

MARKET INSIGHT

INLAND
NAVIGATION
IN EUROPE

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2020



CCNR

CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE

Market Insight
INLAND NAVIGATION IN EUROPE

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01

FREIGHT TRAFFIC ON INLAND WATERWAYS

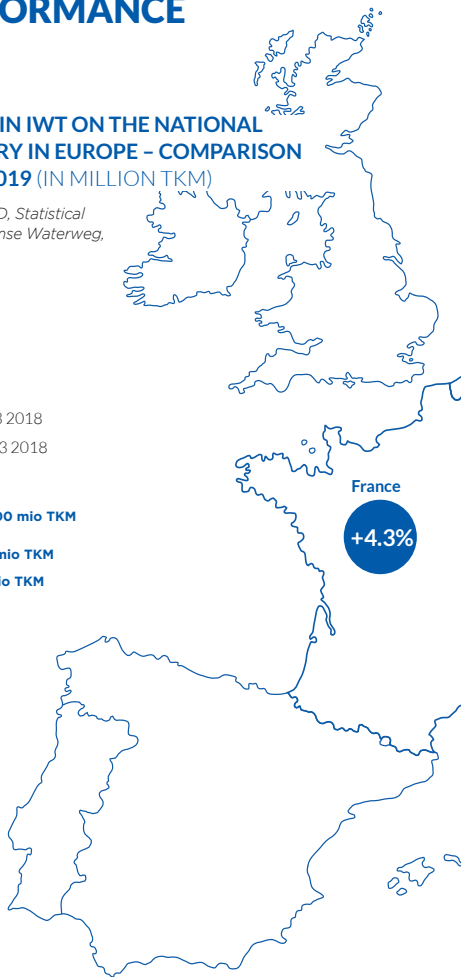
- Transport performance on inland waterways in the European Union amounted to 111.2 billion tonne-kilometres (TKM) in the first three quarters of 2019.
- As a result, Rhine countries (Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland) reached 91.3 billion TKM, which represents a share of 82%, compared to 84% in the same period of 2018.
- Transport in Danube countries (Austria, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia) went up by 18.4% to reach a value of 19.8 billion TKM. Their share in EU transport performance increased from 16% to 18%.

TRANSPORT PERFORMANCE IN EUROPE

TRANSPORT PERFORMANCE IN IWT ON THE NATIONAL TERRITORY OF EACH COUNTRY IN EUROPE – COMPARISON BETWEEN Q3 2018 AND Q3 2019 (IN MILLION TKM)

Sources: Eurostat [*ijww_go_qnave*], OECD, Statistical Office of the Republic of Serbia, De Vlaamse Waterweg, SPW Service Public de Wallonie

- Positive rate of change in Q3 2019 vs Q3 2018
- Negative rate of change in Q3 2019 vs Q3 2018



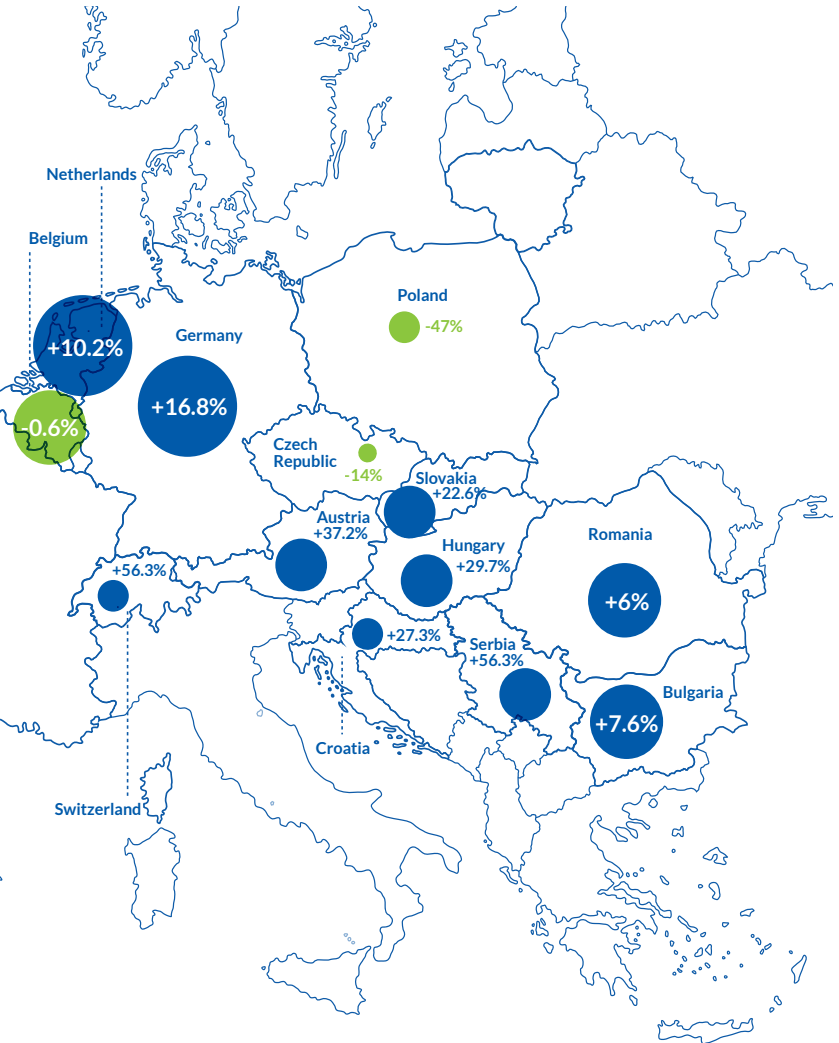
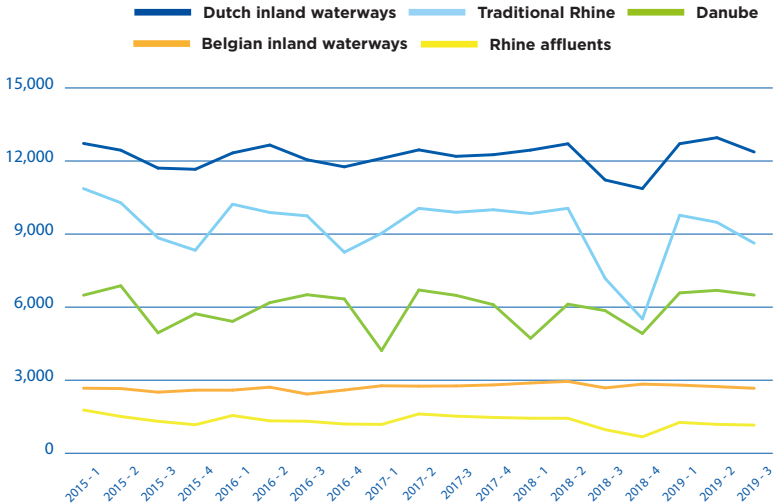


FIGURE 1: INLAND WATERWAY TRANSPORT (IWT) PERFORMANCE IN EUROPE BY REGION (IN MILLION TKM)

Sources: Eurostat [iww_go_qnave], OECD, Statistical Office of the Republic of Serbia, Destatis, Statbel, De Vlaamse Waterweg, SPW Service Public de Wallonie

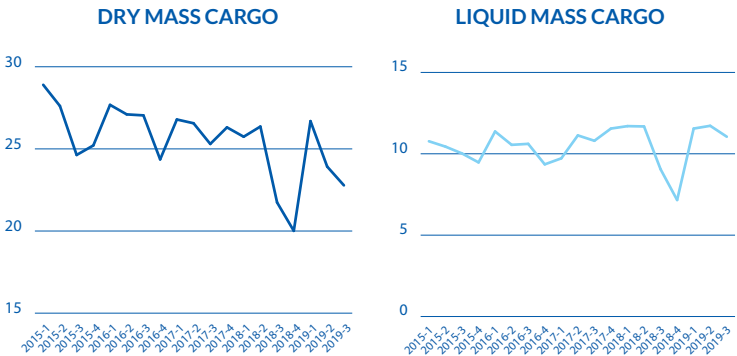


- Transport performance on the traditional Rhine was 3% higher in the first three quarters of 2019 than one year previously. The increase reflects the recovery from low water levels, but a closer look reveals that several dry cargo segments are in a difficult situation.
- This is the case for coal, which will be phased out of the energy sector between 2022 and 2038 (see further text in this report). For iron ores, the situation is different. Iron ore transport even increased slightly on the Rhine between 2013 and 2017. However, in 2018, it came under pressure from low water levels, and from the slowdown of the steel and automobile industry. A volume of 16.3 mio. t of iron ores was transported in the first three quarters of 2019, compared to 17.8 mio. t in the same period of 2018, and 19.2 mio. t in 2017. The long-term outlook for steel production and iron ore transport points to a slightly decreasing trend in western Europe.

- Another dry cargo segment with a difficult evolution on the Rhine is that of agricultural products and food/feedstuff. In the first three quarters of 2019, 7.16 mio. t of agricultural products were transported on the traditional Rhine, 9% less than in the same period of 2018. Food products amounted to 4.4 mio. tonnes (-1%). Since 2013, for the two segments taken together, annual figures (12 months) dropped from 19.6 mio. t in 2013 to 17.3 mio. t in 2017, and 15.1 mio. t in 2018. In the same period, harvest results in western Europe were more or less stable, with the exception of a bad harvest result in 2016.
- The January 2020 forecast for the 2020 grain harvest (European grain trade association COCERAL) points to an increase of 4% for (all types of) grain in Germany, and a 5% decrease in France. For harvest volumes of oilseeds (rape, sunflower, soybeans), an increase of 4% for France and of 12% for Germany are expected.

FIGURES 2 AND 3: TRANSPORT VOLUME FOR DRY AND LIQUID MASS CARGO ON THE TRADITIONAL RHINE (IN MILLION TONNES)

Source: Destatis



- For the future of the agricultural and food/feedstuff segment, there are threats of a delocalization of livestock activities from western Europe (especially from the Netherlands) to Poland, Hungary and Romania. The reasons behind this are increasing problems with emissions related to the livestock activity in densely populated areas.¹
- In contrast to dry bulk, the transport of liquid bulk is on an upward trend on the Rhine, in Belgium and in the Netherlands. In the first three quarters of 2019, liquid bulk volume increased by 5.8% on the traditional Rhine and by 9.4% in the Netherlands. Liquid bulk transport volume amounted to 34.3 million t on the traditional Rhine and to 91.8 million tonnes in the Netherlands. Within liquid bulk on the Rhine, mineral oil products (20.5 million tonnes) had a plus of 10 %.
- Danube transport performance (TKM in all Danube countries added together) was 18.4% higher in the first three quarters of 2019 than one year previously. The Danube recovered not only from low waters but also in economic terms. The steel industry in the Danube region has increased its production level significantly in recent years: Serbia's steel production has more than tripled between 2014 and 2018, thanks to foreign investment of a large Chinese steel company.²
- Growth in Danube navigation in 2019 is to be seen in the light of these trends but reflects also the recovery from low waters. According to the market observation report of the Danube Commission, 4.3 million tonnes of goods passed the border point of Mohacs in southern Hungary in the first three quarters of 2019 (+16% compared to one year earlier). Iron ore (transported upstream) went up by 18%, and grain (downstream) by 6.1%.
- At the border point between Hungary and Slovakia (lock of Gabčíkovo), 4.6 million tonnes were counted (+22.7%). The increase was mainly driven by more upstream transport of iron ores (+21.8%) and food products (+69%). Downstream traffic of mineral oil

¹ See the study of Royal Haskoning DHV (December 2019), *Gevolgen grote Transitie en wereldhandel voor de binnenvaart - 2020-2040*

² Data from the World Steel Association show an increase of Serbian steel production from 0.58 mio. t in 2014 to 1.97 mio. t in 2018. For the Chinese steel investment, see the article in the *New York Times* "As China Moves In, Serbia Reaps Benefits, With Strings Attached" published on 9 September, 2017.

products had a plus of 74% and fertilizers +58%.

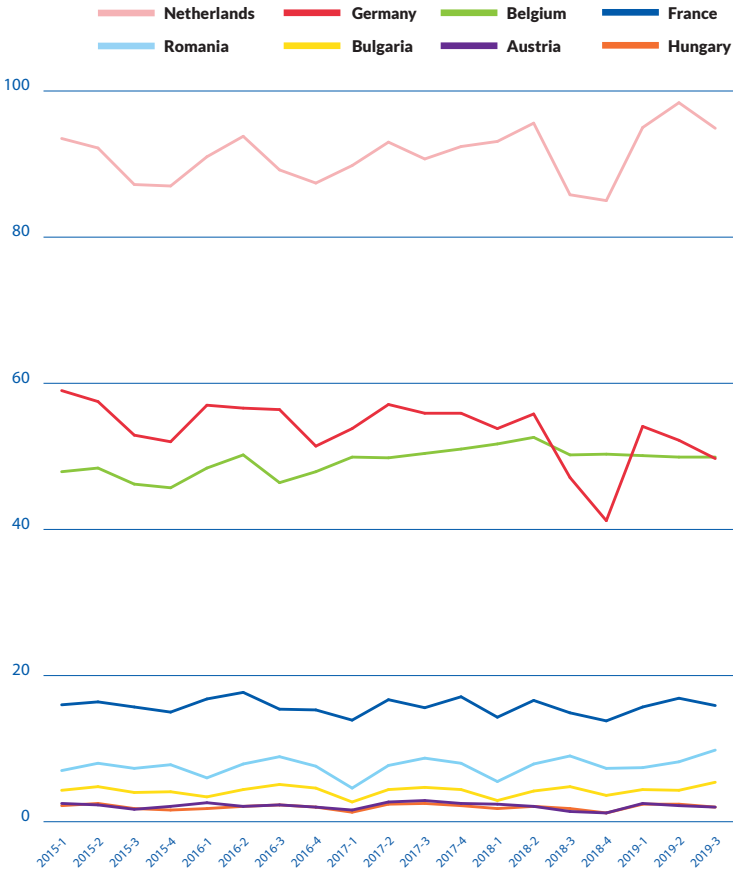
- On the Danube-Black Sea Canal (link between the Danube and the seaport of Constanza), goods traffic reached 12.75 million tonnes in (Q1+Q2+Q3) 2019, representing an increase of 20.5%.
- The January 2020 forecast for the 2020 grain harvest (European grain trade association COCERAL) points to an increase of 5% for all types of grain in Romania, and a 5% decrease in Hungary. Oilseeds production is expected to remain stable in both countries.



TRANSPORT VOLUME IN MAIN EUROPEAN IWT COUNTRIES

FIGURE 4: INLAND SHIPPING TRANSPORT VOLUME (QUARTERLY DATA - IN MILLION TONNES)

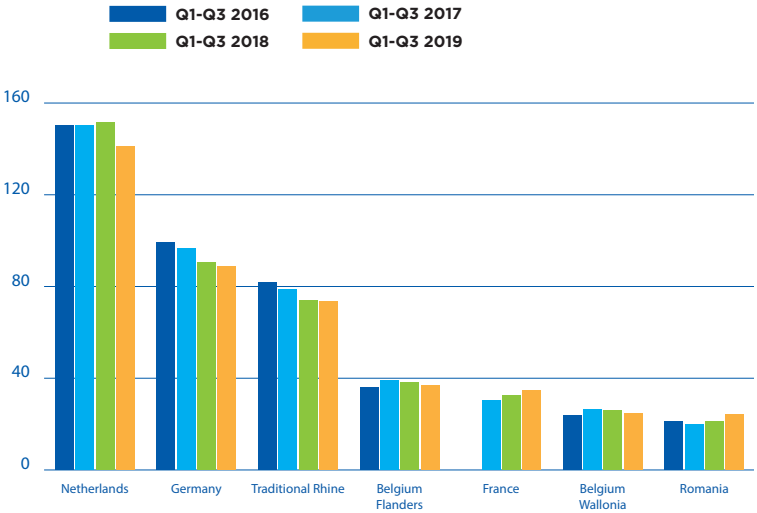
Sources: Eurostat [iww_go_qnave] for Belgium, Statbel figures for the 2019 quarters were corrected in light of the data available from the waterway administrations in Belgium (De Vlaamse Waterweg and SPW Service Public de Wallonie).



DRY BULK, LIQUID BULK AND CONTAINER TRANSPORT

Sources: Centraal Bureau voor de Statistiek, Destatis, De Vlaamse Waterweg, SPW Service Public de Wallonie, Voies Navigables de France, Romanian Institute of Statistics. Note: for Wallonia, no infra-annual container statistics are available. Hence, the product group "other goods / marchandises diverses" was assumed to consist mainly of container transport.

FIGURE 5: **DRY CARGO TRANSPORT** (IN MILLION TONNES)



REDUCTION OF SANDS, STONES AND GRAVEL IN THE NETHERLANDS CONTRIBUTED TO A DROP IN DRY CARGO TRANSPORT.

FIGURE 6: LIQUID CARGO TRANSPORT (IN MILLION TONNES)

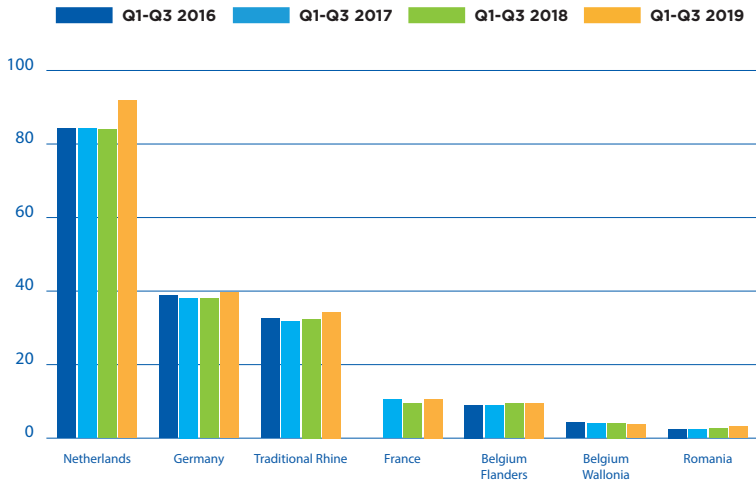
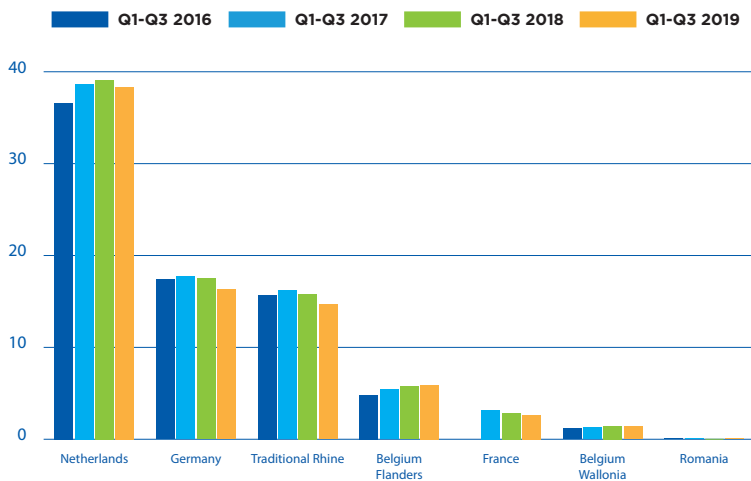


FIGURE 7: CONTAINER TRANSPORT (IN MILLION TONNES)



- In the Netherlands, Germany, Belgium and on the Rhine, energy transition from coal to renewables and the reduction of coal transport on inland waterways is a major challenge. According to figures from the German Working Group on Energy Balances, electricity generation from hard coal decreased in Germany from 117.7 TWh in 2015, to 92.9 TWh in 2017, 82.6 TWh in 2018, and 56.9 TWh in 2019.³
- The mid-term forecasts for inland waterways in Germany point to a further decrease of coal transport.⁴ According to the national energy transition programme, coal fired power plants (often located in the Rhine and Ruhr area along waterways) will be gradually closed from 2022 onwards, until the closure of all plants by 2038.⁵

TABLE 1: IWT FOR THE THREE LARGEST GOODS SEGMENTS IN GERMANY (IN THE FIRST NINE MONTHS OF EACH YEAR, IN MILLION TONNES)

Source: Destatis

Sands, stones, gravel, building material = NST-2007 codes 035, 092, 093; liquid mineral oil products = NST-2007 code 072; hard coal and coking coal = NST-2007 codes 021, 071

Goods segment	2016	2017	2018	2019
Sands, stones, gravel, building materials	23.4	25.0	23.3	26.2
Liquid mineral oil products	21.9	22.2	20.6	24.3
Hard coal and coke coal	30.0	27.3	22.7	21.0

- The port of Duisburg is adapting its activities to this energy transition and is currently constructing the largest trimodal container terminal in the European hinterland, on a former coal storage terrain. This new “Duisburg Gateway Terminal” will have a capacity of 850,000 TEU and will serve as destination or starting point for up to 100 trains per week from and to China (New Silk Road), and from and to eastern Europe. The terminal will be operative by 2022. Transports from and to this terminal foresee both rail and barge transport as preferred transport modes.

³ Source: Arbeitsgemeinschaft Energiebilanzen (<https://www.ag-energiebilanzen.de/>)

⁴ See: Ministerium für Verkehr und digitale Infrastruktur (2019), Gleitende Mittelfristprognose für den Güter- und Personenverkehr, Februar 2019

⁵ See: Bundesverband deutsche Binnenschifffahrt (2020), Pläne zum Ausstieg aus der Kohleverstromung belasten Schifffahrt und Häfen (press release 24 January 2020)

Currently, there are already 30 to 40 trains per week running between China and the port of Duisburg, representing 30% of all trade by rail between China and Europe.⁶

- In the Netherlands, the phasing out of coal as an energy resource is particularly relevant as most of the coal used in power plants in the hinterland comes from ARA seaports. Likewise, on an industrial level, the Dutch barging industry is heavily involved in the transport of coal between the Dutch seaports and the Rhine and Ruhr area in Germany.⁷ In 2019, according to CBS figures, 69.7 million tonnes of sands, stones, gravel, and building materials were transported on Dutch inland waterways, compared to 80.6 million tonnes in 2018. The aim of the Dutch government to reduce different kinds of emissions (nitrogen, CO₂, chemical substances such as PFAS) has a negative influence on construction activity for roads and houses, and impacts are also seen for IWW transport.
- In Belgium, sands, stones and building materials are also the largest goods segment. They reached a volume of 12.2 million tonnes in (Q1+Q2+Q3) 2019 in Wallonia and 20.7 million tonnes in Flanders. This meant a small decrease for these materials (-2.0% in Wallonia and -1.6% in Flanders) compared to the same period in 2018. Coal transport in Belgium declined far more acutely. In Wallonia it amounted to 1.2 million tonnes (-19%), and in Flanders to 1.4 million tonnes (-5.2%).
- In France, dry cargo increased by 6% in (Q1+Q2+Q3) 2019. The building segment currently benefits from a positive business cycle in France, driven by construction works in Paris and in the Ile-de-France region. For the whole year 2019, the transport of these materials increased by 13.9% up to a level of 25.2 million tonnes (19.1 million tonnes after the first three quarters). Hereby, 15.6 million tonnes (annual value) were allotted to the Seine basin (+14%). Agricultural products in the Seine and the Rhône basin were also on the rise, in the wake of good harvest results.

⁶ Source: *Schifffahrt, Hafen, Bahn und Technik (8/2019), Logistik folgt auf Kohle.*

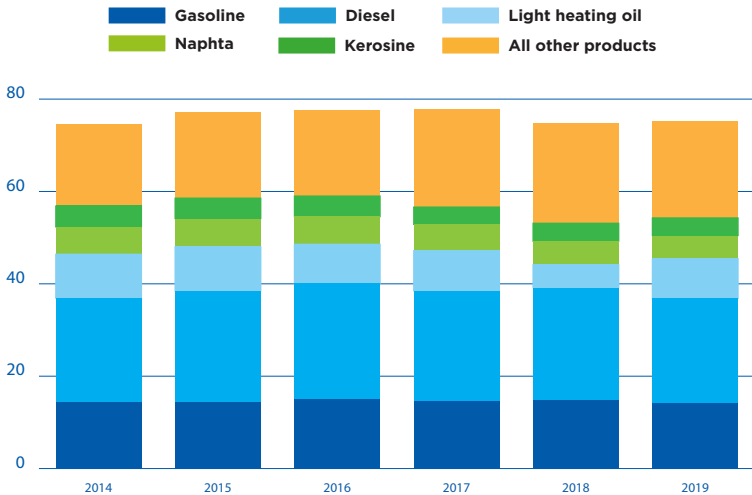
⁷ See: *Weekblad Schuttevaer (2020): Wegvallen kolen is rampscenario, 29 January 2020*

- In Romania, dry cargo transport recorded a strong increase, and the largest product group, metal ores, sands, stones and building materials (metal ores have the majority within this segment in Romania) reached a level of 12.4 million tonnes in (Q1+Q2+Q3) 2019, an increase of 13.7% compared to the same period in 2018. The agricultural segment attained 7.1 million tonnes, an increase of 21%.
- Liquid cargo transport increased in all five countries, especially in the Netherlands (+9.4%), France (+13.4%) and Romania (+18.4%). In Germany, refinery production was 3.0% lower than one year previously (see figure), but barge transport of liquid mineral oil products was 18.0% higher (see table above). An explanation for this is the refilling of strategic storage volumes for oil and oil products. Furthermore, oil prices decreased in 2019. Special effects (temporary maintenance works on refineries in the German and Swiss Rhine hinterland) increased further the transport of oil products in the Rhine hinterland (see part on freight rates).



**FIGURE 8: REFINERY PRODUCTION IN GERMANY (Q1+Q2+Q3)
PER PRODUCT (IN MILLION TONNES)**

Source: German Association of the Mineral Oil Industry (Mineralölwirtschaftsverband)



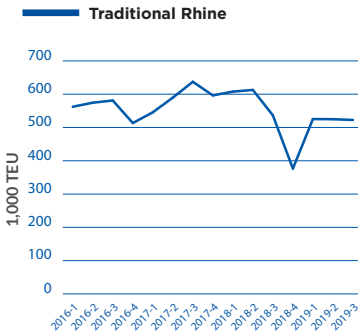
CONTAINER TRANSPORT

- Measured in tonnes, container transport was 3.1% higher in Belgium-Flanders, 1.8% lower in the Netherlands, 4.8% lower in Belgium-Wallonia, 6.9% lower in Germany, 7.1% lower on the traditional Rhine, and 8.4% lower in France.
- The result for France hides some regional differences. Indeed, there was a decrease in the French Rhine basin (-8.2% based on TEU; 77.3 thousand TEU), but an increase in the Seine basin (+15.6% based on TEU; 200.0 thousand TEU) and in the Rhône basin (+12.7% based on TEU; 68.1 thousand TEU). In the Nord-Pas-de-Calais basin, the TEU result was quite stable (+0.6%; 81.0 thousand TEU). These comparisons also show that the volume in tonnes, per container, are higher in the French Rhine basin than in other French river basins.
- In the following figures, container transport on the most important waterway for each of the above-mentioned countries⁸ is shown,

on a quarterly basis and in the unit TEU. In addition, three German river basins (Elbe, Mittelland Canal, West German Canals) are also integrated in this analysis.

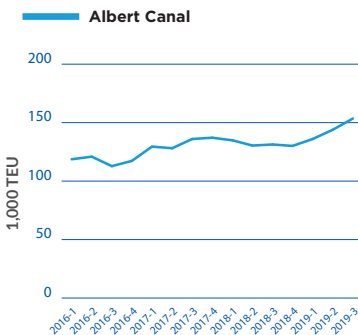
FIGURES 9, 10, 11, AND 12: CONTAINER TRANSPORT ON THE TRADITIONAL RHINE, THE ALBERT CANAL, THE SEINE, THE ELBE, THE MITTELLAND CANAL AND THE WEST GERMAN CANAL NETWORK

Sources: Destatis, De Vlaamse Waterweg, VNF, Statistical Office for Hamburg and Schleswig-Holstein



On the traditional Rhine in Germany, container transport suffered under a weaker evolution of German exports and imports in 2018 and 2019, and under lost market shares after the 2018 low water period.

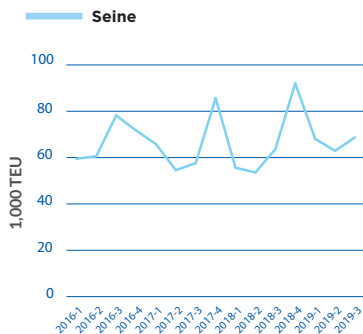
It reached 1.57 million TEU in (Q1+Q2+Q3) 2019, i.e. -10.5% compared to the same period in 2018. The volume of goods transported in containers was 14.68 million tonnes (-7.2%).



On the Albert Canal, container transport followed a growing trend in 2019. It reached 433.3 thousand TEU in (Q1+Q2+Q3) 2019, i.e. + 9.2% compared to the same period in 2018.

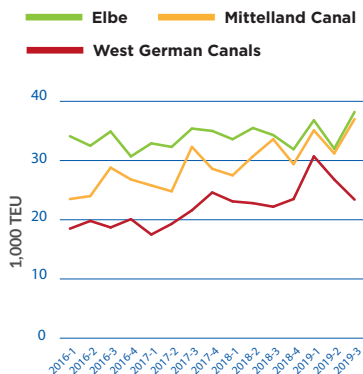
Works to increase the height of the bridges on the canal up to 9.1 meters started in 2017 and are scheduled to finish in 2022. The height of 21 bridges is to be increased and will enable barges with four layers of containers to sail on the canal.

^a The only exception is the Netherlands, for which there are currently no quarterly inland waterway data for selected rivers available.



In the Seine basin, container transport reached 200.0 thousand TEU in (Q1+Q2+Q3) 2019, an increase of 15.6%. The ports of Paris report a river container traffic of 138.5 thousand TEU after 10 months in 2019, an increase of 21%.

The evolution was driven by all segments of waterside container transport in Paris: fluvio-maritime container transport (+16.5%), urban distribution logistics (+48.6%), and waste (+12.5%).



Inland waterway container transport on the Elbe and in the port of Hamburg increased in 2018 and 2019, both in terms of TEU but also in terms of volumes (tonnes).

In (Q1+Q2+Q3) 2019, 107.0 thousand TEU were transported in the whole Elbe basin (+3.4%).

The statistical office of Hamburg reports an increase of barge container traffic in volumes (tonnes) by 14.2% in the first half of 2019 for the port of Hamburg, up to 0.69 million tonnes.



IMPACTS OF THE COVID-19 CRISIS ON EUROPEAN INLAND NAVIGATION

- The spread of the Coronavirus in Europe has strong impacts on the economy overall, and also on inland navigation. First of all, inland waterway transport is helping to maintain the provision of the economy and society with important raw materials and products, such as agricultural products, food products, iron ore, mineral oil products, chemicals and consumer goods.
- On the other hand, transport of goods and passengers on inland waterways is hit from the demand side: many economic sectors, which depend in their functioning on inland navigation, are strongly reducing their activity, with negative effects on IWT.
- The sectors of the economy that are particularly affected include hotels and restaurants, retail trade, aviation, and leisure industries (travel, sport, entertainment). Therefore, the crisis will have strong negative effects on passenger transport (both river cruises and day trips). In mid-March 2020, river cruises were suffering from a wave of cancellations and had to postpone the start of the season, at least until early May 2020.
- Not only passenger transport, but also goods transport is affected from travel restrictions and quarantine regulations: the strict entry and quarantine regulations for nautical personnel in many European countries are causing increasing problems in staffing vessels.
- In mid-March, the German automobile industry decided to temporarily suspend production in its plants for several weeks. A long interruption of car production would affect demand for steel, and therefore also transport demand for iron ore, scrap metal, coke coal and metal products. These materials account for around 25 % of all volumes transported on the Rhine.

- For container transport, the full effects of the crisis will probably be felt from April and May onwards, when the imports from the Far East (normally produced and loaded in the first quarter of 2020) will not be arriving in the same volumes in different European seaports.⁹
- The Central Federation of German Seaport operators estimated in mid-March that the declines in maritime cargo traffic are in the double-digit percentage range, depending on the type of cargo and location. The precise effects will only be known when the port figures become available for the months of April, May and June.

⁹ Source: Zentralverband der deutschen Seehafenbetriebe (Central Federation of German Seaport operators)





02

OPERATING CONDITIONS

- A positive evolution in 2019 in the Rhine basin was the recovery of water levels from their low points in late 2018. Water levels on the Austrian and German Danube fell during the course of 2019, and the possible draught of vessels dropped below 200 cm at the beginning of 2020.
- Freight rates for dry and liquid cargo on the Rhine, in the Netherlands and in Germany did not show any major increase in 2019 and remained on a level that corresponded to their multi-annual average.
- Freight rates in France, especially in the Seine region, continued to increase and remain on a high level, as already in the year 2018.

IMPACT OF HYDRAULICITY CONDITIONS

- Higher loading rates of vessels have economic consequences and consequences on hydraulicity. The economic consequence is a better usage of the vessel, leading to lower transport costs per tonne. The consequence on hydraulicity is a higher draught of the vessel.¹⁰ Therefore, the navigable channel depth is a decisive economic criterium.
- The available draught of a vessel is calculated on the basis of water levels and parameters specific for each gauging station: the equivalent water level, the minimum navigation channel depth that is guaranteed by the waterway administration, and a security margin under the keel (about 20 cm if the river bed is composed of sand and gravel, and up to 40 cm for river beds composed of rock).¹¹
- The following figures show the available draught for several important gauging stations on the Rhine and Danube. In 2019, there was a recovery from the low water period in 2018. However, for the two gauging stations on the German Danube, the available draught dropped to under 2 metres.
- In November 2019, the European Commission gave a positive opinion, subject to a series of conditions¹², regarding the technical upgrade of the stretch of the Danube between Straubing and Deggendorf, in order to enable a navigable channel depth of at least 2.5 metres for 185 days per year.¹³ This measure should also lead to a higher average draught of vessels over this stretch of the Danube.

¹⁰ Draught = loading depth of the vessel at rest

¹¹ See: Swiss Association for Navigation and Port Economics, SVS aktuell, Dec/January 2019, pages 7 - 8

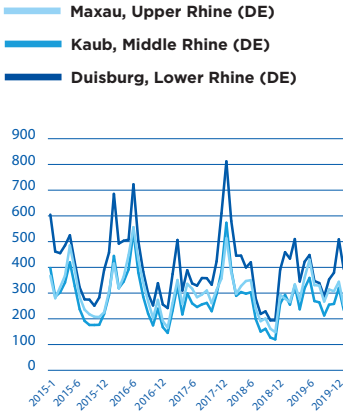
¹² P.11. Commission Opinion issued at the request of Germany pursuant to the second subparagraph of Article 6(4) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora: deepening the Danube waterway between Straubing and Vilshofen; section Straubing-Deggendorf (Germany/Bavaria)

¹³ See: Die Binnenschifffahrt, EU-Kommission macht Weg zum Donauausbau frei, 29 November 2019

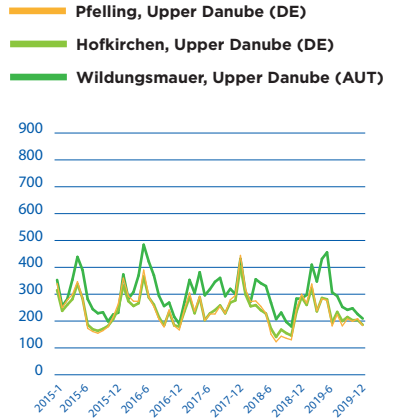
FIGURES 1 AND 2: IMPACT OF HYDRAULICITY: THE AVAILABLE DRAUGHT OF VESSELS AT IMPORTANT GAUGING STATIONS ALONG THE RHINE AND THE DANUBE (IN CM)

Source: CCNR calculation based on data provided by the German Office for Hydrology and the Federal state of Lower Austria

RHINE



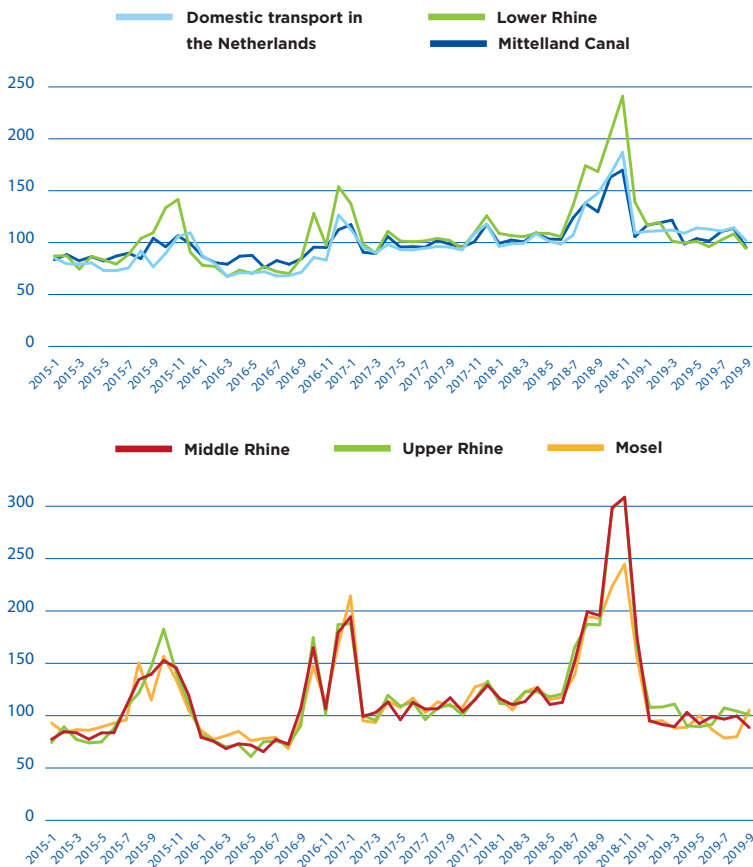
DANUBE



FREIGHT RATES IN THE RHINE REGION AND IN FRANCE

FIGURES 3 AND 4: FREIGHT RATE EVOLUTION FOR DRY CARGO PER SAILING AREA IN THE RHINE REGION (INDEX 2015=100)

Source: Panteia

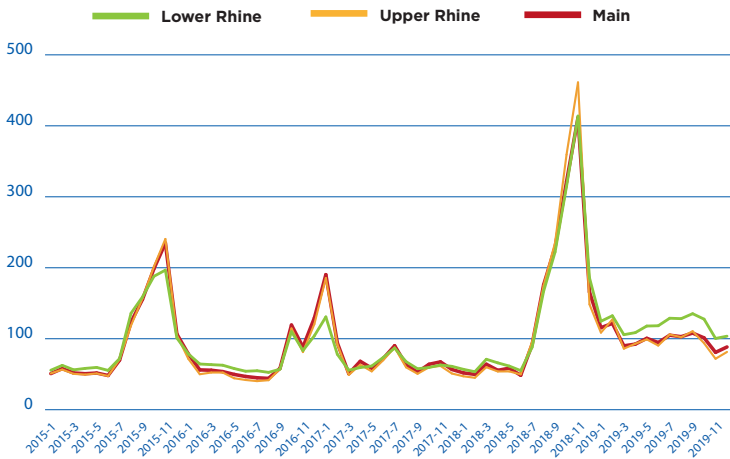


- The dry cargo freight rate index shows that differences in navigation conditions (available draught) have a significant influence on freight rates. Conditions for domestic transport in the Netherlands and for transport on the lower Rhine are less marked by low waters than navigation on the middle and upper Rhine. In the dry cargo sector, the absence of low water periods in 2019 also meant that there was no upward tendency for the freight rate level.

FIGURE 5: FREIGHT RATE EVOLUTION FOR LIQUID CARGO* FROM THE ARA REGION TO RHINE DESTINATIONS (INDEX 2015=100)

Source: CCNR calculation based on PJK International

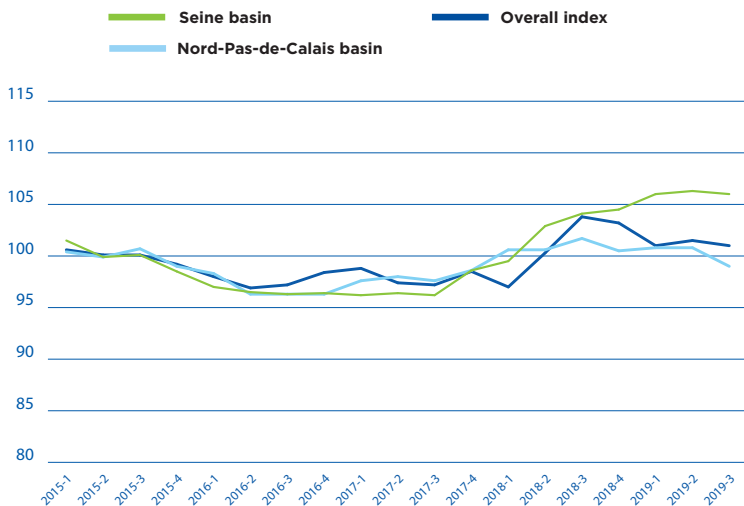
*gasoil. PJK collects freight rates (in Euro per tonne) for ARA-Rhine trade of liquid bulk. The CCNR transforms these values into an index with base year 2015. Lower Rhine: Duisburg, Cologne. Upper Rhine: Karlsruhe, Basel. Main: Frankfurt/M.



- In the course of 2019, liquid cargo freight rates for deliveries from the ARA region to the Rhine hinterland were stimulated by a refilling of stocks and an increase of imports. In September, two refineries underwent maintenance works (the Swiss refinery of Cressier and the MIRO refinery in Karlsruhe, Germany), so that greater volumes were imported via the Rhine. In October, November and December 2019, rising water levels, the relatively high stocks of oil products in the hinterland, and the absence of cold weather put freight rates under pressure.

FIGURE 6: **FREIGHT RATE INDEX FOR INLAND NAVIGATION IN FRANCE** (INDEX 2015=100)

Sources: Ministry for Ecological and Inclusive Transition/INSEE



- In France, a dynamic increase of freight rates in the Seine basin can be observed in 2018 and 2019, compared to a smaller increase in the Nord-Pas-de-Calais basin (region around Dunkerque and Lille at the border with Belgium). An overall reason for increasing freight rates in France is the general boom of dry cargo transport in the country, especially in Paris and the Seine basin (see chapter 1).

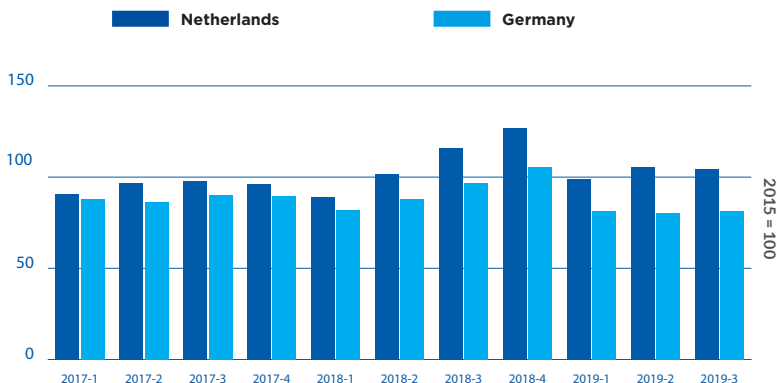
IN THE FRENCH SEINE BASIN, FREIGHT RATES BENEFITED FROM GROWING TRANSPORT VOLUMES OF SANDS, STONES AND BUILDING MATERIAL.

QUARTERLY IWT TURNOVER EVOLUTION PER COUNTRY IN EUROPE

FIGURE 7: **TURNOVER EVOLUTION OF INLAND NAVIGATION COMPANIES (GOODS TRANSPORT)***

Sources: CBS and Destatis

*Data for Germany: only goods transport, data for the Netherlands: goods and passenger transport, but goods transport has a share in turnover of 92%.



- In the two largest IWT countries in Europe, turnover decreased with rising water levels. Hereby, turnover of Dutch IWT companies settled on a level that corresponded to their average turnover level in 2015. German IWT companies, however, settled on a turnover level that was 20% lower than their average level in 2015.

**RIISING WATER LEVELS ON THE
RHINE LED TO LOWER FREIGHT
RATES AND THEREFORE LESS
TURNOVER.**

- Net turnover generated by Dutch and German inland waterway goods transport companies accounts for around 80% of all net turnover generated by IWW goods transport companies in the EU (see table).

IWW goods transport	Netherlands	Germany	EU-28
Number of companies	3,295	668	5,600
Net turnover (in mio. Euro)	2,500	1,689	5,271
Persons employed	9,991	4,211	22,000

Sources: Eurostat [sbs_na_1a_se_r2] and CBS
Values are for 2017 (latest data available).

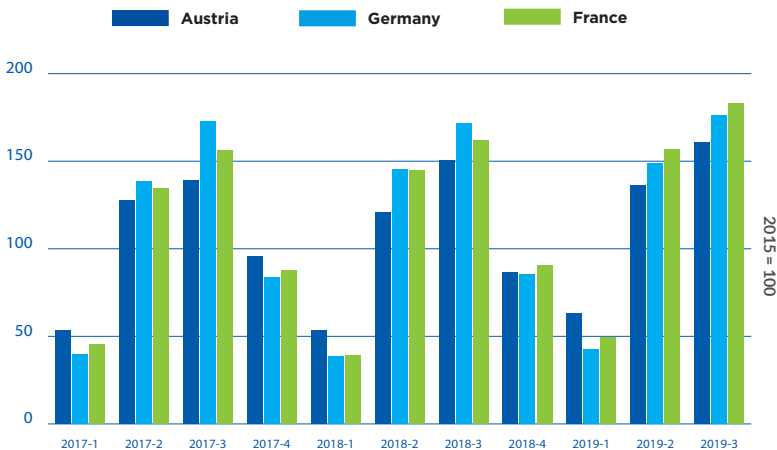
- Comparing the number of companies with the number of persons employed reveals differences in company size. The average number of persons active (employees, self-employed, and unpaid family members) per company is 3.0 for Dutch companies, compared to 6.3 for German companies, reflecting the higher share of smaller companies (self-employed barge owners) in the Netherlands.



FIGURE 8: TURNOVER EVOLUTION OF INLAND NAVIGATION COMPANIES (PASSENGER TRANSPORT)*

Sources: Eurostat [sts_setu_q], Destatis, INSEE

*Data for France and Germany: only passenger transport. Data for Austria contain both goods and passenger transport turnover, but passenger transport has the majority in Austria.



- Turnover in passenger transport is strongly seasonal. Concerning the countries for which quarterly data are available (Austria, France and Germany), the 2019 figures show a higher turnover level compared to one year earlier.
- German companies' annual turnover is on rank 2 in Europe. In Germany, 58 river cruise vessels are registered, 783 day trip vessels on rivers and canals, and 130 day trip vessels on lakes.
- French companies' annual turnover is on rank 4 in Europe. In France, 32 river cruise vessels are registered. A specific feature of the country is the segment of small cruise vessels with less than 40 beds (19 small cruise vessels operate on French waterways). And there are 365 day-trip vessels on rivers and canals.¹⁴

¹⁴ Data on the number of day trip vessels on lakes in France are currently not available from VNF.

- Austrian companies' annual turnover is on rank 7 in Europe. The Austrian Danube stretch is one of the most important operation regions for river cruises in Europe. But in Austria itself, not many river cruise vessels are registered. Austrian companies are more active in day trip navigation. Austrian day trip vessel companies transport around 700,000 passengers in line traffic each year in Austria, and around 100,000 passengers on thematic and charter trips.¹⁵
- More than half of all IWW passenger transport turnover in the EU is generated in Switzerland, Germany and France. This is explained by the presence of many river cruise companies in Switzerland. Indeed, 153 river cruise vessels (= 43% of the total European fleet) are registered in Switzerland.

IWW passenger transport	Austria	Switzerland	France	Germany	EU-28*
Number of companies	83	99	252	434	4,103
Net turnover (in mio. Euro)	90	744	341	545	3,104
Persons employed	547	2,091	2,074	6,103	24,230

Sources: Eurostat [sbs_na_1a_se_r2], Statistik Austria, Eidgenössische Steuerverwaltung.
 Values for 2017, except Austria (2018) and Switzerland (2016)
 *including Switzerland

■ COST EVOLUTION

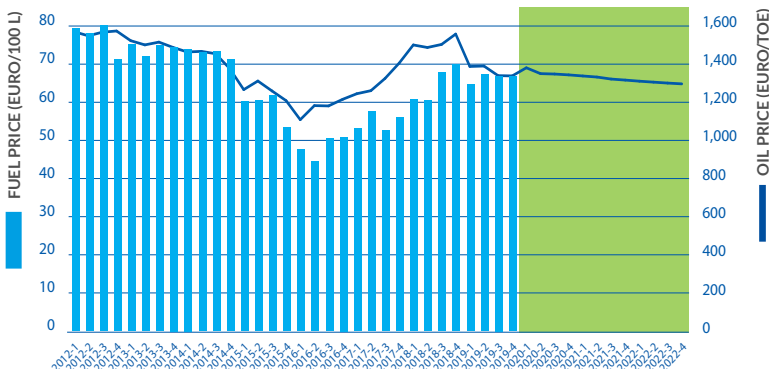
- Fuel costs are analysed on the basis of the CBRB fuel cost index. The Centraal Bureau voor de Rijn- en Binnenvaart (CBRB) in the Netherlands determines a fuel price index for the IWT sector. The purchase price per 100 liters of gasoil, which is regularly determined by the CBRB in a market survey, is the starting point for the determination of fuel surcharges for all companies in the IWT sector.
- CBRB data indicate that fuel costs rose by 2.6% in 2019, compared to 2018. The further outlook points to a slightly falling tendency in the coming years. Declining oil prices are the major reason for this.

¹⁵ Source: Via Donau, Annual report 2018

FIGURE 9: AVERAGE BUNKER PRICES ACCORDING TO CBRB AND OIL PRICES INCLUDING FORECAST*

Sources: CBRB and Oxford Economics. Toe = Tonnes of oil equivalent

*Oil price forecast is based on Oxford Economics (in US-\$). The forecast contains the assumption of an appreciation of the Euro from 1.09 US-\$ per Euro in Q1 2020 up to 1.16 US-\$ per Euro in Q4 2022.



- According to the European Commission's Economic Forecast from November 2019¹⁶, the recovery of oil production in Saudi Arabia and the uptake of shale oil production in North America (both developments increase the supply side) are major drivers for the falling tendency of oil prices.
- Labour costs follow an upward trend in inland navigation, due to the increasing shortage of personnel. Regarding insurance costs, an important development is the rising accident rate in the field of groundings and collisions with infrastructure (bridges). There are also differences in the damage rate between particular rivers.¹⁷ Nevertheless, information from insurance companies suggests that insurance premiums are not on an overall rising path. This is related to the high degree of competition between the insurance companies that are active in this type of insurance.

¹⁶ See: https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/autumn-2019-economic-forecast-challenging-road-ahead_en#economic-forecast-documents

¹⁷ The number of accidents per tonne-kilometre of goods transport is higher on the Danube, for example, than on the Rhine and the Main.

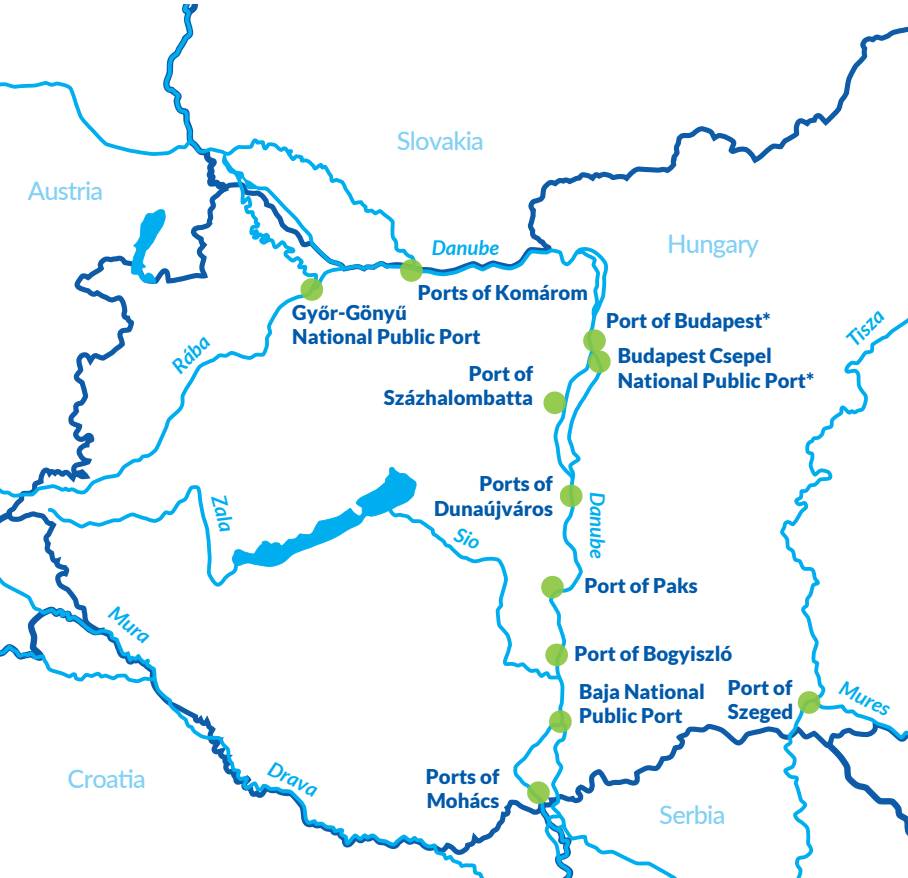


03

FOCUS ON HUNGARY

- The “focus-on” chapter presents key figures for Hungary, a middle Danube country, where iron ores, agricultural products, and metal products are the three largest goods segments.
- Waterside ports traffic in Hungarian ports reached 6.06 million tonnes in 2019, an increase of 16.6% compared to 2018.
- Data on cross-border traffic for Hungary show that exports to Germany and imports from Romania are the two most important export/import flows in Hungarian IWT. The exports to Germany mainly consist of oil seeds, forage plants, and related materials.

WATERSIDE TRAFFIC IN HUNGARIAN INLAND PORTS



*In Budapest there are two ports, one is public, one is private.

**TABLE 1: WATERSIDE PORTS TRAFFIC IN DANUBE COUNTRIES
(Q1+Q2+Q3) 2019 COMPARED TO (Q1+Q2+Q3) 2018**

Source: Danube Commission (market observation report for the first nine months of 2019). German ports are the Danube ports in Germany. For Moldavian ports, no data for the rate of change exist.

Country	Waterside transport in (Q1+Q2+Q3) 2019 in 1000 t	Rate of increase compared to (Q1+Q2+Q3) 2018
Romanian ports	21,724	+17.8%
Serbian ports	7,221	+28.8%
Austrian ports	5,497	+30.6%
Hungarian ports	4,785	+10.7%
Ukrainian ports	4,332	-9.0%
German ports	2,791	+9.5%
Slovakian ports	1,295	+6.2%
Moldavian ports	948	-

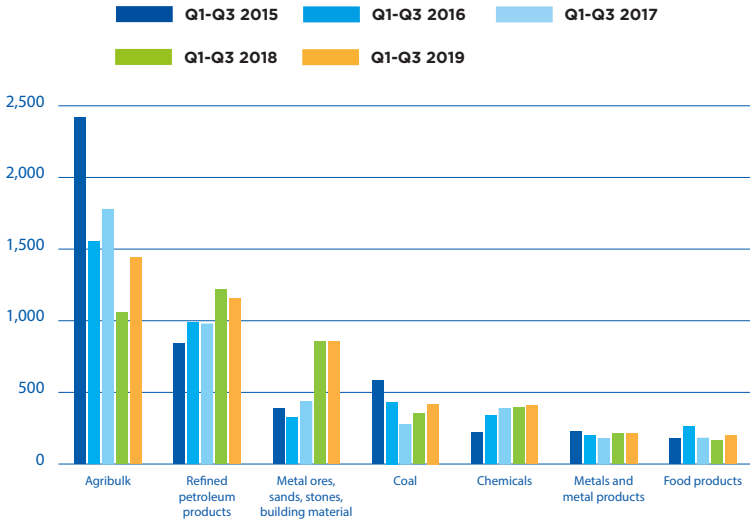
**TABLE 2: WATERSIDE PORTS TRAFFIC IN HUNGARY 2017-2019
(IN TONNES)**

Source: Hungarian Statistical Office

Period	Baja National Public Port	Csepel National Public Port	Győr- Gönyű National Public Port	Ports of Dunaújváros	Ports of Komárom	Ports of Mohács	Other Hungarian inland ports	Total
2017	644,304	1,122,411	167,431	841,980	237,704	225,088	2,559,926	5,798,845
2018	346,749	918,209	105,647	1,044,702	315,972	189,079	2,279,228	5,199,586
2019	505,138	1,129,625	225,420	1,390,978	262,244	266,819	2,284,087	6,064,312

FIGURE 1: IWT ON THE HUNGARIAN DANUBE BY GOODS SEGMENT (IN 1000 T)

Source: Hungarian Statistical Office, https://www.ksh.hu/stadat_infra_4_6



- According to the Danube Commission, the Hungarian steel plant of Dunaújváros, near Budapest, uses barge traffic for parts of its iron ore provisions. The main Hungarian refinery is located near Budapest and belongs to the MOL Group. This group operates three of its own ports from which depots and customers in the Danube region are supplied by barge, rail and truck, while the crude oil for the refinery comes by pipeline from Russia.¹⁸
- The following table shows the most important IWW transport relations between Hungary and foreign countries. Around half of all goods loaded in Hungary and sent to Germany arrive on the German Danube stretch, and the other half goes further to the west, to Main, Main-Danube Canal and Rhine.

¹⁸ See: <https://molgroup.info/en/our-business/downstream/logistics>

TABLE 3: MAIN IWW IMPORT AND EXPORT DESTINATIONS BETWEEN HUNGARY AND FOREIGN COUNTRIES (Q1+Q2+Q3 2019)

Source: Hungarian Statistical Office, series 4.6.13. The volumes in the table represent 87% of all international freight traffic in Hungarian IWT.

Transport relation	Million tonnes
Loaded in Hungary → → → unloaded in Germany	0.724
Loaded in Romania → → → unloaded in Hungary	0.647
Loaded in Austria → → → unloaded in Hungary	0.594
Loaded in Hungary → → → unloaded in Romania	0.560
Loaded in Hungary → → → unloaded in Austria	0.540
Loaded in Serbia → → → unloaded in Hungary	0.387
Loaded in Hungary → → → unloaded in Serbia	0.278

- In considering the river Main as one major entrance channel between the Danube and the Rhine region, the following can be observed: in the first nine months of 2019, 0.47 million tonnes of goods were transported on the Main, with Hungary as country of loading; of this volume, 85% was unloaded in Germany, 11% in the Netherlands, 3% in Belgium, 1% in France; and within the volume unloaded in Germany, 94%, or 0.37 million tonnes, was made up of oil seeds, forage plants, and related materials.¹⁹

HUNGARY IS EXPORTING OIL SEEDS, FORAGE PLANTS AND RELATED MATERIALS VIA DANUBE AND MAIN TO CENTRAL AND WESTERN EUROPE.

¹⁹ Source: CCNR calculation based on detailed data provided by Destatis

FACT SHEET IWT IN HUNGARY - ANNUAL FIGURES

ABSOLUTE VALUE²⁰ FOR HUNGARY VS SHARE IN EU TOTAL

Notes on the factsheet - See page 50

TRANSPORT PERFORMANCE TOTAL

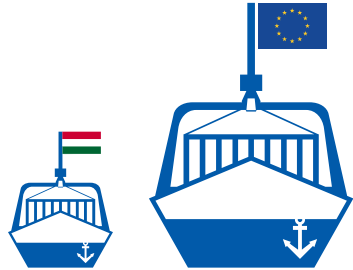
1,608 Mio. TKM

1.2% SHARE IN EU TOTAL

VOLUME OF TOTAL GOODS TRANSPORT

6,926 Mio. tonnes

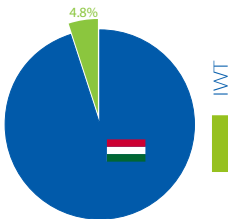
(# - See page 50)



GOODS SEGMENTS IN IWT

1. Ores, sands, stones: 407 Mio. TKM
1.2% SHARE IN EU TOTAL
2. Agricultural products: 366 Mio. TKM
2.5% SHARE IN EU TOTAL
3. Metals and metal products: 268 Mio. TKM
3.1% SHARE IN EU TOTAL

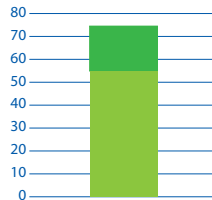
MODAL SPLIT SHARE OF IWT TOTAL TRANSPORT PERFORMANCE



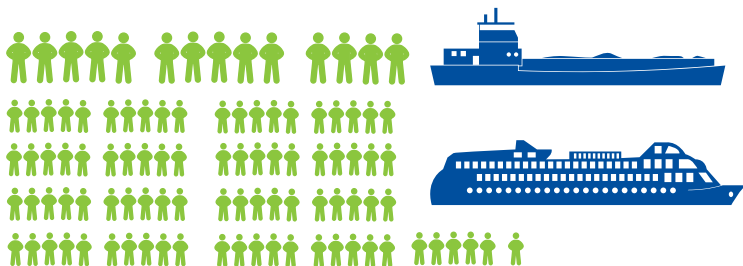
LEVEL OF IWT TURNOVER

74.5 Mio. € 1% SHARE IN EU TOTAL

- Goods transport: 54.9 Mio. € 1%
- Passenger transport: 19.6 Mio. € 1%



²⁰ The data on transport demand are for 2018; data on the fleet, modal split, employment, turnover and companies are for 2017 (and for 2016 regarding passenger transport).

**PERSONS EMPLOYED IN IWT**

772

1.9% SHARE IN EU TOTAL

Goods transport: 109

0.5% SHARE IN EU TOTAL

Passenger transport: 663

3.6% SHARE IN EU TOTAL

NUMBER OF IWT COMPANIES

104

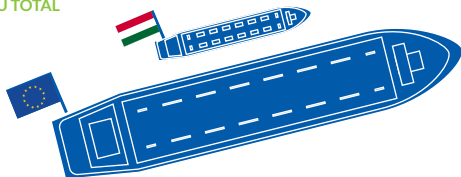
Goods transport: 29

Passenger transport: 75

NUMBER OF ACTIVE CARGO VESSELS

Dry cargo: 310 2.8% SHARE IN EU TOTAL

Push & tug: 58 2.8% SHARE IN EU TOTAL

**TONNAGE OF ACTIVE CARGO VESSELS**

Dry cargo: 0.38 Mio. tonnes

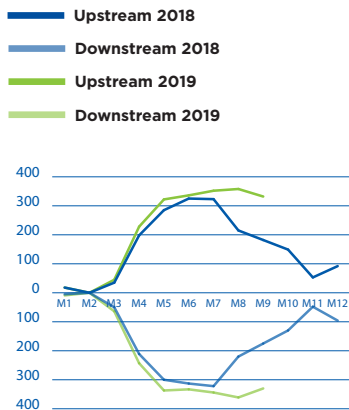
2.8% SHARE IN EU TOTAL

PASSENGER TRANSPORT: RIVER CRUISE TRAFFIC ON THE HUNGARIAN DANUBE

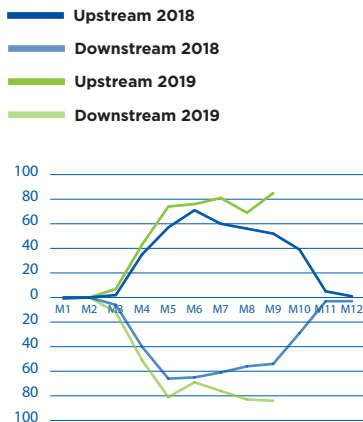
FIGURES 2 AND 3: **TRAFFIC NUMBERS OF RIVER CRUISE VESSELS ON THE DANUBE (NUMBER OF VESSELS) PER MONTH IN 2018 AND 2019**

Source: Danube Commission (market observation report for the first nine months of 2019). Values from 1 to 12 on the x-axis are over 12 months.

GABCIKOVO, BORDER BETWEEN SLOVAKIA AND HUNGARY



MOHACS, SOUTHERN HUNGARY



- The traffic of river cruise vessels on the Hungarian Danube increased in the first nine months of 2019: in (Q1+Q2+Q3) 2019, 4,012 cabin vessels passed the lock of Gabčíkovo on the northern border of Hungary (border with Slovakia). This meant an increase of 835 of vessel transits (+26%) compared to the same period in 2018.
- At the border point of Mohacs in southern Hungary (border between Croatia and Serbia), the number of vessel transits was also higher in Q1-Q3 2019 (891 vessels) than in (Q1+Q2+Q3) 2018 (682 vessels), representing an increase by 209 transits or 31%.
- The different traffic intensity between northern and southern Hungary is due to the high number of Danube cruises that leave from Passau or go from Vienna to Budapest (and back), and therefore pass the lock of Gabčíkovo in the north, but not the border point of Mohacs in the south.
- There is a tendency for new river cruise vessels with the following dimensions to enter the Danube market: length of 135 m, width of 11.4 m and a maximum draught of 1.8 m. These vessels are well equipped from a nautical point of view to sail on the Danube.



■ GLOSSARY

20XX-1/20XX-Q1: First quarter

20XX-2/20XX-Q2: Second quarter

20XX-3/20XX-Q3: Third quarter

ARA REGION: Amsterdam-Rotterdam-Antwerp

BN: Billion

CEMT: Classification of European Inland Waterways

DANUBE COUNTRIES: Austria, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia

DRAUGHT OF A VESSEL: Loading depth of the vessel at rest

EQUIVALENT WATER LEVEL: The equivalent water level refers to a low water level under which, on a multiannual average, the water levels do not fall below on more than 20 ice free days per year.

EU: European Union

EUROPE: European inland navigation in this report includes two countries not belonging to European Union, Switzerland and Serbia

FREIGHT RATE: Price at which a cargo is delivered from one point to another.

INLAND FREIGHT TRANSPORT MODES: These include road, rail and inland waterways.

IWT: Inland Waterways Transport

IWW: Inland Waterway

MIO: Million

MODAL SPLIT INDICATOR: The percentage of inland waterway transport in total inland freight transport performance (road, rail, IWT) measured in tonne-kilometres

OECD: Organisation for Economic Co-operation and Development

RHINE COUNTRIES: Belgium, France, Germany, Luxemburg, Netherlands, Switzerland

RUHR AREA: Dense urban area in western Germany and the largest industrial area in western Europe

TEU: Twenty-foot equivalent unit

TKM: Tonne-Kilometer (unit for transport performance which represents volume of goods transported multiplied by transport distance)

TRADITIONAL RHINE: Rhine from Basel to the border between the Netherlands and Germany

TURNOVER: Sales volume net of sales taxes

WATERSIDE PORTS TRAFFIC: The volume of transshipment, measured in tonnes, of the following transshipment activities: transshipment “vessel – vessel”, “vessel – road vehicle”, “vessel – freight wagon”, “vessel – quay”

NATIONAL STATISTICS OFFICES

Acronym	Original Name	English Name	Country
CBS	Centraal Bureau voor de Statistiek	Central Statistical Office	Netherlands
Destatis	Statistisches Bundesamt	Federal Statistical Office of Germany	Germany
INSEE	Institut national de la statistique et des études économiques	National Institute of Statistics and Economic Studies	France
INSSE	Institutul National de Statistica	National Institute of Statistics	Romania
KSH/HCSO	Központi Statisztikai Hivatal	Hungarian Statistical Office	Hungary
P3C	Републички завод за статистику Србије	Statistical Office of the Republic of Serbia	Serbia
Statbel	Statistics Belgium	Statistics Belgium	Belgium
Statistik Austria	Bundesanstalt Statistik Österreich	Austrian Federal Institute of Statistics	Austria

OTHER SOURCES

Original Name	English Name	Country
Arbeitsgemeinschaft Energiebilanzen	Working Group on Energy Balances	Germany
Bundesanstalt für Gewässerkunde	German Office for Hydrology	Germany
CCNR/ZKR/CCR	CCNR	Europe
Centraal Bureau voor de Rijn- en Binnenvaart (CBRB)	Central Office for Rhine and Inland Navigation	Netherlands
COCERAL	COCERAL	Europe
Danube Commission	Danube Commission	Europe
De Vlaamse Waterweg	The Flemish Waterways	Belgium
Eidgenössische Steuerverwaltung	Federal Tax Administration	Switzerland
European Commission	European Commission	EU
EUROSTAT	EUROSTAT	EU
Land Niederösterreich	Federal State of Lower Austria	Austria
Mineralöl Wirtschaftsverband e.V.	German Association of the Mineral Oil Industry	Germany
Ministère de la transition écologique et solidaire	Ministry for Ecological and Inclusive Transition	France
OECD	OECD	World
Oxford Economics	Oxford Economics	UK
Panteia	Panteia	Netherlands
PJK International	PJK International	Netherlands
Ports mentioned in the report	Ports mentioned in the report	Europe
SPW Service Public de Wallonie	Public Service of Wallonia	Belgium
Statistikamt Nord	Statistical Office for Hamburg and Schleswig-Holstein	Germany

Original Name	English Name	Country
Voies Navigables de France	Navigable Waterways of France	France
World Steel Association	World Steel Association	World

BOOKS, JOURNAL ARTICLES AND STUDIES

Original Name	Country
"As China Moves In, Serbia Reaps Benefits, With Strings Attached" published on 9 September, 2017, The New York Times	USA
Bundesverband deutsche Binnenschifffahrt (2020), Pläne zum Ausstieg aus der Kohleverstromung belasten Schifffahrt und Häfen (press release 24 January 2020)	Germany
Commission Opinion issued at the request of Germany pursuant to the second subparagraph of Article 6(4) of Council Directive 92/43/EEC of 21 May 1992 regarding the deepening the Danube waterway between Straubing and Vilshofen; section Straubing-Deggendorf (Germany/Bavaria)	EU
Danube Commission market observation	Europe
Die Binnenschifffahrt, EU-Kommission macht Weg zum Donauausbau frei, 29 November 2019	Germany
European Union : https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/autumn-2019-economic-forecast-challenging-road-ahead_en#economic-forecast-documents	EU
Gevolgen grote Transitie en wereldhandel voor de binnenvaart - 2020-2040, Royal Haskoning DHV (December 2019)	Netherlands
Ministerium für Verkehr und digitale Infrastruktur (2019), Gleitende Mittelfristprognose für den Güter- und Personenverkehr, Februar 2019	Germany
Molgroup : https://molgroup.info/en/our-business/downstream/logistics	Hungary
Schifffahrt, Hafen, Bahn und Technik (8/2019), Logistik folgt auf Kohle.	Germany
Swiss Association for Navigation and Port Economics, SVS aktuell, Dec. / January 2019, pages 7 - 8	Switzerland
Via Donau, Annual report 2018	Austria
Weekblad Schuttevaer (2020): Wegvallen kolen is rampsenario, 29 January 2020	Netherlands

■ NOTES ON THE FACTSHEET

- 1) "Share in EU total" contains figures for the EU plus Switzerland and Serbia.
- 2) For container transport, Eurostat publishes no data for Hungary.

In contrast to transport performance, for transport volume, a country-specific share cannot be calculated.

The modal split indicator is defined as the percentage of inland waterway transport in total freight transport performance measured in tonne-kilometres. Inland freight transport modes include road, rail and inland waterways. Road transport takes into account the TKM made by trucks registered in foreign countries on Hungarian territory, according to the new Eurostat methodology in the series [tran_hv_frmod].

■ METHODOLOGY

Freight traffic on inland waterways and in ports

Europe as defined in chapter 1 is taking into account all European countries providing quarterly data on inland waterway transport. All these countries are listed on the Transport Performance in Europe map (page with map in chapter 1).

When discrepancies on total transport performance are observed between Eurostat and National Statistics data, the information is notified to Eurostat and National Statistics Office data is taken into account.

When available, NST product classification is used in order to split transport performance on following transport segments: dry cargo, liquid cargo, containers.

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This notice does not constitute a formal commitment on the part of those organisations referred to in the report.

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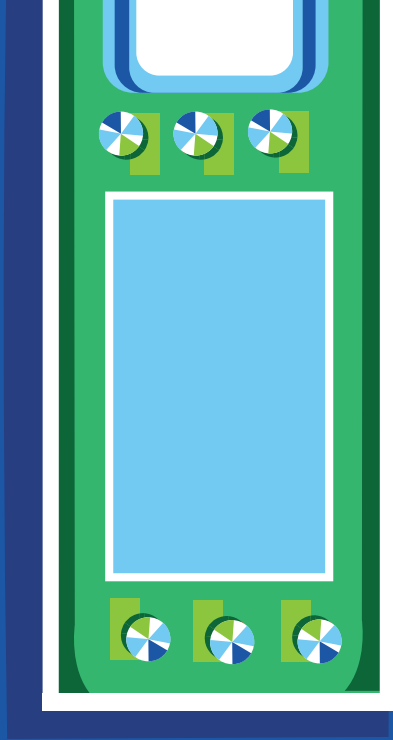
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