

# INLAND NAVIGATION IN EUROPE

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## Market Observation 2012 - 2

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# MARKET OBSERVATION N°16

Supply and demand situation in the  
first half of 2012 and outlook

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December 2012

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## Foreword

This edition of the European market observation provides – as is customary – an overview of the situation in the various inland navigation market segments as well as of the economic development in this business sector. There has been no change in the relevant context compared with the previous edition 2012 – 1. The general economic climate in Europe still continues to be dictated by the concerns regarding the euro as well as by the question whether all of the participating economies can be kept on board. Following on from this, governments in almost all countries are engaged in unprecedented savings rounds, as a result of which unemployment also is steadily rising. In this regard, the southern countries especially are having to contend with extremely worrying situations.

European inland navigation also is unable to escape this overall economic situation. All the less so as transport demand is very closely associated with overall economic development and the supply side is still feeling the impact of the high new construction figures of recent years. The interplay between these factors is creating very difficult business conditions for the shipping companies. The falling freight rates are impressive testimony to this. The companies' financial wellbeing is thus increasingly dependent on investor behaviour and on natural factors such as the fluctuating water conditions, which influence freight rates.

This time, a feature on the day excursion segment was included in the thematic section. This sector comprises different forms of service that are in almost no way comparable and which, moreover, are far removed from one another geographically. This, however, is an activity that is important to an understanding of inland navigation, not least also because this economic sector brings the public at large into contact with inland navigation like no other.





Fact sheet:  
Day excursion trips  
on rivers

## 1. Introduction

The excursion sector comprises a boat tour lasting no more than one day. The most important difference with river cruises lies in the fact that the excursion sector does not provide for any overnight stay and that the boats therefore do not feature any overnight cabin accommodation. This industry is currently somewhat overshadowed by river cruises but, considered in the round, also presents growth potential, even if it is likely to be somewhat more modest compared with river cruises.

The following report starts by describing the economic characteristics of the excursion sector. It is followed by a numerical overview for Germany, France, the Netherlands and Switzerland<sup>1</sup>. The excursion sector is then presented in the context of sub-studies outlining these Western European countries. Excursion trips on lakes are not part of this study. The report concludes with a summary.

## 2. Economic characteristics of the excursion sector

The day excursion sector can be subdivided into four segments<sup>2</sup>:

- Scheduled services
- Round trips
- Experience trips
- Charter trips

What is meant by scheduled services are trips lasting several hours or one day, preferably in scenic areas. They constitute the oldest segment of the day excursion sector but with the drawback of a strong dependence on the weather. That is why experience and charter trips are increasingly a part of virtually every company's programme. The round trip is a scheduled service confined to towns and cities.

Experience trips include party trips and a plethora of other specifically themed trips. Charter trips are where a ship is hired by customers for a one-off event. These may be family parties, company parties, birthdays, company presentations, etc.

An important innovation is so-called "combi tickets". This is where tickets are sold, which in addition to the boat trip also include entry to a museum, a concert or some other cultural or tourist event. These combi tickets help in particular to reach those customer groups, which would not have embarked on a boat trip without the additional cultural offering. This has an important effect in tapping into customers.

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1 Despite intensive research it was unfortunately not possible to ascertain any quantitative data for Belgium.

2 By reference to: Köln-Düsseldorfer Deutsche Rheinschiffahrt AG [KD AG] (2012), Annual Report 2011, p. 1.

Generally speaking, in a financial year a passenger shipping company incurs high expenditure at the beginning of a season: expenditure for printing timetables, marketing and ship maintenance; this is not simultaneously matched by high revenues. The reason being that more than half of the sales revenue is earned significantly later in the year, namely in the months June to September<sup>1</sup>.

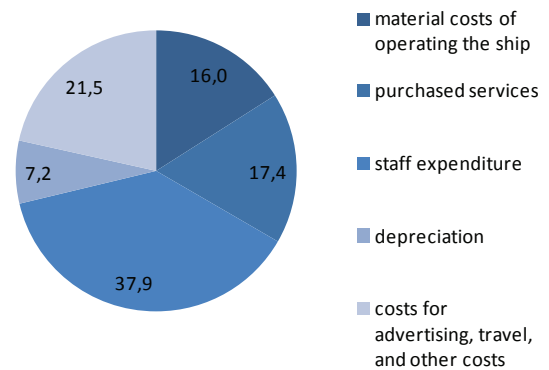
Staff expenditure plays an important role, representing more than one third of the cost base. On top of that, approximately 16% has to be budgeted for the material costs of operating the ship (primarily fuel) and for onboard dining (food and drink). The maintenance and repair of the ship, as well as on-board entertaining, comes under the category of purchased services; these account for approximately 17%. To this must be added the costs for advertising, insurance, travel, administration and advice (approximately 21%) as well as depreciation (7%).

The increase in fuel prices is a considerable problem and can significantly impact earnings. To guard against this, companies often conclude long-term supply contracts; passing the increased fuel costs on to customers is usually not possible owing to the high degree of price elasticity of demand in this sector<sup>2</sup>.

The influence the weather has on the company's bottom line is very high in the day excursion sector. To create some degree of independence from the weather and be better able to plan earnings performance, offerings that are independent of the weather are increasingly being developed: these include winter trips, Advent trips and broadly speaking, a continual "invention" of new themed trips (e.g. dinner trips, gourmet trips, wine tasting, etc). Charter trips as well can be undertaken throughout the year.

Revenue from operating activities must be sufficiently high to be able to build reserves for future investment. The price of a new excursion ship fluctuates according to design and passenger capacity. A new single deck ship for 80 passengers costs approximately €1.5 million in Germany for new construction and a two deck ship for 350 passengers approximately €7 million<sup>3</sup>. The economic life of a day excursion ship is approximately 25 years, but there are also significantly older ships, especially those with a nostalgic appeal.

Figure 1: Estimated cost structure in the excursion sector (%)\*



Source: CCNR calculation based on company data  
\* excluding interest on loan capital

1 KD AG (2012), p. 16

2 KD AG (2012) together with anonymous company information

3 Source: company information, anonymous

### 3. Synoptic overview

The following table is intended to provide an overview of the key excursion industry data for the most important West European countries. This overview is unfortunately incomplete because the statistical treatment of this sector of the economy is very different between individual countries.

Table 1: Synoptic overview of the day excursion industry in Western European countries \*

Country	Number			
	Ships	Passengers capacity	Passengers per year	Companies
Germany	820	168,525	unknown	300
France	421	49,100	11.0 million	237
Netherlands	300	unknown	6.0 million **	unknown
Switzerland	6	unknown	0.1 million	2

Source: WSD Südwest (WSD South West); VNF; Basler Rheinhäfen (Basel Rhine ports); Plaisier (2011); CCNR calculations.  
 \* Figures are based on the latest available statistics (2011/2012); no data are available for Belgium  
 \*\* Estimate.

### 4. The excursion industry in individual countries

#### 4.1 France

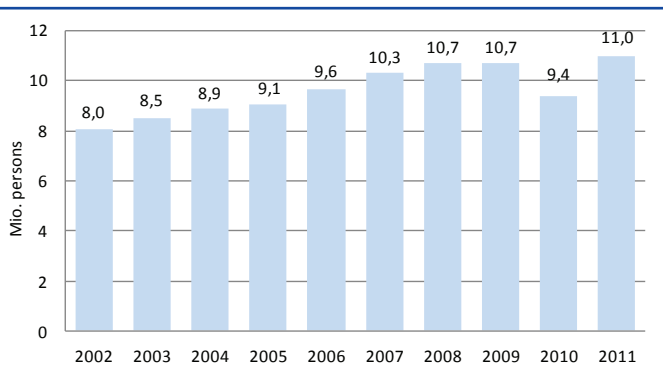
There are currently 237 companies in France operating in the day excursion industry with a total fleet of approximately 421 ships. These ships have a passenger capacity of around 49,100 places<sup>1</sup>.

The special importance of Paris cannot be overlooked, both as far as the number of ships is concerned and the number of passenger places. In terms of the number of people carried, Paris and the surrounding region (Ile-de-France) lead by a long way with 8.4 million passengers and a 76% share of all the passengers in France.

The number of passengers has risen by 37% overall between 2002 and 2011, from approximately 8 million to 11 million passengers.

If one compares the two capitals Berlin and Paris, the ships on the Seine, with a capacity of 280 places, are larger than those in the city on the Spree. On average, a Berlin excursion ship can accommodate only 174 passengers.

Figure 2: Number of passengers carried in excursion ships in France



Source: VNF

<sup>1</sup> The source of these and all other data pertaining to France: Voies Navigables de France (VNF)

The largest company in the excursion industry in the French capital is “Bateaux Parisiens”. It has 280 full-time employees and numerous seasonal workers. With approximately 3.5 million customers per year, Bateaux Parisiens accounts for around 40% of the Paris market. These 3.5 million passengers are broken down as follows: Tourists 36%; private individuals from Paris 44%, private companies 20%<sup>1</sup>.

The structure of the French fleet is displayed in the following table by individual, selected regions. What emerges from this table and the previous graph is that ships in Paris and the surrounding region enjoy a higher utilisation level than in the rest of France. Because the Ile-de-France accounts for 30% of the ships, 56% of the passenger accommodation but 76% of the passengers carried!

*Table 2: Number and capacity of day excursion ships in selected regions of France*

Operating area	Number of passenger places	Number of ships	Average capacity per ship (Number of places per ship)
Paris	24,115	86	280,4
Languedoc-Roussillon	2,234	34	65,7
Alsace	1,592	14	113,7
Pays de la Loire	1,762	20	88,1
Total country	49,109	421	116,6

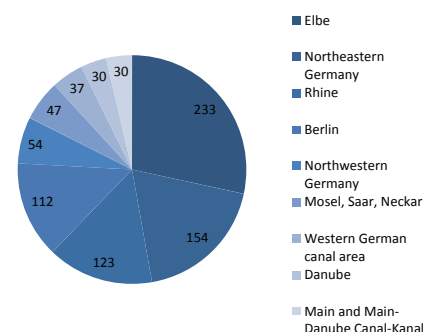
*Source: VNF; CCNR calculations*

As far as the origin of the customer groups is concerned, in 2011 there is a discernible tendency towards a partial withdrawal of foreign customers. This is attributed to the Euro crisis and the economic crisis in the USA. If one looks at the development of the fleet by individual classes of ships for the whole of France, what emerges (with the exception of Paris) is an adherence to the small type of ship. By way of illustration, the number of excursion ships belonging to the smallest type of ship (< 29 passenger places) has increased the most since 2007. The number of ships falling into the larger excursion ship segment (200 to 1,000 passengers), on the other hand, has remained relatively constant since 2007.

## 4.2 Germany

There are currently 820 excursion ships in Germany with total passenger accommodation of 168,525. Although German passenger navigation is often associated with the Rhine and Danube, these two rivers are far from heading the rankings if one looks at the distribution of ships across individual travel regions. Here it is the Elbe with 233 ships which is currently the clear leader. This has primarily to do with two cities on the Elbe, namely with Hamburg and Dresden and the urban and rural attractions that they have to offer.

*Figure 3: Stock of day excursion ships in Germany by region of travel \**



*Source: WSD South West, CCNR calculations*  
 \* North-eastern Germany = Brandenburg, Mecklenburg-Vorpommern; North-western Germany = Weser, Fulda, Mittelland Canal.  
 As at: November 2012

<sup>1</sup> Source: <http://www.bateauxparisiens.com/index.cfm/>

The capital, Berlin (112 ships) as well and the surrounding regions (Brandenburg, Mecklenburg) have a long tradition of boat excursions because of their numerous waterways, which is reflected in the figures.

Ship size differs somewhat between river areas or regions. Very large excursion ships are to be encountered on the Rhine. The average capacity of a ship here is 259 passenger places. On the Elbe and in the capital, Berlin, the ships are significantly smaller, which ultimately is probably also to do with more fragmented company structures.

*Table 3: Number and capacity of day excursion ships in selected regions of Germany*

Operating area	Number of passenger places	Number of ships	Average capacity per ship (Number of places per ship)
Elbe	39,769	233	170,7
Rhine	31,843	123	258,9
Berlin	19,515	112	174,2
Mecklenburg-Vorpommern	18,671	89	209,8
Total country	168,525	820	205,5

*Source: WSD South West; CCNR calculations*

A VAT rate of 19% for ship tours has been in force in Germany since 01.01.2012 compared with 7% previously. Companies in the sector anticipate that this tax change will result in higher ticket prices. Because of the relatively high price elasticity of demand prevailing in the daily excursion industry, this price increase can be expected to result in lower turnover<sup>1</sup>.

There have been isolated occurrences in the past of ships being diverted abroad for cost reasons (Malta, Luxembourg). In reality, the ships continue to operate in Germany but are registered in other countries.

### 4.3 Netherlands and Belgium

As a top-flight tourist attraction, boat excursions in Amsterdam and in the other Dutch cities plays a considerable role in the country's tourist industry. A canal cruise of Amsterdam, with its 1,250 bridges and 80 km of waterways has developed into one of the country's most popular tourist attractions.

In terms of tourism, Belgium boasts numerous towns and landscapes similar to those in the Netherlands: the Flemish towns of Gent and Bruges can be mentioned here, home to a lively excursion scene. In Wallonia as well there are numerous canals and scenic landscapes that make for an attractive excursion.

<sup>1</sup> The turnover generated by the day excursion sector in Germany cannot be calculated because the Statistical Office only shows total passenger navigation turnover (day excursions and cabin navigation). According to Statistical Office data, total passenger navigation on German inland waterways in 2010 generated turnover of 268 million euro. Source: destatis

According to estimates there are approximately 300 excursion ships in the Netherlands, the bulk of them being active in Amsterdam<sup>1</sup>. The number of passengers in Amsterdam alone is estimated at 3–4 million per annum.

As in France and Germany, there is a large number of themed trips (brunch trips, gourmet trips, etc.), as well as the combination trips in which combi tickets combine a boat trip with a visit to one of Amsterdam's many museums.

A speciality is the saloon boats, a kind of luxury segment of the excursion sector. These are lavishly restored ships featuring a very upmarket gastronomic offering. They are popular with private individuals for very formal occasions (e.g. weddings) but are also chartered by companies for business events. The prices for a two-hour trip are significantly higher than those customarily encountered in the day excursion sector and can be far more than 300 euro.

In order to estimate the economic importance of the excursion industry for the Netherlands – in the absence of official data – PLAISIER (2011) conducted a large-scale empirical study<sup>2</sup>. This study resulted in estimated values being ascertained for the following parameters:

- the number of ships
- industry turnover
- the industry's added value
- the forward effects
- employment

The added value is the difference between the industry turnover and costs for input factors. These input factors comprise material and staff costs for nautical and gastronomic services.

The forward effects are indirect economic effects. They come about as a result of a passenger or tourist making further disbursements in the town in addition to the boat trip. For example, in the evening he visits a restaurant or attends a concert, uses public transport to join the ship, stays in a hotel in the town, buys picture postcards and souvenirs, etc.

All these outlays are indirect economic effects induced by the excursion industry and which therefore must be factored into the measurement of its economic effects. The assumption has to be made that a tourist primarily comes to Amsterdam on account of the boat excursion so that the gastronomic and cultural expenditure is ultimately generated by the shipping industry.

The aforementioned study yielded the following figures:

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1 Source: PLAISIER (2011), p. 43

2 Questionnaires were sent to a large number of shipping companies in Amsterdam and in other Dutch towns and cities. Questions were asked about the number of ships and passenger places, employees, turnover and other indicators.



Table 4: Economic importance of the excursion industry in the Netherlands \*

Indicator	Value
Number of ships	303
Turnover	€ 98.6 million
Cost for input factors	€ 61.2 million
Added value	€ 37.5 million
Forward effects	€ 28.6 million
Employment	1173 (full-time equivalents)

Source: PLAISIER (2011)  
 \* Based on empirical surveys and calculated estimates

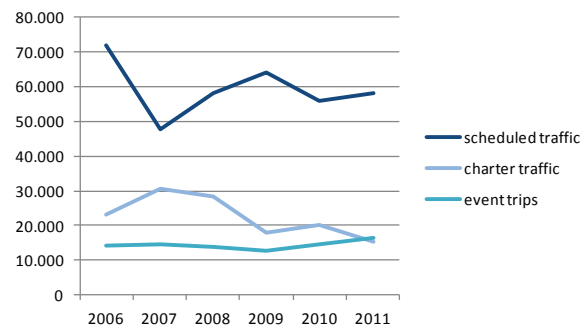
The forward effects play a relatively large role: At 28.6 million euro, the expenditure induced in the town by passengers on gastronomy, hospitality, art and culture is only one quarter less than the industry's added value.

#### 4.4 Switzerland

Passenger navigation in Switzerland occurs primarily on the country's numerous lakes. River excursions can only be undertaken on the Rhine in the vicinity of Basel. Compared with lake tours, however, they play a relatively small role.

Currently there are 6 Rhine ships in Switzerland under the Swiss flag for daily excursion traffic. The ships are primarily active on the stretch between Basel – Rheinfelden. In a multi-year comparison, however, their numbers are in slight decline. Between 2005 and 2008 there were still 8 – 9 ships, in 2004 still 13 ships<sup>1</sup>.

Figure 4: Basler Personenschiffahrt regional excursion traffic passenger numbers



Source: Swiss Rhine ports

Passenger numbers in recent years have been on a slight downward trajectory, and from a structural standpoint are also counter to the pan-European trend. Because although the charter and event trip generally are considered to be a future growth area for the industry, this is not evident in the figures for the Swiss excursion sector. The tendency here is for scheduled traffic to increase, and the volume of charter traffic is declining, as the following figure illustrates. Entertainment trips have slightly increased.

In 2011 there were a total of almost 90,000 excursion traffic passengers. In 2008 the figure was approximately 100,000 and in 2006 just under 110,000. As already mentioned, this decline is attributable to losses in the charter traffic sector.

1 Source: several of the Swiss Rhine ports' annual reports.

## 5. Summary

In Germany, France, the Netherlands and Switzerland there are currently approximately 1,550 ships active in the day excursion industry. With a degree of estimate, the number of companies should be around the 600 mark. How many passengers undertake a boat excursion in these countries each year cannot be determined with absolute certainty owing to the absence of figures for Germany. It is however at least possible to hazard a reasonable estimate that – in view of the size of the German fleet – it will be at least 30 million people per annum. In most countries, this industry is posting a growth in passenger numbers. The main reason for the growth is to be found in the plethora of innovations such as themed trips, charter trips and a combination with other tourist events.



Situation of the  
inland shipping sector  
in autumn 2012  
and outlook for 2013



# Section 1:

## Transport demand situation in autumn 2012 and outlook for 2013

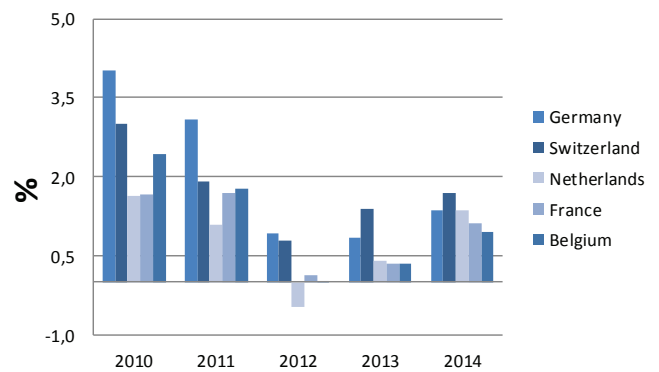
### 1. Economic growth: development and prospects

The world economy in the autumn of 2012 is clearly in a weak phase. This is evident from various indicators of industrial production and consumer confidence.

The fundamental reason for this is the fact that the financial crisis in the euro area is still not over. Even if the worst scenarios under discussion for the common currency area do not materialise, Europe needs to brace itself for weak economic growth in the near future.

The leading research institutes' economic forecasts have repeatedly been corrected downward throughout 2012; this indicates that even leading economic and financial experts have underestimated the extent of the financial crisis in the euro area.

Figure 5: Real GDP growth rate in selected countries (including forecast)



In October 2012, the International Monetary Fund

issued the following forecast for Germany, France, the Netherlands, Belgium and Switzerland. The forecasts point to a weakening of the world economy this year and next. A recovery is predicted for 2014.

Source: IMF; World Economic Outlook 2012

It is important to navigation on the Rhine that Germany (and Switzerland also) have been rather better able than most other European countries to avoid being dragged down. In Germany's case this is primarily to do

with the fact that German’s overseas exports are bolstered by the weak euro.

## 2. Transport volumes: development and prospects

The development of freight transport is in large part bound up with foreign trade which – although one component of GDP – is growing significantly faster than the latter. For example, world trade in the period 1982 to 2011 has increased by a factor of 5.4 (namely more than fivefold), whereas global GDP has only increased by a factor of 2.3.

An important component of world trade is maritime transport. Its development is also closely linked with inland navigation because of the role that seaports play as distribution centres for the hinterland. In mid-2012, the level of maritime transport for the entire EU-27 was only 1% below the pre-crisis level<sup>1</sup>.

Individual countries (such as Germany and the Netherlands) diverge positively from the pan-European trend. For example, the volume of Germany’s maritime trade in mid-2012 was 12% greater than the pre-crisis level and 20% even in the Netherlands. France, on the other hand posted a fall of 18% and unfortunately an almost constant deterioration in its maritime trade since the beginning of 2011 as well.

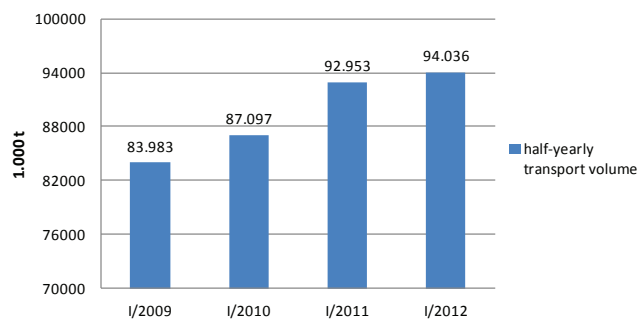
The development of inland navigation transport volumes and transport output also needs to be seen in the context of this regionally and thematically differentiated picture.

Approximately 94 million tonnes of freight were transported in the first six months of 2012 on the traditional Rhine (between Rheinfelden and the German Dutch border) compared with not quite 93 million tonnes in the first half of 2011. There was thus a small increase of approximately 1%.

Of the 94 million t, 72 million t were dry cargo and around 22 million t were liquid cargo.

The following figure shows the “half-year results” of the transport volume on the Rhine for the last few years.

Figure 6: Development in half-yearly transport volume on the Rhine



Source: destatis

Based on these figures, the following growth rates between the individual half years can be ascertained:

First half year 2010: +4% compared with the same period the year before

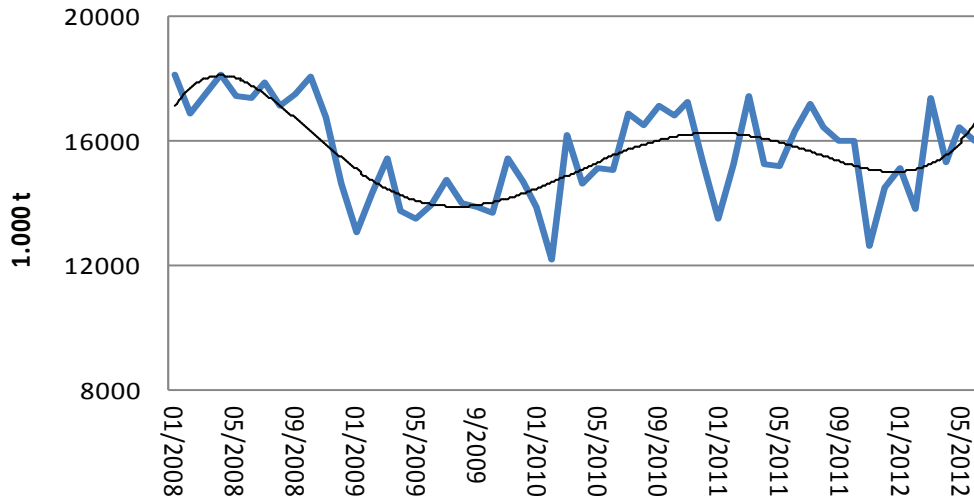
First half year 2011: +7% compared with the same period the year before

First half year 2012: +1% compared with the same period the year before

1 Cf: International Transport Forum (2012), Statistics Brief October 2012

Upon a more detailed consideration by individual freight segments, the transport volume doubtless differs in nature. That is why the tendencies for the individual freight segments are illustrated below, having regard to forecasts for the future.

Figure 7: Development in monthly transport volumes on the Rhine

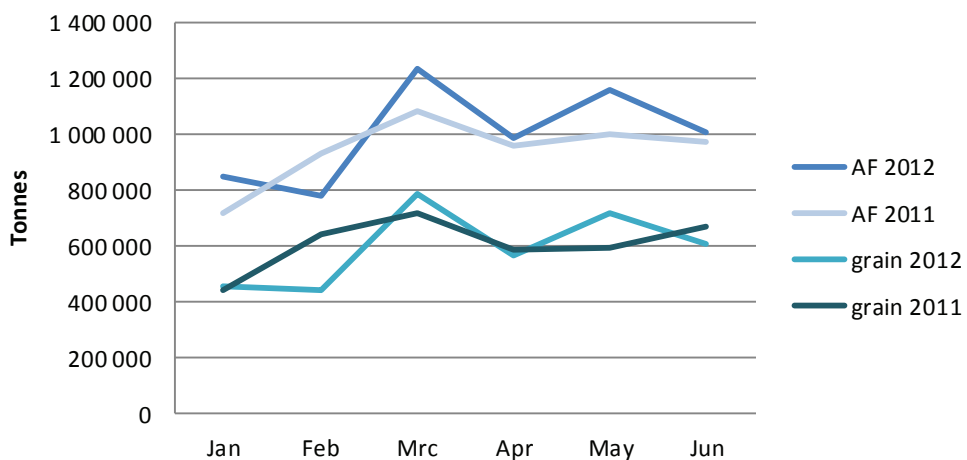


Source : destatis

### 2.1 Agricultural and forestry products

Within this freight segment, grain plays a critical role with a share of approximately 60% (see graph). In the second quarter of 2012, a significant increase compared with the year before was apparent. This increase brought about a total transport growth of 6% compared with the year before.

Figure 8: Transportation of agricultural and forestry products (including grain) on the Rhine \*



Source: destatis

\* AF = agricultural and forestry products overall

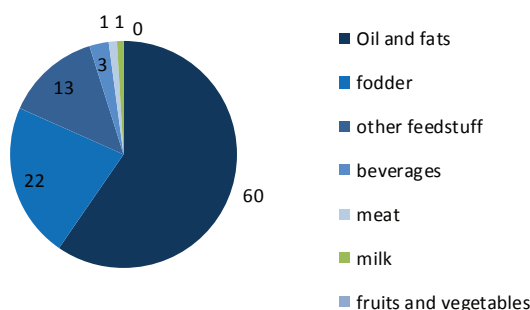


## 2.2 Foodstuffs and fodder

At approximately 3.3 million t, a similar volume of fodder and foodstuffs was transported in the first six months as in 1/2011. Plant oils and fats account for the biggest proportion of these transport movements with 60%, followed by foodstuffs at 22% (see graph).

Overall, scarcely any change in transport demand is to be anticipated in this segment for the year ahead.

Figure 9: Structure of fodder and foodstuffs transport movements on the Rhine (%) \*



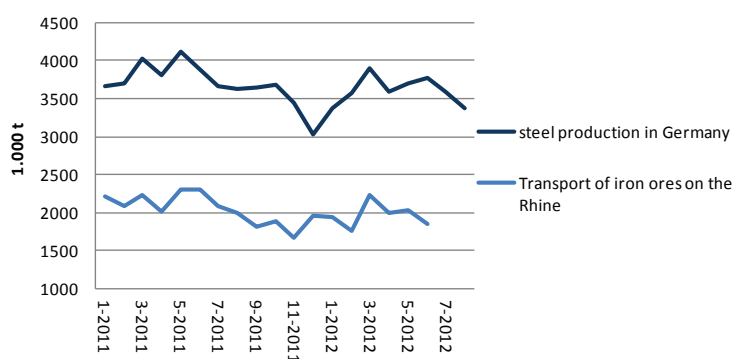
Source: destatis

\* Data in % for the transport volume of all fodder and foodstuffs in the first half of 2012

## 2.3 Iron and steel industry

The transportation of ores on the Rhine in the past one and a half years has been more or less in decline. In the first half of 2012, 11.8 million t of ores were transported on the Rhine, with iron ore accounting for the greatest proportion at 96%. In the same period the year before, however, ore transportations were significantly higher (13.1 million t.). The development of steel production provides an explanation for the decline in the second half of the year 2011 and 2012 (see figure).

Figure 10: Development of steel production and the transportation of ores on the Rhine



Source: Eurofer / destatis

The transport of metals and metal products has slightly increased throughout 2012. 5.3 million t were transported in the first half of 2012, with an upward monthly trend. This figure is however still below the first half-year 2011 quantities, when 5.7 million t were transported on the Rhine.

## 2.4 Solid mineral fuels

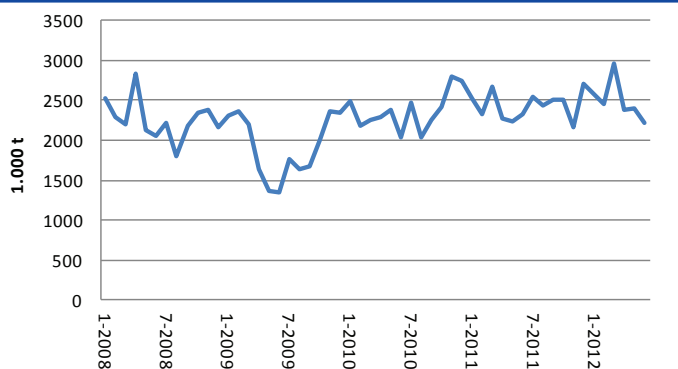
In the first half of 2012, approximately 15 million t of coal were recorded on the Rhine between Rheinfelden and the German Dutch border. This figure was approximately 4% higher than the previous year's result for the first half of 2011. The highest figure for one and half years was achieved in March (approximately 3 million t).

On a multi-year view it will be recognised that coal transportation has progressively edged back towards the

pre-crisis level following the collapse in 2009. This level is around 2.5 million t per month on the traditional Rhine.

Figure 11: Monthly transportation of solid fuels on the Rhine

As before, flows of imported coal are closely associated with transportation on the Rhine. Last year, in 2011, Germany increased its coal imports by 3 million tonnes, from 41 million t to 44 million t. At the same time, coal extraction fell from 14 million to 13 million t and thus by one million tonnes, as already the year before. Imported coal covers 76% of power stations' coal requirements, 86% of the steel industry's requirements and 79% of heat generation requirements.



Source: destatis

50% of Germany's coal imports cross the "wet" border between the Netherlands and Germany on the Rhine by ship. 30% are brought into the country by rail and 20% in the seaports of northern Germany, with rail the preferred means of onward transport.

In recent years, numerous large seaports, such as Rotterdam and Amsterdam have increasingly transhipped greater volumes of coal. Rotterdam is further developing its infrastructure in order to be able to accommodate even more energy imports in future.

Table 5: Coal transshipments (in million t) in selected European seaports

Port	2009	2010	2011
Hamburg	5,2	5,3	5,8
Amsterdam	18,0	18,8	19,9
Rotterdam	24,8	24,1	26,7
Antwerp	6,1	5,1	5,4
Ghent	2,6	4,2	3,1
Dunkirk	6,1	6,5	7,6

Source: VDKI

Coal prices, which have been very low for some considerable time, should have a positive impact on imports and transportation on the Rhine in the year ahead. The reason for this is an oversupply of coal on the world market, which, on the one hand, is caused by increasing coal exports by the USA. On the other hand, there has been a sharp fall in the cost of transporting coal as a result of very low maritime transport freight rates worldwide (a consequence of the general overcapacity affecting bulk carriers)<sup>1</sup>.

In the first half of 2012, the price of steam coal or coal for power stations was 28% lower than in the same period of 2011<sup>2</sup>. This low level is expected to persist.

1 See: Deutsche FondsResearch (2012), Shipping Research Newsletter 4/2012

2 Source: VDKI

## 2.5 Aggregates, soils & building materials

In the first half of 2012, not quite 12 million t was accounted for by this important segment for navigation on the Rhine in volume terms (+ 3% compared with the same period the year before). These 12 million t were broken down as follows:

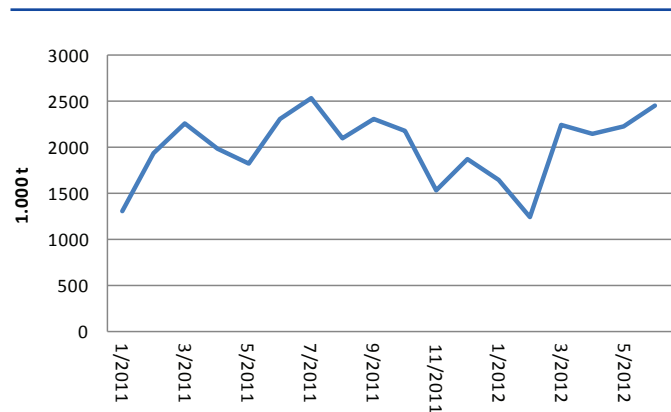
- 10.7 million t of sand, soil, gravel and stone (90% of the total amount)
- 0.8 million t of cement, limestone and gypsum (6.7% of the total amount)
- 0.28 million t of other building materials (2.3% of the total amount)
- 0.14 million t of ceramic building materials (1.2% of the total amount)

The month-on-month transport statistics indicate a decline in the second half of 2011, followed by an increase in the first half of 2012 (see graph).

Further increases in transportation are to be expected for the year ahead. The reason for this is the continuing robust performance of the building sector in Germany, sustained by property investment involving broad swathes of the population.

The low interest rate for real estate loans, but above all the change in investment behaviour on the part of wide swathes of the population in light of the Euro crisis plays a critical role in this. Consequently, most economic research institutes are anticipating single digit building investment growth in Germany for 2013<sup>1</sup>.

Figure 12: Transportation of stone, soil and building materials on the traditional Rhine



Source: destatis

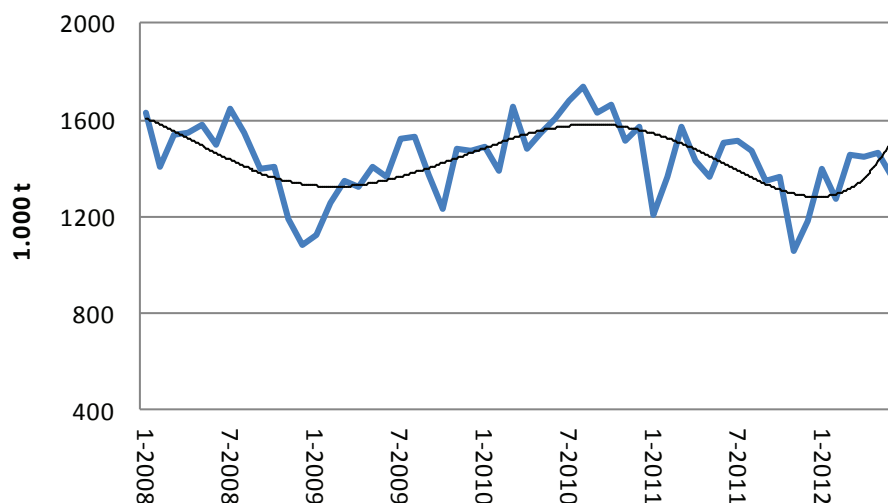
## 2.6 Chemical products & fertilisers

Transport movements of chemical products were very much in step with general economic development. There was a decline in mid-2011, followed by recovery at the beginning of 2012. In the first half of 2012, 8.4 million t were transported on the Rhine. This corresponds almost exactly to the same quantity observed for the first half of 2011.

Transportation performance over a period of years strikingly illustrate the economic fluctuations:

<sup>1</sup> Source: The German building industry – forecasts. (<http://www.bauindustrie.de/themen/volkswirtschaft-information-kommunikation/konjunkturbeobachtung-analysen-und-prognosen/>)

Figure 13: Monthly transportation of chemical products on the traditional Rhine \*



Source: destatis \* including trend line

Currently in Germany, 8.8% of chemical products are transported by inland waterway, 57.6% by heavy goods vehicle, 10.9% in pipelines, 12% by rail and 10.7% by oceangoing ship<sup>1</sup>.

This includes all transport movements of chemical products, including the quantities transported not by the chemical industry itself but by the chemical trade. If one looks only at the transport movements occasioned by the chemical industry itself, then the inland navigation market share is marginally higher at 9.7%. This discrepancy can be explained by the smaller quantities transported in the trade sector, where transport by HGV often appears more economical.

The Chemical Industry Association (VCI) in Germany is anticipating a 3% fall in chemical output in 2012 compared with the year before. Owing to the very close relationship between chemical output and transport demand on the Rhine, a decline in transport movements of chemical products of the same magnitude is to be anticipated for 2012.

Transport movements of fertilisers followed a very similar trajectory to that of chemical products. For 2012 as a whole, there was a slight upturn following something of a decline in the second half of 2011. In total, approximately 2.3 million t were transported on the Rhine in the first six months of 2012. Far and away the biggest share here is accounted for by nitrogen compounds and artificial fertilisers.

## 2.7 Mineral oil products

Transportation in the first half of the year was approximately 6% higher than in the same period the year before. An upward tendency since the beginning of the year can be observed (see graph). This tendency however is not to be construed as a long-term trend but rather as a temporary phenomenon occasioned by the price

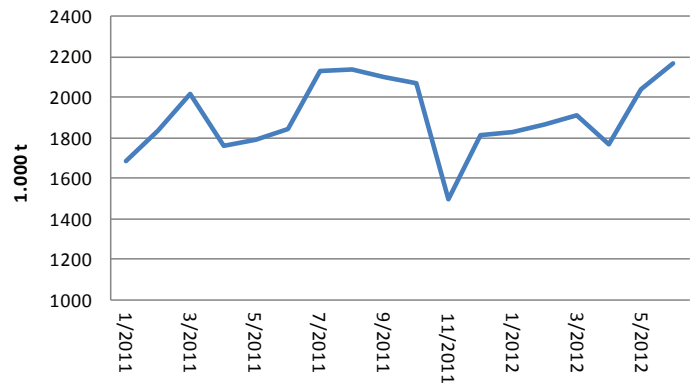
<sup>1</sup> Source: Verband der Chemischen Industrie in Deutschland (VCI) – Chemical Industry Association in Germany

development on the oil markets.

What emerges from the following graph is that there were significant price falls in the second quarter of 2012, which in the final analysis reflect markets' pessimistic response as a result of the European financial crisis.

The transportation of mineral products should pick up somewhat in 2013. The reason for this is that the oil price, as the most important influencing factor, is under downward pressure in view of some gloomy forecasts for economic development in the euro area.

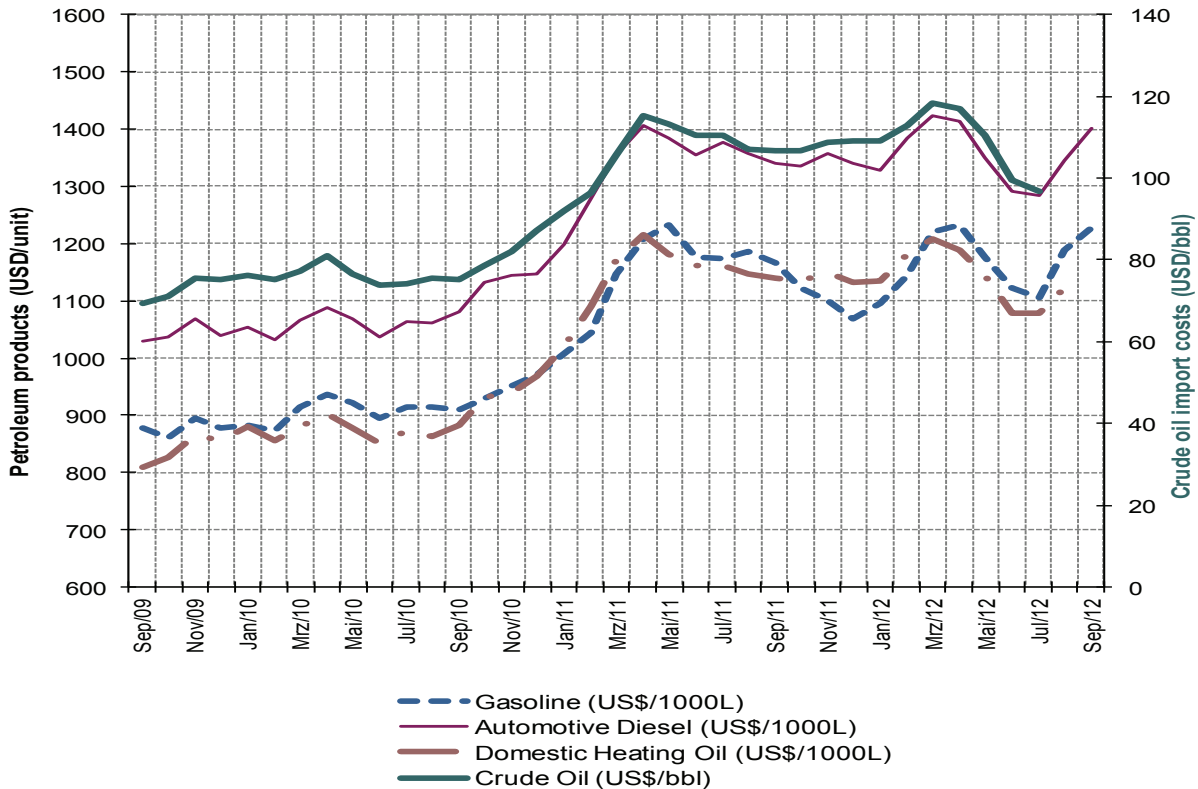
Figure 14: Monthly transportation of liquid mineral oil products on the Rhine



Source: destatis

On the one hand, the anticipated fall in oil prices (backwardation situation on the futures markets) is indeed driving less speculative oil demand. On the other hand, however, a low oil price is increasing the fundamental consumption demand of private households.

Figure 15: Price development of crude oil and mineral oil products



Source: International Energy Agency (IEA)

### 2.8 Containers

In the first half of 2012, approximately 660,000 containers were transported on the traditional Rhine. Two thirds of them were loaded containers, one third were empty containers. In the standard size “Twenty Foot Equivalent (TEU)” there was a quantity of approximately 1 million TEU.

The freight weight transported in the containers amounted to 7.5 million tonnes. The following table contains the exact figures.

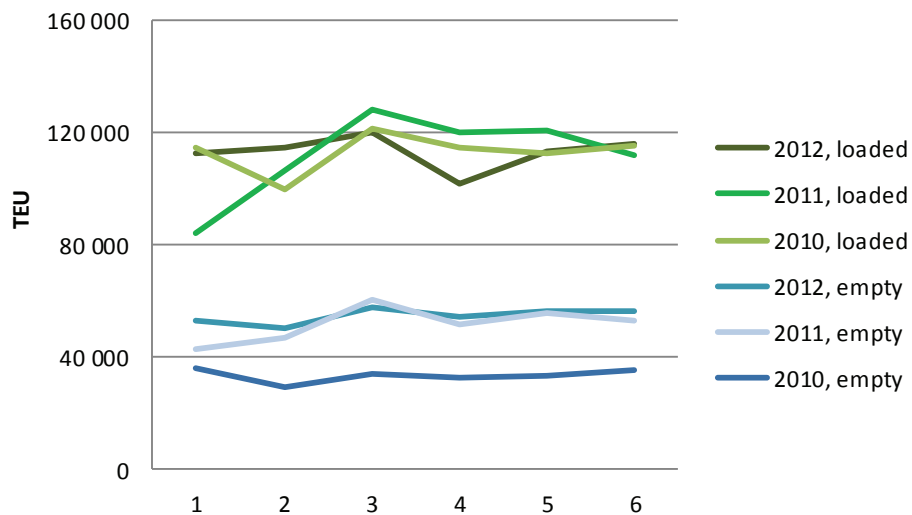
*Table 6: Container traffic on the Rhine in the first half of 2012*

Number of containers		TEU		Freight weight in the containers (tonnes)	
Empty	Loaded	Empty	Loaded	Empty	Loaded
213,330	446,525	328,812	679,151	0	7,512,818
Total number = 659,855 containers		Total quantity = 1,007,963 TEU		Total freight weight in the containers = 7,512,818 tonnes	

*Source: destatis; CCNR calculations*

If one compares the TEU quantities above with previous half-year periods, the following picture emerges:

*Figure 16: Quantity of empty and full containers transported on the Rhine by individual half years*

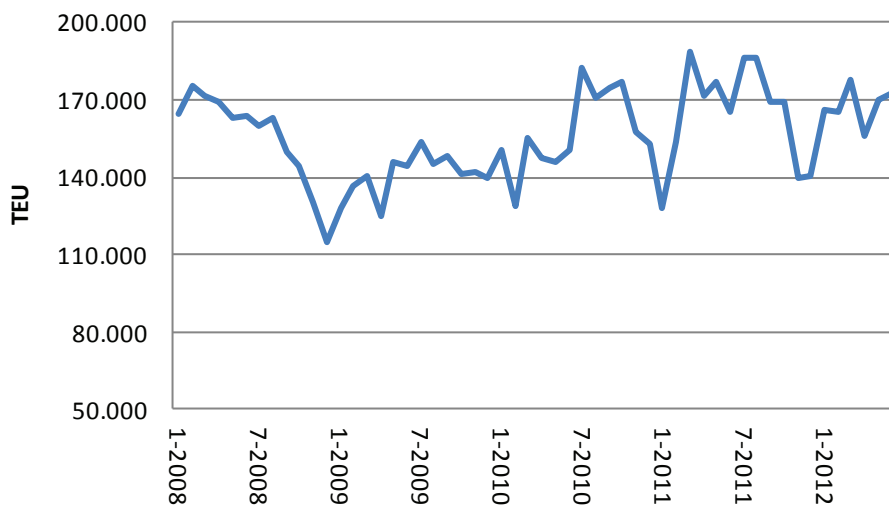


*Source: destatis; CCNR calculations*

In the first half of 2012, the quantity of loaded TEU was 1% higher than the year before. The quantity of empty containers was approximately 5% higher than in the first six months of 2011.

On a multi-year view, it can be observed that the total quantity of loaded and empty containers, as with chemical products, attained the pre-crisis level towards mid-2010.

Figure 17: Monthly development of container traffic on the traditional Rhine since the beginning of 2008



Source: destatis

### 3. Demand in the passenger transport market

In the day excursions sector, the spring of the 2012 season was hampered by rainy weather. This reduced ship occupancy. Thereafter, the weather improved significantly and with it also demand.

In the river cruise sector, the start of the season was characterised by subdued bookings to do with the uncertain economic environment, but also with the knock-on effects of the Costa Concordia disaster in the Mediterranean. German customer groups responded more sensitively to this ship wreck than US American customer groups, for example. This explains the fact that individual German river trip companies even postponed new construction delivery by one year.

A return to the long-term growth trend is anticipated for 2013. Annual growth in passenger numbers of 8% for the West European market is estimated for the development in demand to 2018<sup>1</sup>.

<sup>1</sup> Source: Hamburgische Seehandlung (2012) Issue prospectus Danube river travel investment offer; p. 58.

# Section 2:

## Relationship between transport supply and demand

### 1. Development in the fleet: new construction

#### 1.1 Dry shipping

According to the latest IVR figures, a total of 20 new motor cargo vessels, 15 new pushed barges, 2 pusher vessels and one tugboat entered the market in 2011.

This corresponds to new tonnage of 57,600 t for the motor cargo vessels and 43,000 t in the case of the pushed barges. This yields total new tonnage of approximately 100,000 t, which equates to a decline in the new construction rate of approximately 36,000 t or 26% compared with 2010. Expressed in terms of numbers of ships, the new construction rate has fallen by 26 ships.

If one compares the new construction rate in 2011 with the figures for the decade 2000–2010, the following observation can be made: in quantitative terms, the investment in new shipping space is currently comparable with the years 2004, 2005 and 2006. In each of these years approximately 100,000 t entered the market. The period 2004 to 2006 was, as far as the overall economic situation is concerned, somewhat of a trough. To that extent, the current situation exhibits significant similarities with the years 2004, 2005 and 2006.

The average tonnage of 2011 new construction was 2,900 t (motor cargo vessels) and 2,400 t (pushed barges).



*Table 7: New construction volumes in the dry goods sector \**

Year	New construction tonnage (t)
2008	432,000
2009	480,000
2010	135,700
2011	100,600

Source: IVR

\* data for Belgium, Germany, Netherlands, France, Switzerland

The figures for 2012 are still very incomplete so that it is currently not possible to ascertain a robust new construction rate for 2012. However, based on the figures for the first 10 months, a further pronounced slowdown is apparent, which is shaping to be even more marked than the decline between 2010 and 2011.

## 1.2 Tanker shipping

According to IVR figures, the new construction rate for tankers has slowed significantly in 2011 and 2012. This is apparent from the provisional figures for the first 10 months of 2012 and from the figures for 2011 as a whole. According to the latest IVR figures, 86 new ships with a total tonnage of approximately 185,300 tonnes entered the market in 2011. The average capacity was approximately 2,900 tonnes. A major falling-off in investment compared with 2009 and 2010 is thus discernible.

*Table 8: New construction volumes for tanker shipping \**

Year	New construction tonnage (t)
2008	144,580
2009	391,000
2010	339,000
2011	185,000

Source: IVR

\* data for Belgium, Germany, Netherlands, France, Switzerland

In percentage terms, the decline in new construction tonnage in 2011 compared with the year before was approximately 45%, or almost half. In numbers of hulls, approximately 20 fewer new construction ships were deployed. This decline corresponds to the decline mentioned in the market report 2012-1 scenarios (see tanker shipping fact sheet). It was however noted in this report that a decline of 20 ships per year in the new construction rate is not sufficient to unwind the overcapacity if at the same time almost no single hull ships are exiting the market.

If one compares the figures for the first 10 months of 2012 with the same period the year before, then the new construction volume in 2012 should again fall sharply.

The trend to ever larger ships has also continued in 2012. The average tonnage of new construction vessels in 2012 was approximately 3,200 tonnes. One must however add that, as before, there are also relatively small new construction vessels in the tanker shipping sector (less than 2,000 t). These tend to be encountered in Germany and Belgium.

The average figure for the European tanker fleet as a whole is “distorted” upward by a number of very large tankers employed in the Netherlands (these are new vessels with a capacity of 6,000 t and more).

### 1.3 Passenger navigation

10 new river cruise ships entered the Western Europe market in 2010. The bulk of the new ships operate under the Swiss German flag, but individual ships also under the Czech and Austrian flag. In addition, a number of new day excursion ships have also entered the market, primarily in Germany and the Netherlands.

In the first ten months of 2012 there were 12 new river cruise ships; half of them operating under the Swiss flag. Most of these new cruise ships are 135 metres in length and have a beam of 11.4 metres. The new ships’ draft is in a range between 1.4 metres and 2.0 metres.

According to estimates, there are currently approximately 230 river ships plying European waterways. A data analysis by SeaConsult revealed that in April 2012 approximately 57% of the units on European inland waterways (with the exception of Russia) are at least 10 years old. Just under 23% of river cruise ships are older even than 25 years and 9% more than 45 years old<sup>1</sup>. This age structure indicates a certain need for replacement in future.

## 2. Capacity utilisation

### 2.1 Dry freight capacity

Despite the sharp rises in transportation demand in 2010 and to some extent still in 2011, capacity utilisation has exhibited no sustained increase. It is still 12 – 24 percentage points below the figures for the period 2004 – 2008.

In 2011, capacity utilisation increased – depending on ship size class – by between 4 and 8 percentage points. The biggest increase was for ships with a carrying capacity of between 400 and 1,000 t, namely relatively small ships. This can be explained in terms of the effects of low water.

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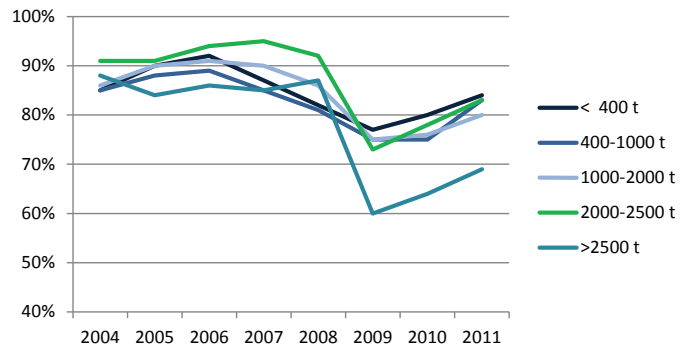
1 Source: Hamburgische Seehandlung (2012)

The reason is that in the event of low water, more small ships are called upon to meet the transportation demand in view of the problem that large ships in these situations can only be loaded to a relatively small percentage of their capacity.

Also, because of the lower load factor per ship, more journeys have to be undertaken to transport the same amount. The amount of time for which the fleet is employed increases as a consequence. As such, at low water, the fleet's utilisation rate increases as a result of natural factors.

It can be noted that the utilisation rate of the largest ship units (> 2,500 t) has suffered the most adverse development. At 69% in 2011 it was approximately 14 to 15 percentage points below the utilisation rate of the smaller classes of ship.

Figure 18: Utilisation rate of the fleet in the dry shipping sector



Source: Panteia / NEA Consulting

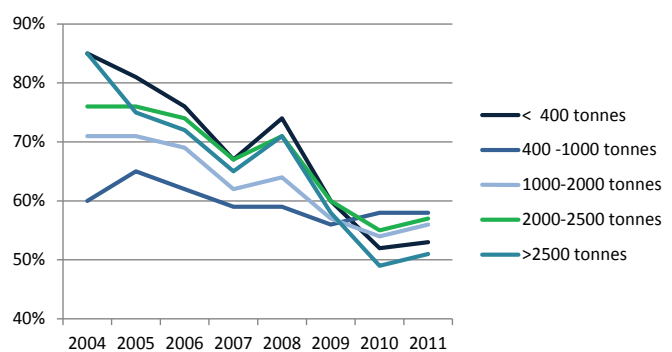
## 2.2 Tanker freight capacity

The development in the utilisation rate in the tanker shipping sector is completely different to that in the dry shipping sector. Owing to the migration from single hull to double hull, the fleet has expanded very strongly in recent years. Between 2004 and 2011, capacity has increased by 60%.

Unlike the dry shipping sector where there was a noticeable rise in the utilisation rate in 2010, the declining trend in tanker navigation since 2004 has continued. Nevertheless 2011 saw a small increase, which admittedly is primarily attributable to the low water situation.

The serious low water situation had the effect that the large units could only be loaded to a relatively small extent, with the result that many smaller ships were required. More ships were therefore employed to deliver the same transport volume, as a result of which the utilisation rate of the fleet as a whole increased slightly.

Figure 19: Utilisation rate of the fleet in the tanker navigation sector



Source: Panteia / NEA Consulting

# Section 3:

## Situation of the inland navigation companies

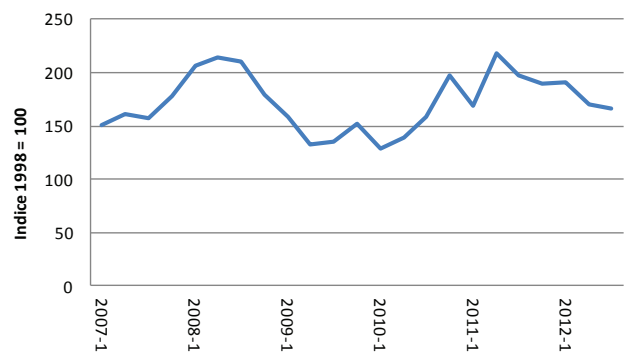
### 1. Development in freight rates and business activity

#### 1.1 Dry shipping

Dry shipping freight rates had reached a high level as a result of the general economic boom between 2005 and 2007/2008. A major slump occurred from the end of 2008 onward (essentially in parallel to the development of transport demand). The recovery set in at the beginning of 2010. Strongly “assisted” by the low water levels in 2011, mid-2011 saw a return to the pre-crisis level.

Since then, however, there has been a marked decline. Between mid-2011 and the autumn of 2012, the average freight level in the dry shipping sector showed a falling trend. Water levels in the first half of 2012 were normal so that freight rates received no support from this quarter.

Figure 20: Freight rates in the dry goods shipping sector



Source: Rabobank / NEA Consulting

As the product of transportation volumes and freight rate development, the development in turnover is influenced by both factors. Volumes and freight rates frequently move in the same direction, with the result that the turnover

trend then clearly develops in the same direction.

Transport volumes and freight rate levels can, however, also “follow separate paths”; this is especially so if the influence of water conditions or fleet capacity is particularly strong. In essence, this situation applies to the first half of 2012: Notwithstanding a slight increase in transportation demand, freight rates have fallen, owing to the increased water levels and ongoing overcapacity.

The upshot for inland navigation in Holland was a fall in turnover in the first half of 2012. As the Centraal Bureau voor de Statistiek reports, turnover in the second quarter of 2012 fell almost 10% compared with the second quarter of 2011. In the first quarter of 2012, year-on-year turnover remained relatively stable. 2011 saw increases in turnover of between 5 and 20%, depending on quarter. These increases were attributable first and foremost to the low water levels in 2011, which analogous to «windfall profits»<sup>1</sup> increased freight rates and thus profits.

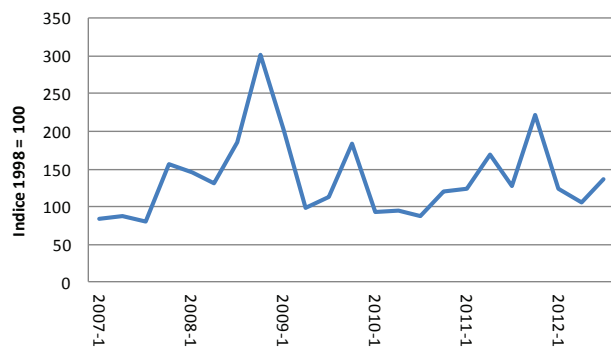
The number of occurrences of bankruptcy increased significantly in the Dutch inland navigation sector towards the end of 2011 and the beginning of 2012<sup>2</sup>. The figures in these two quarters was three to four times higher than the usual frequency.

## 1.2 Tanker shipping

The major importance of seasonal transport movements (heating oil for private households) was also apparent in 2011 in the development of tanker navigation freight rates. A high for the year was reached in the fourth quarter of 2011. Previous years also peaked in the fourth quarter, which was related to the seasonal delivery of heating oil. Admittedly, this seasonal peak in the fourth quarter of 2011 was very high compared with previous years.

As can be seen from the graph depicting the price development of mineral products (see the section on transport demand), mid-2011 saw a fundamental turnaround on the mineral oil markets; a phase of strong price increases was followed by several months of falling prices. This is why freight rates for transporting mineral oil products rose sharply in the autumn of 2011 because heating oil stocks could be replenished because of low product prices.

Figure 21: Freight rates in the tanker sector



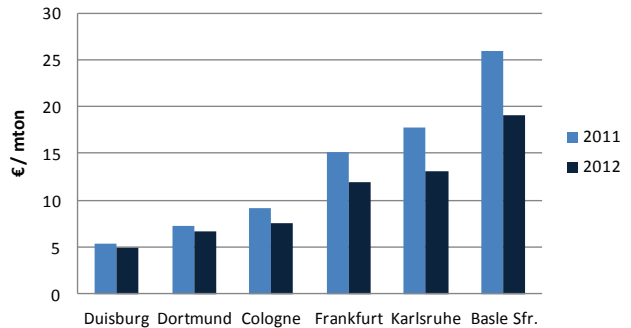
Source: Rabobank / NEA Consulting

1 “Windfall profits” are profits that are not based on the performance of the beneficiary but occur as a result of favorable influences.

2 Source: CBS.

But once the seasonal effects had abated, the freight rates fell back at the beginning of 2012 and in the third quarter of 2012 as well, there was only a small upturn. The following graph shows the average freight rates for the transportation of heating oil and diesel from Rotterdam for the first three quarters of 2011 and 2012 (survey results). Various destinations along the Rhine are listed. What is apparent from the graph on the one hand is the dependency of the level of the freight rate on the distance transported, which is first and foremost to do with the variable costs, which increase in proportion to distance.

Figure 22: Average freight rate level for the transportation of heating oil and diesel from Rotterdam \*



Source: PJK International; CCNR calculation  
\*the first three quarters of 2011 and 2012 respectively

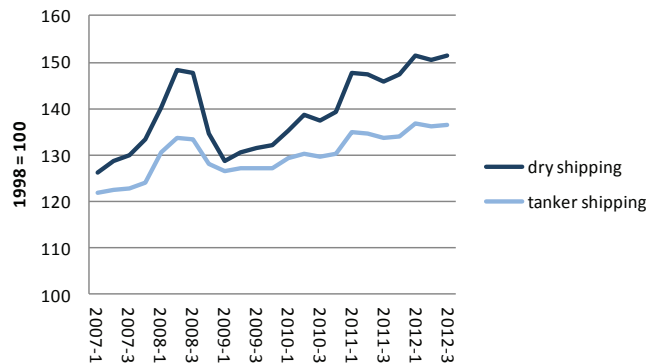
On the other hand, however, what also emerges from the graph is that the general freight rate level for 2012 is below the previous year's level. The reasons are to be seen in the 2011 price effects that have already been touched on.

In light of the fall in freight rates, turnover in the tanker navigation sector in 2012 has declined compared with the year before.

## 2. Cost development

The development of inland navigation costs in the first three quarters of 2012 broadly tracks the trend of the past three years. What is apparent from this trend is that dry shipping costs are increasing more than for tanker navigation. For example, the general cost level in the third quarter of 2012 for transporting dry goods was 4% higher than in the third quarter of 2011. In the tanker navigation sector on the other hand, the increase was only 2%.

Figure 23: Cost development in dry shipping and tanker navigation



Source: Rabobank / NEA Consulting

### 2.1 Fuel costs

In terms of fuel costs, the slight upward trend of the past two years has essentially continued. Only in mid-2011 was there a short-lived slight drop; this came about as a result of the dramatic exacerbation of the European financial crisis, which in the short term significantly depressed oil prices.

Featured below are the previous years' increases for the month of September.

- September 2012 compared with September 2011 : + 11%
- September 2012 compared with September 2010 : + 36%
- September 2012 compared with September 2009 : + 72%

In its latest October 2012 forecast, the International Monetary Fund (IMF) is assuming a backwardation situation on the oil futures markets for 2013. Backwardation indicates a tendency for oil prices to fall in the medium term<sup>1</sup>. The uncertainties surrounding this forecast are however very significant.

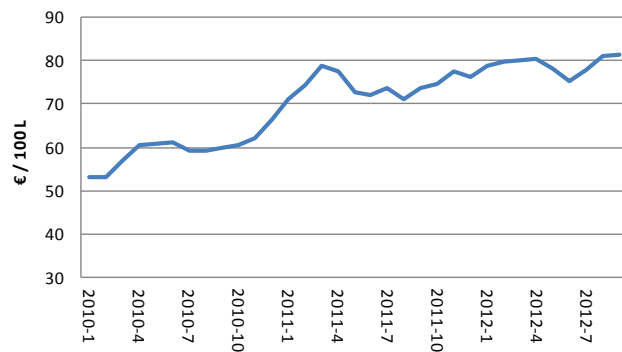
The fee levied since 01.01.2011 to finance the disposal of ship-generated waste containing oil and fats is without doubt yet another cost factor for companies. The regulation that only low sulphur fuel may be used points in the same direction. Nevertheless, the impact of these environmental regulations is relatively minor compared with the increase in gasoil prices.

## 2.2 Labour costs

Labour costs are of considerable importance as a fixed cost pool in inland navigation. On aggregate, data on the development of standard wages in the Netherlands indicate a small increase in the past one and a half years.

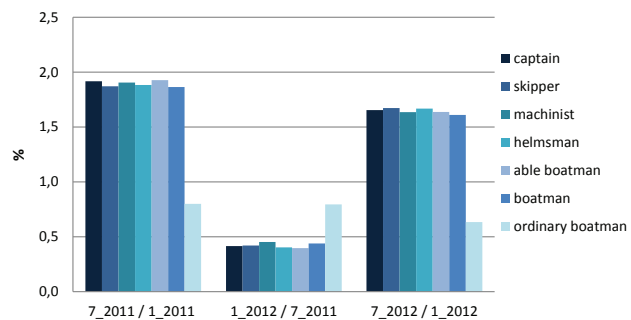
The following graph illustrates this based on the percentage development in standard wages in the dry shipping sector (according to CBRB) for the Netherlands. What is being studied here are wage developments by specific grades.

Figure 24: Development in inland navigation fuel prices\*



Source : Schweizerische Vereinigung für Schifffahrt und Hafenwirtschaft; CBRB  
\* Gasoil index CBRB

Figure 25: Percentage change in wages in the dry shipping sector \*



Source: CBRB; CCNR calculations

The rates of change between July 2012 and January 2012, between January 2012 and July 2011 and between July 2011 and January 2011 show an increase in a range between 0.5 and 2%.

1 See: IMF (2012), World Economic Outlook October 2012 Coping with High Debt and Sluggish Growth, p. 39.

The development of standard wages in the tanker navigation sector is essentially no different to the picture presented above for dry shipping. Similar overall increases are being reported for Germany.

### 2.3 Capital costs

Capital costs comprise interest costs for debt financing, interest costs for equity capital and depreciation<sup>1</sup>.

As far as debt financing is concerned, the interest rates published by the ECB for loans with a term greater than ten years and with a loan volume greater than €1 million are considered to be a cost development indicator. The interest rate for such loans has been falling throughout 2011<sup>2</sup>.

Despite this, there is currently considerable caution towards debt financing, especially in the dry shipping sector, which is reflected in relatively high risk premiums and thus in difficult financing terms.

Depreciation is based on the ship's insurance value. In the latter case, the situation is broadly constant so that depreciation as a cost factor has also remained constant.

### 2.4 Insurance

Given the intense competition between marine insurers and the prevailing stagnation in ship values as a result of the economic crisis, insurance costs are currently fairly constant.

Changes in the insurance market arise from the modernisation in September 2012 of the Strasbourg Convention on the Limitation of Liability in Inland Navigation (CLNI). In the context of this modernisation<sup>3</sup> the system for limiting liability in the event of ship accidents that has existed in Western Europe for some time was extended to countries in the Danube region. Once the agreement has come into force, this should have an effect on the insurance market in these countries. Because it is only when liability is capped that certain risks are insurable at all.

### 2.5 Maintenance and repair costs

When it comes to maintenance and repair costs, shipyard staff costs in particular play an important role. Energy prices and steel prices also need to be considered, the latter primarily when it comes to repairs. According to Eurostat data for the EU-27, energy prices (electricity prices for industrial customers) are currently approximately constant<sup>4</sup>. This is true of the period from 2009 onward.

1 The equity capital costs are to be seen as opportunity costs as the equity within a shipping company could theoretically be profitably invested for other purposes. Consequently, equity capital costs must be included.

2 Source: ECB

3 Refer to: <http://www.ccr-zkr.org/files/documents/cpresse/cp20120927de.pdf> (Diplomatische Konferenz der ZKR beschließt Straßburger Übereinkommen von 2012 über die Beschränkung der Haftung in der Binnenschifffahrt (CLNI 2012)).

4 Applies to purchase quantities 500 MWh < consumption < 2,000 MWh.



For Belgium, Germany and the Netherlands, electricity prices have even reduced somewhat, whereas they have risen in France. Steel prices during 2011 were on a somewhat downward trend in view of the worldwide economic slowdown.

## Conclusion

The earnings situation in the dry goods shipping sector is currently very problematic. The upshot of falling freight rates and stagnating volumes is falling turnover. At the same time, costs are increasing at the same rapid rate, with fuel the key driver. These facts are creating a very difficult economic situation for numerous dry shipping companies. The number of bankruptcies in the Netherlands has increased markedly at the beginning of 2012.

The tough challenges facing tanker navigation continue unabated as a result of the ongoing expansion of fleet capacity. Even if new investment growth has slackened, the tonnage figures are nevertheless colossal and not conducive to equilibrium between supply and demand. However, freight rates have developed more favourably than for dry shipping and costs have not risen so steeply.

## Summary and outlook

The economic situation of inland navigation at the end of 2012 continues to be of concern in the two most important segments.

Even if transport volumes during the first half of the year have risen slightly, and the expansion of the fleet by new ships has fallen to a level on a par with the long-standing average in weak economic periods, it must however be noted that the industry is unable at normal water levels to maintain freight rates, and thus turnover, at the required level. With rising costs, the result of this is a further reduction in earnings. Many companies are still grappling with the repercussions of the economic crisis, the consequences of which since 2008 – in various forms – are still discernible. Many companies have been forced to dip into their savings to cope with the more difficult conditions. In this context it is important to limit the number of insolvencies. A downward spiral in the ships' market value would have devastating consequences for the industry.

The first signs of a gradual recovery, however, are not as yet apparent. Important market segments such as the steel and chemical industry are cyclical in nature and not offering any particular short-term growth prospects; rather the contrary. Container transport will continue its upward trajectory but inland navigation will have to get used to the idea of heightened competition with other forms of transport. The absence of growth in laden containers might indicate a changing competitive situation.

Tanker navigation, on the other hand, seems to be experiencing an upswing for the time being, in part as a consequence of falling oil prices on the world market. As however the impact of this situation on consumption has to be rated as rather low, this upswing will probably be short lived. For the time being, this subsector continues to be dominated by the relationship between the two sub segments within the fleet, namely single hull and double hull. The proportion of new ships has now fallen sharply compared with previous years and for 2013 as well a further decline is anticipated. If under the influence of the required extension of skippers' tickets (the latest expiry date of 2019 is slowly approaching) a gradual retirement of old single-hull ship tonnage gets under way, then this sector might recover somewhat.

In short, faced with transport demand which, while stagnating, is also not declining, and faced with a fleet that, while still growing, is no longer growing excessively, it is incumbent upon all stakeholders in this rather precarious situation to aspire to a course of equilibrium and as such to strive for freight rate stability. In the current circumstances, this would do a great service to the continuity of inland navigation.



## Annex : New construction

Ship type	2008			2009			2010		
	Number	Tonnage	kW	Number	Tonnage	kW	Number	Tonnage	kW
Motor cargo vessels	90	3 19,377	128,168	103	339,580	160,154	30	85,331	39,273
Pushed cargo barges	58	112,956		65	140,872		35	50,384	
Total	148	432,333	128,168	168	480,452	160,154	65	135,715	39,273
Motor tankers	52	144,581	49,678	131	391,058	133,439	105	338,759	124,598
Pushed tanker barges	0	0		0	0		0	0	
Total	52	144,581	49,678	131	391,058	133,439	105	338,759	124,598
Pusher boats	4		1,684	8		12,760	2		2,156
Tug boats	4		3,890	5		7,780	1		810
Total	8		5,574	13		20,540	3		2,966
Cabin ships	4		5,432	17		17,072	16		5,872
Excursion ships	20		5,252	12		3,686	12		5,177
Total	24		10,684	29		20,758	28		11,049

Ship type	2011			2012 (first 10 months)		
	Number	Tonnage	kW	Number	Tonnage	kW
Motor cargo vessels	20	57,600	26,665	4	10,790	8,244
Pushed cargo barges	15	43,000		4	12,000	0
Total	40	100,600	26,665	8	22,790	8,244
Motor tankers	84	182,000	90,500	28	62,824	25,523
Pushed tanker barges	2	3,262	0	0	0	0
Total	86	185,262	90,500	28	62,824	25,523
Pusher boats	2		1,268	2	1,756	8,166
Tug boats	1		5,280	0	0	0
Total	3		6,548	2	1,756	8,166
Cabin ships	10		12,420	12	0	18,456
Excursion ships	9		2,421	3	0	1,062
Total	19		14,841	15	0	19,518

Source: IVR



## Glossary

**ARA – ports:** abbreviation for the three large European ports of Amsterdam, Rotterdam and Antwerp.

**Transport or freight capacity offering:** comprises the total load capacity of the available fleet, stated in tonnes.

**Inland navigation:** the carriage of goods or passengers on board a ship, intended for transport by inland ship traffic on a particular inland waterway network.

**Inland waterway:** waters located on the mainland capable of being used by ships with a minimum 50 t carrying capacity when normally loaded. These include navigable rivers, lakes and canals.

**Revenue:** the term “revenue” as used in this publication is intended to define inland navigation activity in the form of an index having regard to a specific level of demand and market transport prices.

**River/lake traffic:** the transportation of goods onboard a river/seagoing ship (seagoing ship designed for travel on inland waterways) performed wholly or in part on an inland waterway network.

**Freight:** means either the cargo or price of transportation.

**Freight capacity:** a cargo vessel’s transport capacity expressed in tonnes.

**Output:** refers to freight transport output, measured in tonne kilometres.

**Ship/ship–transshipment:** unloading of freight from a cargo ship and the loading of this freight onto another cargo ship, even if the freight remains on land for a period of time before resuming its onward passage.

**Tanker freight capacity:** used in the context of the transportation of tanker cargoes.

**Draught:** the height of the immersed part of the ship, the draft thus changes as the ship is unloaded.

**Tonne kilometres (tkm):** unit of measure for recording transport output, corresponding to the carriage of one tonne over 1 km by inland waterway transport. Calculated by multiplying the quantity carried in t by the distance covered in km.

**Dry freight capacity:** used in the context of the transportation of dry goods.

**Transshipment:** the transfer of goods from one means of transport to another or ashore.

**Water conditions:** measurement of the water level of a water course or canal in cm.

**Upstream:** portion of the water course between the point in question and the source.

**Downstream:** portion of the water course between the point in question and the mouth or confluence.

**Twenty-foot equivalent unit (TEU):** standard unit of measurement for recording containers according to their size and for describing container ship or container capacity. A 20 foot ISO container (20 foot length and 8 foot width) corresponds to 1 TEU.

## Information sources:

### International organisations

European Central Bank (ECB)

Eurostat

International Monetary Fund (IMF)

International Energy Agency (IEA)

### Industry associations

Hauptverband der deutschen Bauindustrie

Verband der Chemischen Industrie (VCI)

Verband der deutschen Kohleimporteure (VDKI)

### National authorities

Bundesamt für Güterverkehr

Centraal Bureau voor de Statistiek (CBS)

Statistisches Bundesamt Deutschlands

Stichting Maritieme Dienstverlening (SAB)

Wasserschiffahrtsdirektion Südwest

### Inland navigation organisations

CBRB

EBIS

EBU

IVR

Schweizerische Vereinigung für Schifffahrt und Hafenwirtschaft

### Ports

Port of Switzerland

### Private companies

Bateaux Parisiens

Deutsche Fonds Research

Hamburgische Seehandlung



Köln-Düsseldorfer Deutsche Rheinschiffahrt AG

NEA Consulting / Panteia

PJK International B.V.

Rabobank

SeaConsult

#### Other sources

Plaisier, Hans (2011), Passenger Shipping: Out of the blue – The economic impact of passenger shipping on inland waterways in the Netherlands in 2010; Master thesis; Erasmus University Rotterdam

## Contributors

### EUROPEAN COMMISSION

Rolf Dieter (Administrator)

### CCNR SECRETARIAT

Hans van der Werf (project manager)

Norbert Kriedel (econometrics expert)

Vladimir Kordzinski (intern)

Martine Gerolt (secretariat)

Bernard Laugel (printing)

Clémentine Hurbourque (design)

Angelika Espenhahn (design)

Michèle Adam (design)

Contact : [n.kriedel@ccr-zkr.org](mailto:n.kriedel@ccr-zkr.org)

### EXPERT GROUP

Christian van Lancker (ESO)

Frédéric Swiderski (ITB)

Manfred Kamphaus (EBU)

Jan Veldman (ESO)

Michael Gierke (BAG)

### NEA CONSUTLING / PANTEIA

Hans Visser

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