arm)	left	1
Harsova		right	1
Brăila	167-175	both	4
Galați	151 -149,35	left	1
Isaccea	53-56 sm	right	1
Tulcea	70-73	right	2
Chilia Veche	43-46	right	1
Sfantu Gheorghe	4 (Sf. Gheorghe branch)	left	1
Sulina	0	right	1
Constanta			1

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*

Constanta being the last port of the Danube - Black Sea canal, the port also receives river ships from the Danube traffic.

Port infrastructure is state-owned and managed by the port authority, while port operations are carried out by private companies that provide and maintain their own facilities, including buildings and cargo handling equipment. Some of the ports (Turnu Magurele, Sulina) are handed over to the respective municipalities.

Romania aims to develop the cruise sector in accordance with European strategies. The development of the port infrastructure represents an important step in improving cruises on the Danube.

The "Modernization and Development of Chilia Veche Port" project has as its general objective the modernization and development of Chilia Veche Port in order to ensure optimal conditions for increasing long-term competitiveness and the commercial, touristic and industrial attractiveness of the region. It is considered the valorization of the environmental heritage, the creation of new employment opportunities and the improvement of living conditions.

Specific objectives:

- Fixing defects and damages that influence the resistance and stability of the infrastructure;
- Bringing the resistance of the infrastructure to the level required for carrying out the expected activities in safe conditions;
- Ensuring the access depths to the wharf for river ships transporting goods and passengers through technological dredging works in the water area of the berths;
- Ensuring the wharf with all the necessary equipment for each berth;
- Restoration and modernization of existing utility networks: electricity and potable water, with the identification of reliable power sources;
- Introduction of new utility networks: telephony and internet;
- Arrangement of platforms and port lands available for exploitation and/or for further investments;
- Ensuring the connection of the two locations - passenger berth and commercial berth - for goods and passengers; two options of access roads will be considered: either on one of the commune's streets, or on the right bank, in the non-flooding area.

Within the project, the achievement of the following indicators will be pursued:

Rehabilitation and modernization of the passenger berth (KM 45)



- Rehabilitation of the mooring quay - called L=70ml
- Rehabilitation of the connection quay L=140ml
- Rehabilitation of the port superstructure - exterior fittings
- Rehabilitation of the building Passenger river station and administration  
Sc=244.83 sq.m

Rehabilitation and modernization of the commercial berth (KM 44)

- Rehabilitation of the mooring quay L=100ml
- Rehabilitation of the port superstructure - Exterior fittings

The rehabilitation of Chilia Veche port is included in the list of infrastructure projects in the Danube Delta Naval Mobility Plan.

### 6.3.6 Serbia

*Table 11 Ports and wharves for passenger ships in Serbia*

Location	KM	Bank	No of berths
Novi Sad	km 1254	left	2
Sremski Karlovci		right	1
Belgrad	km 0,750 Sava river	right	6
Smederevo	1116-1111	right	1
Veliko Gradiste		right	4
Golubac		right	1
Donji Milanovac	990	right	1
Kladovo	933	right	1

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region*, 2019

Translating cruise passenger traffic assessment and forecasts into berth or facility/infrastructure demand over the projection period (2040) is an essential element in the overall master planning process.

This process looks to identify the facility need over time and, more specifically, to focus on the timing of the facilities/infrastructure required to accommodate future traffic demand.

Development of new locations with adequate touristic offer in the hinterland can stimulate creation of new patterns and contribute to the further growth of RCI.



Further expected growth of RCI on the Danube river could have following impact on international passenger terminals in RS.

Belgrade, as the state capital and largest city laying on two rivers (Danube and Sava), naturally has the biggest number of dockings. Newly made 200m floating dock is berth for cruise vessels since 2006 (old dock of the smaller size used before). Even though six cruise ships can be berthed at the same time, in past years lack of capacities has been noted in season peaks. For the season 2023 Zemun terminal will be open and cover the increased market need, but another location and additional berthing places are necessary for the capital. PGA commenced planning activities with the city authorities.

Novi Sad is following with numbers. Currently there are three floating docks alongside the city quay which are operational, and there is a possibility for the fourth one which is already included in spatial plans. However, nautical conditions (narrow stretch of the river, bridges, curve, fairway relatively close to the shoreside) do not allow more than one or two berthing places on each dock. Decisions on future development will be based on the observation of the trends, especially frequency and time spent on berth. It is expected that these could change with the opening of nearby Sremski Karlovci terminal.

Golubac. Interest has increased largely since opening. Even though limited with the capacity of the main attraction in the hinterland- Golubac fortress, there are often inquires for the overnight on the berth due to the quiet surrounding and spectacular view. Though, one floating dock with up to three berthing places is becoming tight for the future needs. PGA has commenced with planning activities for the extension of capacities in near future.

Donji Milanovac, has tripled number of dockings in last five years. With the opening of Golubac terminal, it was enabled to combine tours and terminals, i.e tourists visiting Golubac continue by busses to the nearby Lepenski Vir archaeological site and board on the ship again in Donji Milanovac, or vice versa. Quiet surrounding of the Djerdap national park also contributed to the increased interest in this passenger terminal. During this season often peaks were spotted, so the port operator will have to act promptly with planed project for the extension of capacities (contractual obligation).

Kostolac is newly open passenger terminal with the very important archaeological site in the hinterland, Viminacium. Activities of the introduction to the market are planned for 2023.

Smederevo and Kladovo passenger terminals are open but without significant traffic. More promotional activities are needed from the local tourist organisations.

Ram Fortress in Veliko Gradište. This location is still under development. Majority of construction works are already done or are prepared. Expected to be ready by mid-season 2023 or beginning of 2024.

Sremska Mitrovica and Šabac projects are foreseen to enable the extension of RCI to the river Sava. Due to some navigational restrictions, it is more convenient for smaller vessels (length up to 110m and lower draft). Terminal in Sremska Mitrovica is expected to be completed soon and opening is planned for the season 2023. Terminal in Šabac is still under construction and expected to be completed in 2023. Sremski Karlovci, undoubtable important location for the RCI. Project was on hold due to some administrative reasons, but it is planned to continue and finish all activities in period 2023/2024.

Apatin. Even though the dock has been already constructed and almost completed, due to some property and legal issues the project is on hold.

### **6.3.7 Slovakia**

The Slovak section of the Danube is 171.09 km long between river km 1708.3 and km 1880.2.

There are two types of ports in Slovakia - public and private. The state ports are managed by the Public Ports Company (Verejné praštiny, a.s.), created by law in 2008, which is 100% state-owned.

The public ports in Slovakia are:

- Port of Bratislava
- Port of Komárno
- Štúrovo port

Slovak Maritime Transport and Ports - Passenger Transport - is the operator of the passenger port in Bratislava and the main operator of passenger transport along the Danube in and around Bratislava. It offers a wide range of sightseeing cruises, regular passenger services and on-demand cruises. It offers regular high-speed services between Bratislava and Vienna, sightseeing cruises in and around Bratislava and charter cruises.

*Table 12 Ports and wharves for passenger ships in Slovakia*

Location	KM	Bank	No of berths
Bratislava	1870.45 - 1867.40	Both	20
Komárno	1768.1 - 1767.2	Left	4
Štúrovo	1718.8 - 1718.3	Left	4
Devín		left	1

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*

### 6.3.8 Hungary

At present there are about 17 ports in Budapest, which were capable to handle monthly 400 to 450 arriving river cruising ships between May and September 2019. Regretfully the number of the ports are already insufficient; two, sometimes three ships must share the same pontoon and all the inconvenience this situation generates.

In Budapest downtown ports are most valuable because of their location. The policy papers and settlement structural plans put restraint to downtown port locations, there are three-four existing port on such locations where municipality of Budapest would not like to see any river cruising ship in the medium term. Therefore, it can be stated that there is a scarcity of berths already in Budapest. Recent years proved that demand forecasts have never been more imaginary since RCI has started to conquer the Danube, no matter how many factors are considered in different and numerous models.

It is quite clear, that there is no appropriate location for a port which could accommodate every river cruising ship, on the other hand downtown location is most valuable for berth. Therefore, there is no real alternative to keep (most of) the existing ports and building new ones proportionally to foreseen demands.

*Table 13 Ports and wharves for passenger ships in Hungary*

Location	KM	Bank	No of berths
KOMÁROM	1769,8 - 1768,8	right	2
ESZTERGOM	1718,98 - 1718,44	right	3
DÖMÖS	1699,7	right	1
Nagymaros	1694,6	left	1
VISEGRÁD	1693,42 - 1693,25	right	3
VÁC	1679,6	left	1

SZENTENDRE	11-10 (Szentendrei Dunaag)	right	2
Budapest	1650,65 - 1643,2	both	32
Százhalombatta	1620,720	right	1
Solt	1559,1	left	1
Kalocsa ( Fokto)	1515,7 - 1515,6	left	2
BAJA	1478,96	left	1
MOHÁCS	1446	right	1

Source: Interreg Danube Transnational Programme, *Study of Development of the Cruise Tourism in the Danube Region, 2019*

On the Hungarian stretch of the Danube there are no dams, therefore the range of water level changes is several meters. Therefore, river cruising ships cannot moor directly on vertical walls of quays, only to a pontoon, which is connected to the shore with a footbridge.

As stated before, port operators usually hire the bank for their pontoons. This risk is further elevated by water surface lease contract which is to be concluded with the trustee of the Danube riverbed. These risks do not encourage port operators to invest more than enough to ensure the minimal technical requirements for ships to berth. Aside from a few ports (international port on Belgrade quay, Vigadó square) there are no premises to facilitate port related services. The reason is simple, there is no free suitable real estate to build them in downtown. Most of the ports are connected to riverside where the elevation of the bank is lower than the height of the flood, which also do not favour permanent buildings. Therefore, most of the ports cannot offer services beyond getting on and off the ship. There is also a scarcity of bus parking lots. Lower quays are dominated by public roads, and typically offering inconvenient conditions for passengers to get on a bus.

## 7 Cruise development plans

Historically, cruise ports have organically developed their cruise facilities as the need arose.

This means that as cruise ship volumes (the total number of ships to be accommodated) as well as ship size (increases in ship length, tonnage and passenger capacity) have increased, the port has built the cruise terminal up, land transport areas, and parking to meet the need. The first thing considered in sustainable development must be taking into account the general opinions of tourism around the world, together with the crucial and essential moments for the growth of cruise tourism.

These factors can include a variety of regional and local parameters that help the movement to thrive through various investments and incentives. Another important step must be to consider the concept of creating a value chain for cruise tourism.

The concept of the impact of cruise tourism needs to be revised. For easier orientation, 3 categories can serve as a basis for classifying impacts in the river cruise industry. The first category consists of environmental impacts, such as impacts from the physical arrival of cruise ships, degradation of the marine environment, air pollution and noise pollution. The second category should focus on social impacts such as congestion, degradation of cultural heritage and community disruption. The third segment comprises economic benefits and long-term viability, spill overs and economic multiplier effects, along with economic impact studies.

Key factors in the development of Danube cruises:

- Safety of visitors at the destination (well-organized medical assistance)
- Friendly and hospitable population
- Adaptation to certain target segments (older age)
- Secure and quickly accessible public transport to the destination
- Availability of different thematic itineraries
- Quality promotion – synergy of traditional and contemporary promotion tools

Activities needed to promote the river cruise industry

- Coordination of tourism stakeholders in the city
- Development of cooperation with travel organizers/"shippers"
- Port/passenger landing stage (infrastructure, public areas, environment, canopies)
- Information point near the pier

- Currency exchange office in the port
- Quality signage and interpretation
- Further development of thematic itineraries
- Availability of guides
- Cleanliness of the destination; guest age appropriateness structure
- Internal marketing with the local population
- Development of quality promotional materials - possibilities of individual tours
- Improving the technological equipment of the destination (free Wi-Fi zones).

Even if the last 2 years were not the best for Danube cruises, the market will recover and continue its upward trend before the pandemic.

The cruise tourism market will develop, the interested parties will have to work together to improve the sector. If before cruises represented elite tourism, now it must become accessible to both young and old people, both single people and families, and not least to people with medium incomes.

Cruise ships must adapt to the evolution of the market, creating the necessary facilities and capacities to attract tourists.

An important factor for choosing a cruise is the desire to live a different experience, the more satisfied the tourist is with the time spent on the ship, the more the number of passengers will increase.

Thematic events (eg: gastronomy, wine tastings), musical and cultural events, as well as spa facilities will make the cruise industry more attractive.

The capital cities through which the Danube passes must understand the importance of tourism development and the creation of an attractive urban landscape.

Although some countries do not have direct strategies for developing the necessary infrastructure for Danube cruises, there are clear concepts regarding its development.

Defining new port locations and completing them as soon as possible is of the utmost importance, as the municipality must prepare the development plans for the lower and upper quay accordingly to ensure adequately sized bus parking, pedestrian and cycle accessibility for the ports. In the absence of a port allocation plan, the municipality will not have a chance to meet RCI's needs, and the reconstructed quays may not be suitable to build the port on (some of) the desired locations.

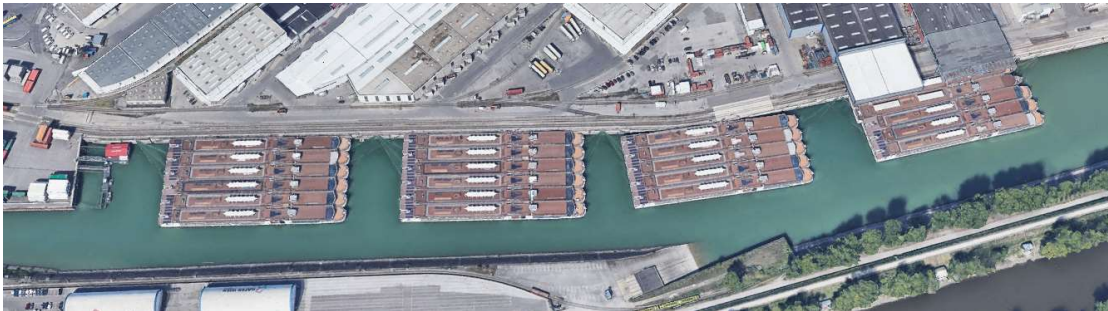
The settlement concept and structural plan contain numerous measures that can improve quayside conditions for the benefit of river cruise ship passengers:

- Traffic calming on the lower quay
- Increasing the green areas on the riverbank.
- Construction of new promenades (e.g. Belgrád Quay).
- Increasing the area of infrastructure dedicated to pedestrians and cyclists on the riverbank.



## 7.1 Cruise terminal/berthing layout

### 7.1.1 Austria



*Figure 17 Terminal Layout Port of Vienna*

Source: National Infrastructure Master Plan Austria for sustainable development of River Cruise industry, Dionysus Project

#### Cruise terminal/berth layout at Port of Vienna

- Up to 25 ships possible (before were 30 - due to land reclamation water areas fall away),
- Access to ships via own access system - fence was erected (to prevent theft)
- People from outside the company have their own parking space

#### Areas:

- Waterside:
  - space for 25 Ships
- Landside:
  - 4x 20 TEU Container Office Space
  - Parkinglots
  - Passenger shipping entry and exit possible (extra price calculated)

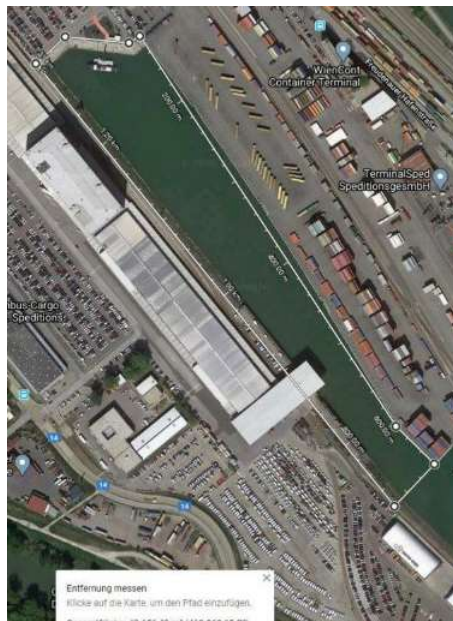
At this time, the Port of Vienna would like to discuss the creation of the business case. It started with initial discussions regarding a winter port. The ships were only to be on site in the winter to carry out proper maintenance and restoration work on the ships. This cooperation appeared in the current year, before Corona.

It worked very well; all the actors involved were satisfied. The Corona Pandemic forced our client to suspend operations and the Port of Vienna was also hosting special Corona rates.

At the end of 2021, the Port of Vienna agreed on a long-term cooperation, as the business relationship is and has been a full success story so far. Thus, a 5-year contract was created, which can be extended as many times as desired. The Port of Vienna guarantees a parking space for 25 ships plus the necessary parking and office space,

as well as handling areas for external companies that maintain and refit the ships. Plans for a large central warehouse in the port of Vienna to guarantee parts availability have been put on hold due to Corona.

The Port of Vienna plans to fill its harbour basin and create a logistics zone. For this reason, no more than 25 ships can find a safe and high-quality place in the port. At the beginning of the business relationship there were several.

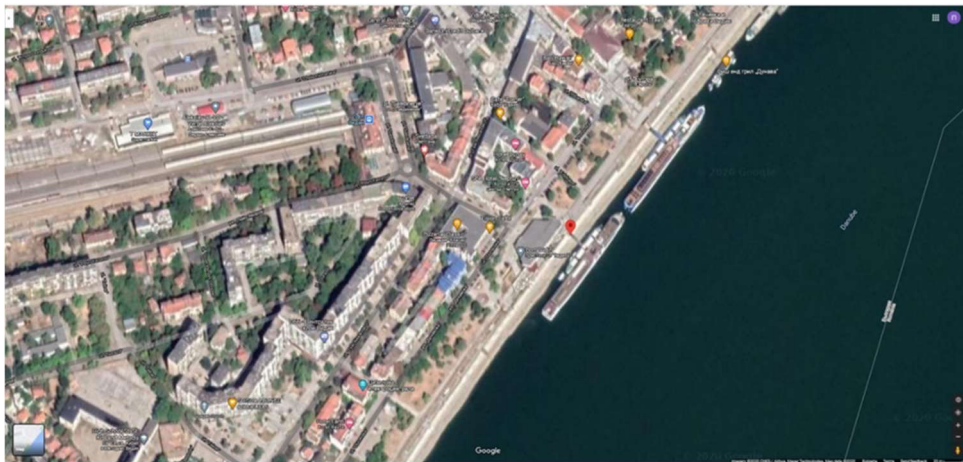


*Figure 18 Land reclamation 2023*

Source: National Infrastructure Master Plan Austria for sustainable development of River Cruise industry, Dionysus Project

### **7.1.2 Bulgaria**

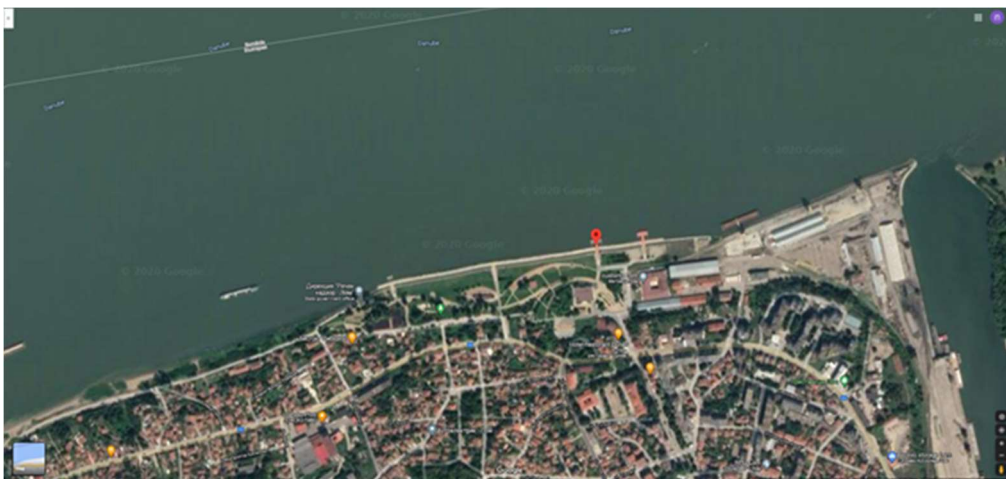
The Port of Vidin provides pontoon services to ships for domestic and international navigation like water and electricity supply, embarkment and disembarkment of passengers. Pontoon № 4 - port terminal for public transport "Vidin - center - km. 790,300 – is intended for stay and supply of self-propelled and passenger ships and it allows for up to two ships on board to stay on board at a time.



*Figure 19 Port of Vidin*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

The Public Transportation Port of Lom has two pontoons: Pontoon № 1, situated at 742,600 km. and allowing for 2 ships to be on board as well as Pontoon №2, situated at 742,750, which allows for up to three ships to be on board.

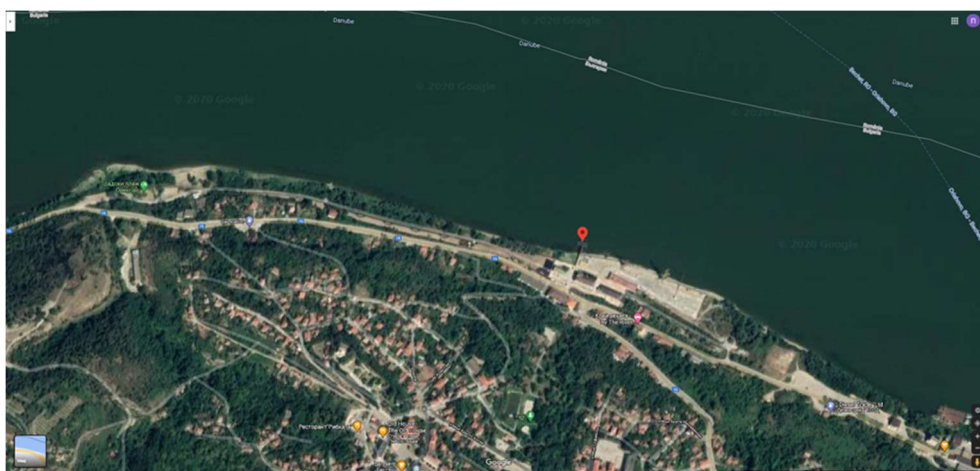


*Figure 20 Port of Lom*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

The Public Transportation Port of Oryahovo hosts Pontoon at 678,050 km which is meant for the stay of self-propelled ships and allows for up to 2 ships to be on board at the same time.





*Figure 21 Port of Oryahovo*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

The port terminal Somovit, part of the Public Transport Port of National Importance Ruse, hosts the Ship Place № 1 at the 607,550 km with a length of 100 m. The Ship Place № 1 is equipped with a pontoon, designated for the stay of self-propelled ships when performing entry-exit border controls and passenger service activities. It allows to tie up to four (4) ships on board in one row.



*Figure 22 Port terminal Somovit*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

The Public Transport Port with National Importance Nikopol is intended for passenger servicing and is situated between 597,550 km and 597,450 km. It has 1 ship place at the 597,500 km., which is equipped with a pontoon, designated for the stay of self-

propelled ships when performing entry-exit border controls and passenger service activities. It allows to tie up to three (3) ships on board in one row.



*Figure 23 Port of Nikopol*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

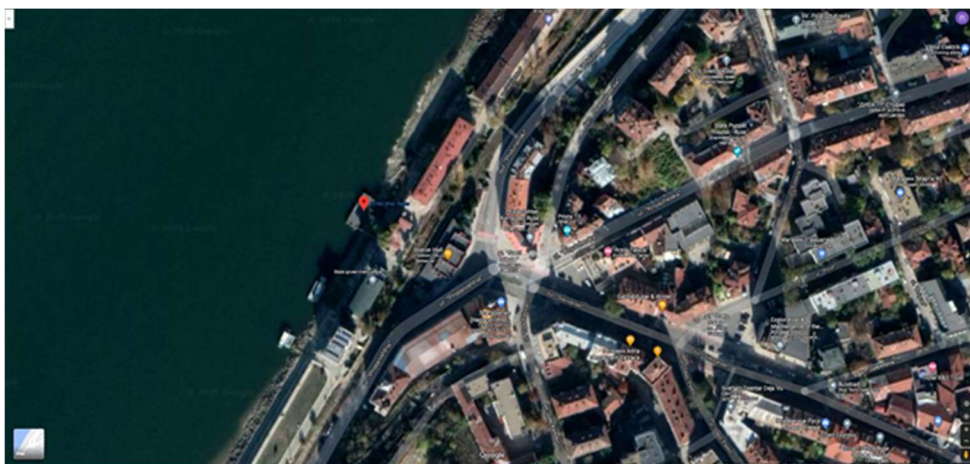
The port terminal Svishtov, part of the Public Transport Port of National Importance Ruse, hosts Ship Place № 6 at 553,950 km with a length of 80 meters. It is equipped with a pontoon, designated for servicing passengers and ships when performing entry-exit border controls and passenger service activities. It allows to tie up to four (4) ships on board in one row.



*Figure 24 Port Terminal Svishtov*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

The port terminal Ruse Center, part of the Public Transport Port of National Importance Ruse hosts the Ship Place № 2 at 498,700 km and it is 110 m. long. It is equipped with a pontoon, designated for the stay and bunkering (fuel, lubrication materials, water) of self-propelled ships when performing entry-exit border controls and passenger service activities. Tying up of up to three (3) passenger ships on board in one row or up to four (4) self-propelled ships on board in one row. It is not convenient for parking of busses.

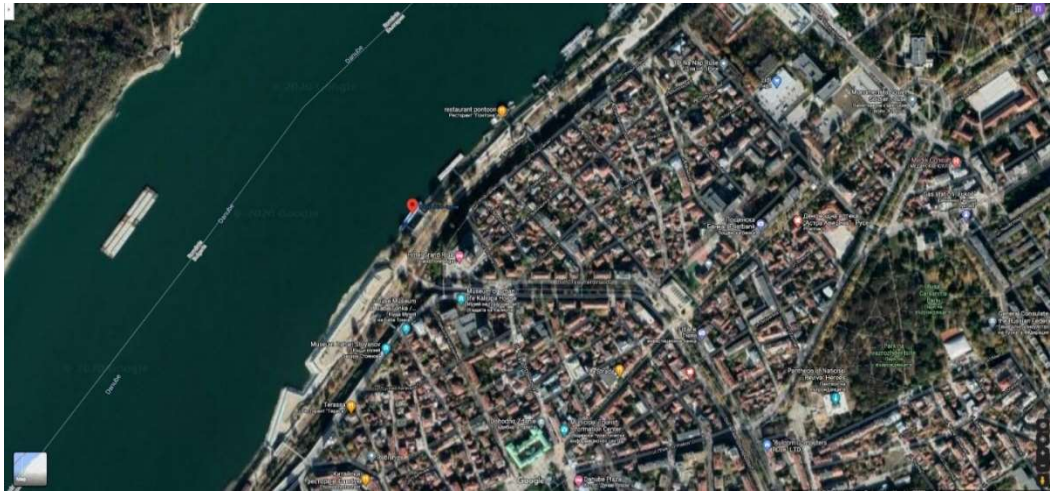


*Figure 25 Port Terminal Ruse Center*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

Ship place meant for the servicing of passengers – Dunav Tours Pontoon is situated at 494,800 km. and is designated for the servicing of passengers when performing entry-exit border controls. It also allows stay and water supply. It is allowed to tie up to three (3) passenger ships on board in one row, and it is mandatory to provide conditions for servicing disabled passengers on each ship. It is forbidden to anchor when standing.

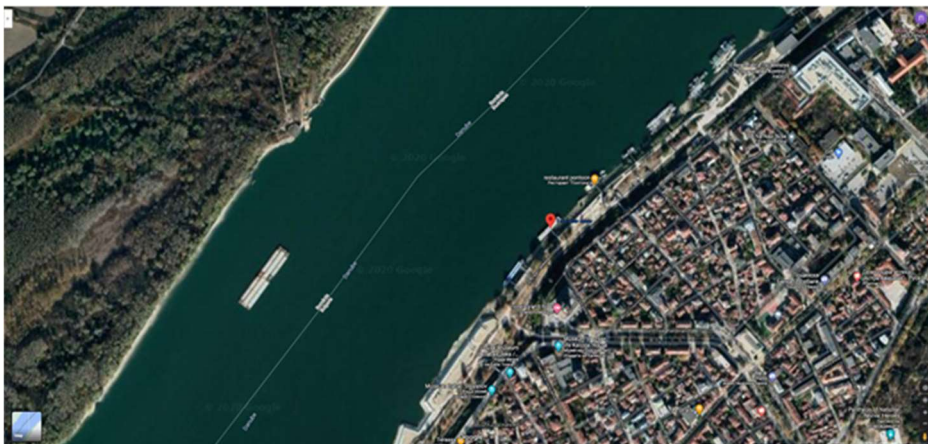




*Figure 26 Dunav Tours Pontoon*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

Port for public transport of regional importance "Pristis", operated by Balkan Tours hosts the Ship Place № 9 –at 494,620 km. and is 135 m. long – designated for servicing of passengers when performing entry-exit border controls. It also allows stay and water supply. It is allowed to tie up to four (4) passenger ships on board in one row with a total width of up to 50 m and it is mandatory to provide conditions for servicing disabled passengers on each ship. In the absence of passenger ships, the pontoon is allowed to moor up to 4 (four) self-propelled ships on board in one row.

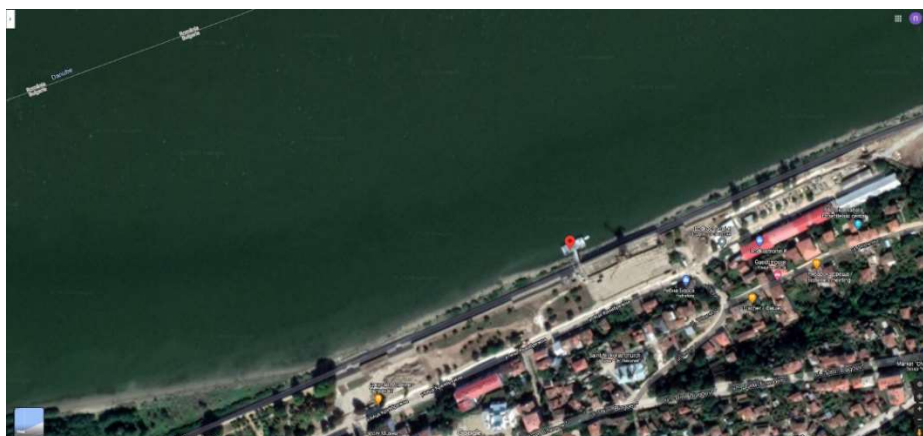


*Figure 27 Port Pristis, operated by Balkan Tours*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project



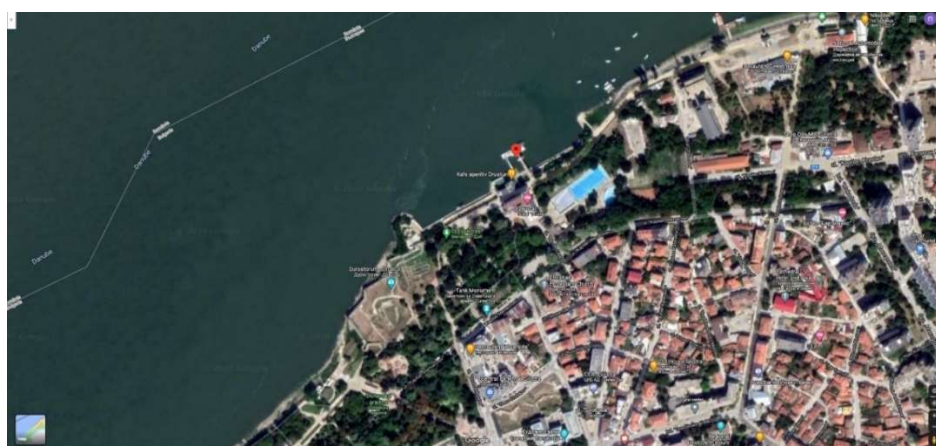
The port terminal Tutrakan, part of Public Transport Port of National Importance Ruse, hosts Ship Place №2 at 432,670 km. and is 135 m. long. It is equipped with a pontoon for the stay and supply of passenger ships and self-propelled ships, as well as for servicing passengers. The tie up of up to four (4) ships on board in one row is allowed.



*Figure 28 Port Terminal Tutrakan*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

Public Transport Port with Regional Importance „East Point“, Silistra, is meant for passengers servicing and is situated between 375,870 km. and 375,640 km. It has 1 ship place at 375,800 km with a length of 140 meters. It is equipped with pontoon “Draster” for the stay of passenger ships and ship bunkering (fuel, lubrication materials, water). Tying up of up to three (3) ships on board is allowed.



*Figure 29 Port East Point, Silistra*

Source: National Infrastructure Master Plan Bulgaria for sustainable development of River Cruise industry, Dionysus Project

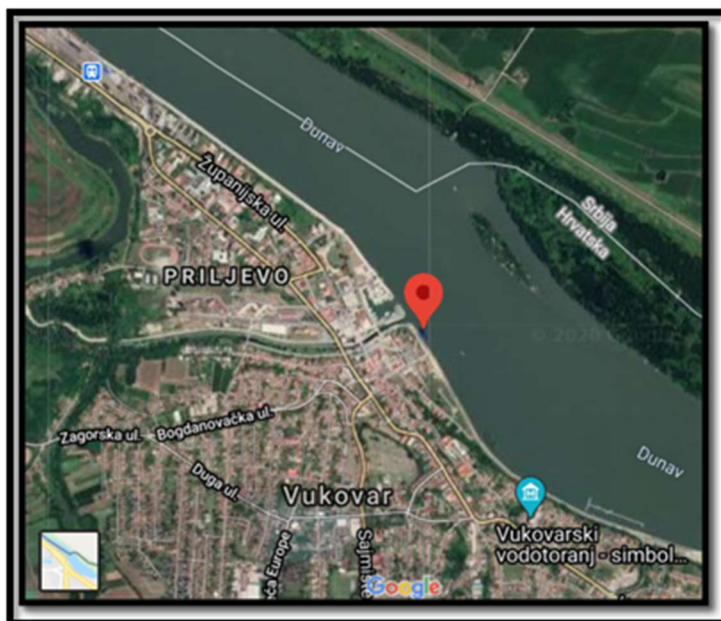
### **7.1.3 Croatia**

Despite having only a limited number of berthing facilities, Croatian river cruising has had a pretty uptrend going over the last years, each year topping the last one. Last year proved to be special in all of the industries and all over the world with not knowing what the next day will bring. On March 16<sup>th</sup> 2020 official decisions were made on temporary suspension of passenger ports in Vukovar, Ilok, Batina and Aljmaš. Almost like all the other sectors in country, a forceful stop was made due to fear of spreading of COVID-19 and everything was put on hold.

Passenger dock Vukovar is located on the rkm 1333 + 000 right bank of the Danube River. Among the other cargo handling terminals, Vukovar has also a dedicated passenger terminal with the main purpose of berthing passenger vessels. The embankment is entirely done, and the bank type is classified as “sloped”. The passenger terminal in Vukovar port is actually a type of pontoon–floating facility made of steel. Pontoon classifies as one berth, but the actual capacity or the number of vessels permitted on this berth accounts for 4 vessels (the floating facility + 3 vessels).

The overall length of the floating facility is 75,20 meters long and the maximum width of 10,00 meters. Additional services which are offered at the passenger terminal include fresh water supply, electricity and waste disposal.

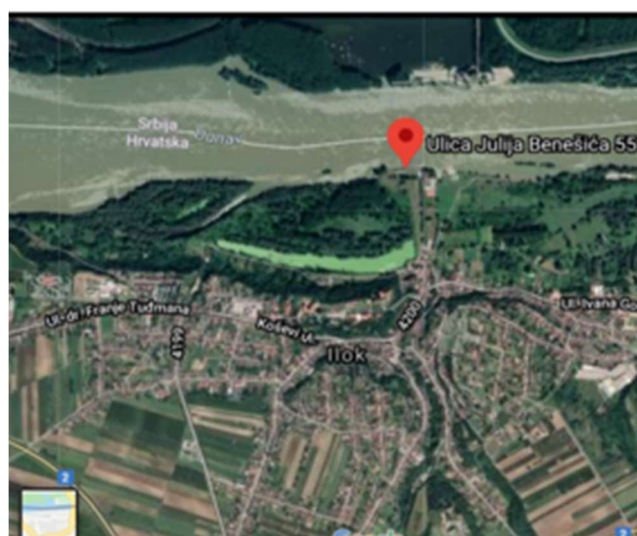
One of the many great things regarding Vukovar port and its overall impact on the river cruising industry definitely has to be the offer of supplying groceries and other products for the needs of the ship's restaurant which is practically speaking an exclusive offer.



*Figure 30 Passenger dock location in Vukovar*

Source: National Infrastructure Master Plan Croatia for sustainable development of River Cruise industry, Dionysus Project

Passenger dock in Ilok is located on the rkm 1298 + 680 right bank of the Danube also goes under the management of Port of Vukovar Authority as well as the ports Aljmaš and Batina. Ilok’s passenger dock is made similarly to the one made in Vukovar.



*Figure 31 Passenger dock location in Ilok*

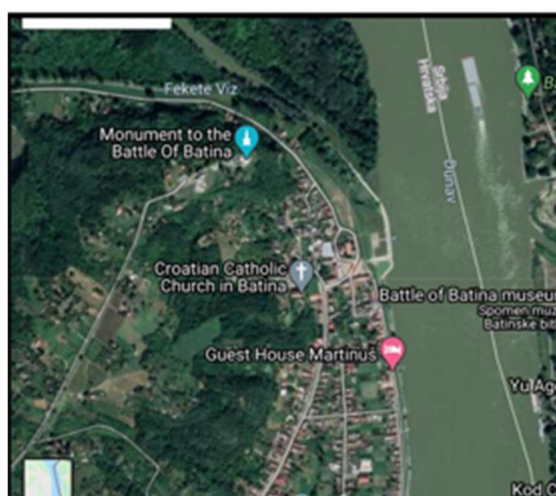
Source: National Infrastructure Master Plan Croatia for sustainable development of River Cruise industry, Dionysus Project



The embankment is entirely done and the bank type is sloped. The passenger dock is as well a pontoon type of floating facility made of steel. There is one berth that can accommodate 3 vessels (the floating facility + 2 vessels).

The length of the facility is 57,22 meters and the width is 7,93 meters. Additional services which are offered at the passenger terminal include fresh water supply, electricity and waste disposal.

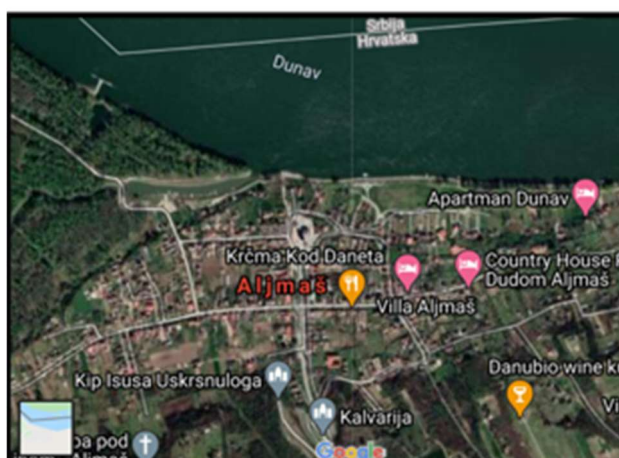
Passenger dock Batina is located on the rkm 1425 + 500 right bank of Danube River. The purpose of the dock is berthing of passenger vessels across the overall length of only 14,53 meters and width of 8,02 meters. The permitted number of vessels on a berth is 2 vessels (floating facility and one vessel). Similar to the embankments of Ilok and Vukovar, Batina's shore is an embankment and sloped. Dock is built from a pontoon – floating facility made to facilitate the usual embarkation and disembarkation without the need for an immobile concrete object. Additional services at the passenger terminal include water supply, electrical supply and waste disposal.



*Figure 32 Passenger dock location in Batina*

Source: National Infrastructure Master Plan Croatia for sustainable development of River Cruise industry, Dionysus Project

Positioned on the rkm 1380 + 200 right bank of Danube, passenger dock Aljmaš offers similar services and the exact same specifications dedicated for accommodating smaller passenger ships on their way along the Danube River flow. Embankment stretches behind the pontoon and the sloped bank type. Pontoon is 14,53 meters long and 8,02 meters wide. The permitted number of vessels on a berth is 2 vessels (floating facility and one vessel). Services offered include water supply, electrical supply and waste disposal.



*Figure 33 Passenger dock Aljmas*

Source: National Infrastructure Master Plan Croatia for sustainable development of River Cruise industry, Dionysus Project

#### **7.1.4 Moldova**

There is only one port in the Republic of Moldova, which, due to its location and technical capabilities, can successfully contribute to the development of the river and sea cruise industry.

The passenger terminal was built as a strategic point with the financial support of the country's budget, especially for foreign tourists visiting the Republic of Moldova on cruise ships. The port can accommodate ships with a capacity of up to 300 passengers.

Within 250 km from the port of Giurgiulesti, there are cities and tourist sites with a large number of attractions.

The passenger port, which is a branch of the state enterprise Ungheni River Port, was built in 2009 with state money and cost 100 million lei.

It is a 120-meter berth, a comfortable four-story building with a passenger hall, offices for the administration, customs and border guards.

Giurgiulesti Passenger Port is relatively small compared to other European ports, it is the only access of the Republic of Moldova to the sea and enjoys a strategic location on the border with Ukraine and Romania.



*Figure 34 Location of the passenger terminal in the Port of Giurgiu*

Source: National Infrastructure Master Plan Moldova for sustainable development of River Cruise industry, Dionysus Project

### **7.1.5 Romania**

The Passenger's Terminal in Constanta Port was inaugurated in November 2005 and is located in the northern part of the port. The terminal is located between two points of tourist attraction that bear the imprint of history, namely the former Royal Pavilion transformed into the Port Museum and the Old Lighthouse, built during the reign of King Carol I.

Destination of many Danube and maritime cruise routes, the Port of Constanta offers optimal conditions for the docking of river cruise ships that make a stopover, as well as maritime passenger ships, having in view the available depths.

The location in this area presents a series of advantages, intended to attract the interest of including the Port of Constanta as a destination for cruise tourism:

- The terminal allows direct and easy access of ships to the port entrance, without additional maneuvers;
- Location very close to the old city of Constanta;

- The existence of easy road connections with the city, ensuring the flow of car and pedestrian traffic without interfering to the port activities;
- Existence near some points of great historical and tourist interest (the Old Genovese Lighthouse, the Port Museum, the Casino and the Casino waterfront, the Tomis marina, as well as the peninsular area of the city of Constanta whose main points of attraction are: Ovidiu's Statue, the National Museum of History and Archeology and the Roman Mosaic);
- Transportation, accommodation, entertainment facilities in the Romanian resorts on the Black Sea Coast.

The length of the existing mooring front is 293 m, the depth at the wharf is 13.5 m, ensuring the berthing of large ships with drafts of up to 10 - 11 m. The value of the investment amounts to approximately 2.8 million Euros.

### **7.1.6 Serbia**

Historically, the cruise ports develop its cruise facilities organically as the need has arisen. However, since the industry is very fast growing today, it is necessary to have the consistent planning. This means that decisions when and where to place the terminal can and should be made in advance, in order to be able to start the project on time and be ready when the need arises.

As mentioned before, the Strategy on waterborne transport development of the Republic of Serbia, 2015 – 2025 defined tentative network of IPTs, suitable for further elaboration through the spatial planning and technical documentation.

The Strategy aim to enlarge the scope of tourism offer, and thus define a network of passenger terminals open to international traffic. Strategy foreseen development of the following 16 passenger terminals for RCI: Apatin, Bačka Palanka, Novi Sad, Sremski Karlovci, Belgrade, Smederevo, Kostolac, Veliko Gradište (Ram), Golubac, Lepenski Vir, Donji Milanovac, Kladovo, Neogtin, Šabac, Sremska Mitrovica and Kanjiza.

Zemun will be ready to welcome first cruises in nautical season 2023.





*Figure 35 IPT in Zemun, Belgrade*

Source: National Infrastructure Master Plan Serbia for sustainable development of River Cruise industry, Dionysus Project

It is expected that IPT in Veliko Gradište (Ram) will be ready during the season 2023 or the beginning of the season 2024.

Construction of necessary infrastructure (passenger dock) for Sremska Mitrovica started in 2021. The plan is to complete all works by the end of 2022, and open the IPT in Sremska Mitrovica by the beginning of the nautical season 2023.

Another location on the Sava river with great potential for development of RCI is Šabac, a modern, elegant town, with cultural and historical landmarks. The Agency in 2022 launched investment into the construction of necessary infrastructure, and the plan is to complete all works and open the IPT in 2023.

### 7.1.7 Slovakia



*Figure 36 Cruise terminal layout in the Port of Bratislava*

Source: National Infrastructure Master Plan Slovakia for sustainable development of River Cruise industry, Dionysus Project

In the case of relocalization of transshipment activities from the Zimný prístav to the Pálenisko basin, large areas will release in the attractive part of the city. Direct access to the Danube waterway or to the north and south basin aquariums will be available. An important advantage of the site is relatively extensive transport infrastructure, which is to a large extent obsolete. Only some parts of the banks in the north and south basins have quay walls; however, the storage areas do not meet current requirements of logistics. Due to the high age of the port infrastructure and superstructure of the Zimný prístav, maintenance of transshipment activities would require high investment in modernization. The proposed option envisages rebuilding of cargo port in the part of the Zimný prístav into the terminal of passenger water transport and the port designed for sport and leisure transport. Consequently, it will require the investments in removal of old buildings, reconstruction of existing infrastructure (reinforced surfaces, fastening elements, perimeter edges, roads, railway track) as well as investments in new technical equipment that is needed for the operation of modern passenger terminal and marina. To determine the details of these investments and technical solutions for passenger terminal and marina should be the subject of a feasibility study.

### 7.1.8 Hungary

At present there are about 17 ports in Budapest, which were capable to handle monthly 400 to 450 arriving river cruising ships between May and September 2019. Regretfully the number of the ports are already insufficient; two, sometimes three ships must

share the same pontoon and all the inconvenience this situation generates. The number of inbound river cruising ships is not sufficient to calculate berth demand even for the existing traffic, not to mention demand forecast.



*Figure 37 Existing RCI related ports in Budapest*

Source: National Infrastructure Master Plan Hungary for sustainable development of River Cruise industry, Dionysus Project

The international port in the inner city (as main port) does not presently provide high standard passenger traffic services: it should be developed at a new location, associated with more comprehensive solutions for operational functions.

The zone along the Danube is the only area for water transport. Potentials in transport modes resulting in low environmental burdens should be exploited as fully as possible.

- Relocation of the international ship station with high standard operational functions;
- Development of road and rail connections to Csepel Free Port;
- Establishment of DILC (Danube Intermodal Logistic Centre).



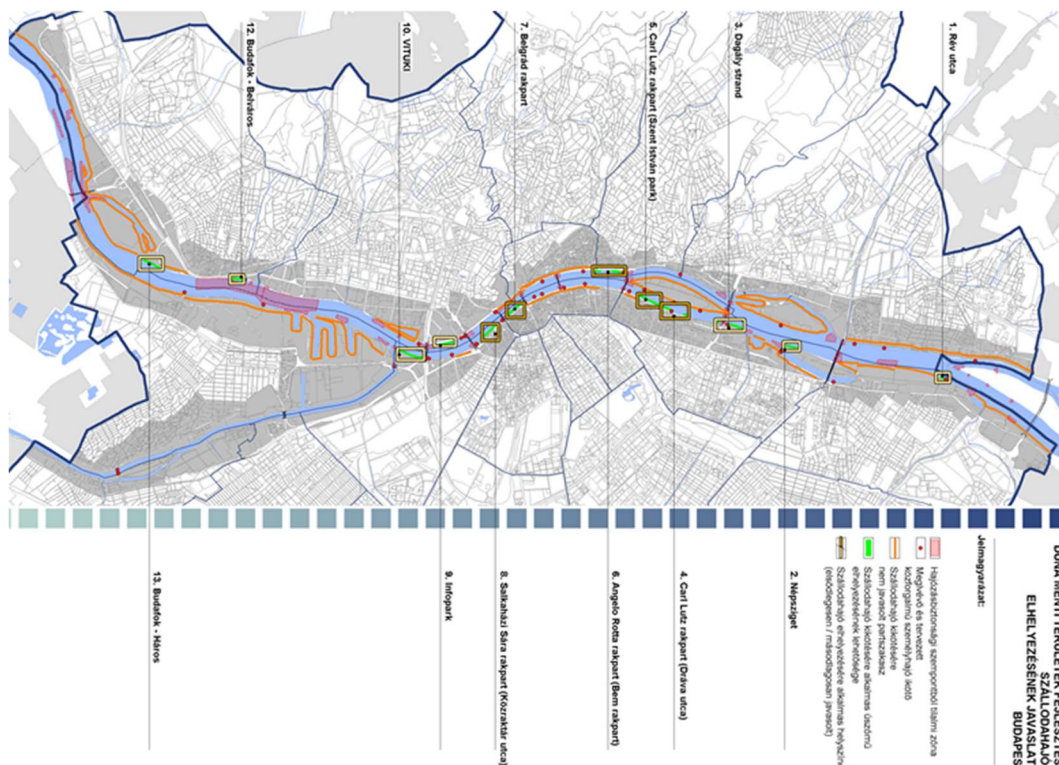


Figure 38 Study's proposal on river cruise ship port locations in Budapest  
 Source: National Infrastructure Master Plan Hungary for sustainable development of River Cruise industry, Dionysus Project

## 7.2 Alternative development plans presented

In this chapter, the alternative development plans of the studied countries were analysed. For some countries, passenger transport on inland waterways is of little interest, as no development plans or significant investments have been identified following the analysis.

Countries with development prospects in the field of cruises on the Danube propose to develop the existing terminals, as is the case of Croatia.

One such project is the development of the port of Vukovar in Croatia. In the next ten years, it is planned to invest in the expansion of the existing port for passenger ships in Vukovar. This project envisages the formation of a berth for passenger ships parallel to the existing coastal fortification. The passenger port expansion project is closely related to the Hrvatske vode project "Regulation of the right bank of the Danube from rkm 1333 + 000 to rkm 1331 + 000 and Vukovar city planning". The project "Regulation of the right bank of the Danube from rkm 1333 + 000 to rkm 1331 + 000 and town planning of the city of Vukovar" designed mooring elements at the existing port location and downstream for three more berths, while the port expansion project of passengers refers only to the design of the floating facility and its accommodation in space.

In view of the growing trends in the cruise market, there is an increasing need to provide services that do not directly mean only the berthing of ships for the purpose of disembarking and embarking passengers (for example, ship maintenance services). Such services will be able to be provided only in ports that will be defined by the legislative framework and purposes that will be different from those that have passenger ports, and where small-scale maintenance of river cruisers or other vessels will be able to be carried out.

An alternative concept relevant in this analysis is the development of the city's infrastructure, in order to create an environment as friendly as possible for tourist passengers. Such a project is taking place in the capital Budapest. The concept of the capital is to rebuild the already existing mall, Bálna, to facilitate the land services of the new international passenger port of Budapest. Pontoon docks will be implemented to facilitate the berthing of ships between the Szabadság Bridge and the Petőfi Bridge. The study site plan contains four pontoons, which can accommodate eight vessels. This obviously insufficient capacity for the entire city, therefore the existing ports in the city centre, appropriately located, are to be developed to meet recent and future

demands. If river cruise traffic continues to increase, new ports must be implemented in accordance with the study.

Budapest Municipality plans to rebuild the quays in the city centre on each bank of the Danube. Therefore, the identification and finalization of existing and future port locations is of utmost importance, according to available information this has not yet been done, and planning for the reconstruction of the quay will probably not include the study to establish the port arrangement.

### 7.3 List of proposed investment projects.

Table 14 List of proposed investment projects

Country	Project
<b>Croatia</b>	Construction of a new passenger port in Vučedol within the project "Archaeological Park Vučedol"
	Construction of a communal and passenger port on the Island of Sports in Vukovar
	Construction of a passenger dock in Ilok
	Construction of a communal port in Batina
<b>Hungary</b>	Building new international passenger port at the location proposed by the Concept and the Study and converting Bálna into a port building
	Install shore power, connection to the city's sewer system and drinking water supply at the port locations finalized by the study.
	New city sightseeing and public transport boats procurement
	Implementation of a winter port, boatyard, and ship repair facility
<b>Moldova</b>	Creation of a new and modernization of the existing sea and river passenger fleet
	Reconstruction and re-equipment of sea and river cruise berths and harbours
<b>Slovakia</b>	Modernization of berths in passenger port
	New passenger terminal

Source: based on national reports, *D.T3.4.3 - National Infrastructure Master Plans*, Dionysus Project



## 7.4 Possible recommendations

The development of cruises on the Danube must take into account an important aspect of transport - decarbonization, the sustainable development of passenger transport on the Danube. A first step would be to mitigate the dependence on fossil fuels, the use of renewable fuels and the construction of electric ships. The purchase of these ships would have a high cost, but the effects for a sustainable transport would be observed in time.

At the same time, ports should offer facilities to cruise ships. Electricity consumption on ships is high, ports should ensure the supply of energy to ships when they are at the quay. A strong point in this practice would be the reduction of noise, disturbing both for passengers and for areas close to the port.

The Danube Commission periodically publishes reports on the market observation for Danube navigation<sup>2</sup>. We can draw recommendations and observations of the Commission from the conclusions of these reports. Thus, we can note a constant concern over ensuring the often limited drafts during periods of drought or frost, as well as encouraging the development of the port infrastructure, including for the berthing of passenger ships. Remarks are made regarding the treatment of special situations that have arisen, such as the Covid 19 pandemic or the military conflict in Ukraine. For this last situation, we can see the manifestation of active concerns in the coordination of efforts to find solutions to increase the transport potential on the Danube of ships leaving Ukrainian ports.

The navigation conditions are very important for the industry, the authorities must be continuously involved in the maintenance of the navigation conditions.

In the case of long sections of the Danube, as is the case of the Romanian-Bulgarian sector, if the ship cannot pass the critical point, the transfer of tourists with other modes of transport is difficult to organize. This is caused by the mooring infrastructure and the road situation in the mentioned countries. That is why investments must be made both in the port infrastructure and in that of the cities.

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<sup>2</sup> <https://www.danubecommission.org/dc/en/danube-navigation/market-observation-for-danube-navigation/>

The Danube ports do not offer adequate infrastructure for boarding tourists in coaches, the landscapes are not very pleasant because of the unmaintained buildings, stray dogs, as well as poor cleanliness.

These aspects must be taken into account in the development strategy of the Danube cruise industry.

The ports on the Danube must understand that they are not in competition and create synergies. Most cruises cross several countries, disembarking in several ports, their simultaneous development and common cruise promotion techniques would lead to an increase in the number of passengers, as well as to the improvement of their journey.

Closely related to this recommendation is the approach to passenger transport on the Danube correlated with the national tourism development strategies. Passengers spend time in port cities, it is necessary for them to be attractive both from the point of view of the objectives and traditions, events or peculiarities. The creation of connections between tourist attractions and disembarkation ports would facilitate the transport of passengers, would increase interest in cruises and destination cities. Passengers spend little time on board the ship, the interest is in the cities visited. The longer the layover time, the more interested the passengers are in the tourist side of the cities than in the transport on the Danube.

States must collaborate with each other in order to have common strategies for improving passenger transport on the Danube, taking into account both the national strategies for the development of cities and the improvement of tourism.

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