

# MARKET OBSERVATION



2007 - 2

*for inland navigation in Europe*



Central Commission for  
Navigation on the Rhine



European Commission  
Directorate-General for  
Energy and Transport



# **Observation of the market – No. 6**

**Report on economic conditions  
at the end of 2007 / start of 2008**

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## General introduction

This publication is a report summing up the present situation, in May 2008, and the prospects for both supply and demand.

Apart from the transport of goods, transport on inland waterways also includes the transport of passengers. As the transport of passengers was not taken into account in previous publications, although this is a specific segment of the market that uses inland waterways in the same way as the transport of goods. The transport of passengers will henceforth be taken into account regularly in the observation of the market, particularly as the river cruise segment has developed significantly in recent years.

Furthermore, many new highly productive constructions have been put onto the market whereas a very small number of vessels have been withdrawn. In view of the structural consequences of this for the balance of the market, future publications will include information on the new capacity available. However, since the corresponding data is not in itself sufficient to define the characteristics of the market for transport on inland waterways, the concept of an instrument that makes it possible to monitor the evolution of the situation of the market has been under development since 2005, and it has thus been possible to obtain initial information allowing an appreciation of this evolution. In future publications, this evaluation model will make it possible to present the evolution of the balance of the market in the various segments over the previous five years.

## Executive summary

Although not all the figures are available as yet, it may already be considered that in 2007 transport by inland waterways in Europe carried more goods than in 2006 (amounting to approximately 500 million tonnes according to Eurostat). For dry goods, the progression may be estimated at approximately 4%, whereas for liquid goods, there has been a decrease in the order of more than 3%. In 2007, transport on inland waterways took advantage overall of water conditions that allowed often optimum operation of vessels.

In order to arrive at the correct value, consideration must be given to the progression in volumes transported by inland waterway in a wider context, namely that of overland transport on inland waterways. Transport on inland waterways is undeniably important in the "traditional" sectors of liquid and bulk products, because of the large volumes to be transported. In the container sector, however, competition is plurimodal. It has to be said that the rate of growth in container transport (approximately +3% in 2007) on inland waterways is substantially lower than the rate of growth of transshipments in the sea ports (>9%), which gives an indication of the evolution of the market share of transport on inland waterways. In this sector, this mode of transport is losing ground in comparison with the other modes, as a result of the problems encountered with transshipments in the sea ports, which are no longer able to cope with the rush of containers to be handled.

The prospects for the activity remain good in 2008 in the iron and steel, building, chemicals and coal sectors. Transport of oil-based products will remain stagnant, and dependent on the evolution of prices on the oil market. Demand for the transport of containers should continue its strong growth in direct relation to the massive arrival of containers in the sea ports. Despite favourable prospects in the main client sectors, it is still difficult to estimate the effects the expected economic slow-down will have on transport on inland waterways.

The economic weight of the transport of passengers, which constitutes a separate segment of transport on inland waterways, continues to increase. While day trips constitute a market that has been in existence for some time and is relatively stable, the market for cruises has increased by about 5% over the past few years, and this trend could well continue. This segment currently represents a fleet of almost 200 large vessels, with at least 25 000 beds; the main States of registration for the vessels are Switzerland, Germany, France and the Netherlands.



*In terms of vessel operation, 2007 featured an increase in volumes transported in most segments, with a transport price level also tending to increase. The concordance of these elements should not however lead to the conclusion that operators' profits have increased in the same proportion. The increase in income has in fact been accompanied by an increase in operating costs that affects the sectors of the transport of both dry and tanker goods almost equally. Thus there has been an increase in interest charges (these have doubled since 2005), salary costs (+6% since 2006) and maintenance costs (+12% since 2004). In recent years there has also been an increase in the price of vessels, which affects overheads (with a 5.6% increase in insurance premiums since 2004). Lastly, the cost of fuel has increased considerably as a result of oil prices (+80% in six years).*

*In 2007, approximately 60 new vessels (totalling more than 165.000 tonnes) were commissioned for the transport of dry goods and containers. Most of these new vessels are very large. Over the past five years the capacity of the fleet of vessels for transporting dry goods has increased by 1.7% per year, and at the same time the volumes transported have increased by a figure in the order of 2% per year. Thus the increase in the tonnage of this part of the fleet (involving 10 400 self-propelled vessels and barges with a global tonnage of 11.4 million tonnes) is more or less following the increase in the volumes transported. The situation is different for tanker vessels. In this case, the volumes transported have decreased*

*overall over the past five years, despite an increase in the transport of chemicals. Alongside this, the tanker fleet has continued its development and, in 2007 alone, capacity of more than 50.000 tonnes was added to the existing fleet. It should however be added that tanker transport is currently in a fleet renewal stage because of the requirements concerning double hulls. The overall tonnage of the tanker fleet in Europe may be evaluated at approximately 2.3 million tonnes and approximately 1.040 vessels.*



## Section 1

### Presentation of the situation of the market at the start of 2008

In recent months, and further to signs of a slowing down in economic growth in most European countries, economic forecasts have been revised downwards a number of times for the EU. For 2008, growth of no more than 2% is expected, compared with 2.7% in 2007. It is as yet impossible to determine to what extent demand for transport on inland waterways will be affected in the coming months by this general evolution in the economy. There was an increase in the volumes transported in western Europe during the first two months of 2008. The container sector is also continuing its strong growth. The forecasts are favourable for the coming months in the chemicals and steel sectors. The start of the year has also been favourable to the building sector. Although the construction of private-sector housing is suffering from restrictions on bank loans, public-sector building and civil engineering in general will not regress in the short term. The demand for transport from the coal sector should also remain steady at a high level, in view of the substantial level of activity in the steel sector and the very high price of fuel oil, with the consequence that power stations are increasing their consumption of coal. The transport of oil-based products continues to suffer from the fluctuations in the world market for oil. Faced with these extremely high prices, any increase – even fleeting – will probably be used to reconstitute stocks. It should however be stressed that the mildness of the past two winters has resulted in a drop in the consumption of domestic fuel oil.

#### 1. Arrivals in the main sea ports

##### ROTTERDAM

During the first quarter of 2008, handling in the port of Rotterdam increased by 105 million tonnes, representing an increase of almost 7% compared with 2007. This increase is the result mainly of trade with Asia, as trade with North America has dropped because of the high exchange rate of the euro. The containers sector developed strongly (+6%, from 2.5 to 2.7 million TEUs), but bulk agricultural products (+16%), iron ore (because of the price increase expected in April), scrap metal (+15% because of trade with Turkey), crude oil (+12%, including more particularly compensation for the drop recorded during the previous year), and other transport of liquids (+14%) were the decisive features of this growth. The transport of other liquids was boosted by imports of bioethanol from Brazil and biodiesel (B99) from the USA. Nevertheless, decreases were also noted – handling decreased for coal (-3%), for other bulk goods (-7%), for other oil-based products (-1%) and for other retail goods (-15%).

##### HAMBURG

Handling in Hamburg was marked during the first two months of 2008 <sup>1)</sup> by a significant increase of 9.3% compared with previous months (no data is available yet for March). This increase is mainly due to the containers segment. The handling of containers reached 1.7 million TEUs, representing an increase of 11.1% compared with 2007. Traditional retail goods also showed an increase of 1.3% (509 000 tonnes). However, the handling of bulk

1) no more recent data available

goods only achieved an increase of 8%, a result lower than that recorded during the same period of the previous year (6.6 million tonnes).

#### *ANTWERP*

In the port of Antwerp, handling increased by 3.4% during the first three months of 2008. The inland waterways transport sector developed well, recording an increase of 5%. This increase in handling was mainly due to ro-ro transport (+6.4%) and the transport of dry bulk goods (+8.3% for coal and ore). The handling of containers increased by 6% (2 075 050 TEUs). The new Deurganck dock contributed to the increase in volume, which reached almost +40%. Car business also recorded a substantial increase, at 10.2%. The handling of steel-based products and iron ore from China and India recorded a substantial drop (-11.6%) compared with the first quarter of 2007. The handling of fruit also fell (-3.8%). Conventional / breakbulk transport fell back by 13.3%, stabilising at 2006 levels. The handling of chemicals increased by 9%, and was as much as 15.2% for crude oils, whereas the handling of bulk liquids remained stable because of a drop in the volume of oil-based products handled.

#### *AMSTERDAM*

During the first quarter of 2008, handling in the ports of Amsterdam (Velsen/Umuiden, Beverwijk, Zaanstad and Amsterdam) increased by 2.7% compared with the previous year, reaching a total volume of 22.5 million tonnes. The biggest increase was recorded for oil-based products (+13%) while the coal sector saw a drop of 12%. Handling in the port of Amsterdam increased by 7.6%, reaching 18.1 million tonnes, particularly because of the increase in both the handling of oil-based products (+17%) and the ro-ro activity (+43%).

#### *BREMEN (BASED ON PROVISIONAL FIGURES)*

Between January and March, activity in the port of Bremen (including Bremen City) was 8.3% more than during the first quarter of 2007. Parcel handling was with +9.6% responsible for a good deal of this increase. Container handling increased by 12.5% (with a total of 1.3 million TEUs). Containers currently represent almost three-quarters of the port's activity. The transport of automobiles, which constitutes a strategic segment for this port, increased by 6.3% during the first quarter, reaching a figure of 500 000 units. Among bulk goods, more coal and steel were handled, while the handling of ore in particular recorded a decrease.

#### *LE HAVRE*

Handling at the port of Le Havre increased by 6.8% during the first four months of 2008. This increase is mainly due to the increase in imports, which increased by 8.3% whereas exports increased by only 2.6%. Among imports, coal, gas hydrocarbons, cement and other solid cargo (including containers) increased in volume. Among exports, refinery products and other bulk liquid cargo dropped back, while other solid cargo (including containers) increased.

#### *ZEEBRUGGE*

The port of Zeebrugge recorded a positive result at the end of the first quarter in 2008. The increase was as much as 4.3% (in tonnes), while the containers segment achieved an increase of 15% (in TEUs). In the sector for the transport of dry goods, bulk goods and packages fell back (by 19% and 22% respectively), whereas the transport of liquid goods recorded an increase (of 18%).

## WILLEMSHAFEN

Over the first quarter of 2008, Wilhelmshafen recorded drops of 25% for exports and 10% for imports. The main reason for this was the decrease in imports of petrol and ethylene and a drop in exports of petrol, diesel oil, LPG and crude oil.

## 2. Demand for transport on the main routes

### ON THE RHINE ROUTE

During 2007, the volumes transported on the Rhine increased by 2.6%. During the second half of 2007, this increase reached 1.3% compared with the second half of 2006. On the basis of the data available for the first two months of 2008, it may be concluded that the increase in volumes transported will continue to increase by more than 2% compared with the previous year.

For the transport of dry goods, 2007 and the first few months of 2008 showed relatively strong demand for transport. In 2007 this took the form of a 4.4% increase in the total volume transported. All types of goods were involved in the increase. The steel sector took the lead, with an increase of 15.7%, but container transport also recorded good results, with an increase of 7.5%. For container transport, it should be emphasised that the increase of 7.5% in volume corresponds to an increase of barely 2% in terms of TEUs, because of the increase in the proportion of full containers carried on the Rhine, which increased more than the average.

Despite strong demand from the chemicals industry, the volumes transported by tanker vessel dropped back by 3.5% in 2007. For the transport of oil, the drop was more than 10%, whereas the transport of chemicals increased by slightly more than 10% because of strong activity in the sector. According to the industry's forecasts, the sector should be continuing its growth in 2008. On the other hand, the oil market will continue to suffer from the developments in the global market in this sector. The currently extremely high prices mean that consumers are tending to postpone purchasing.

### ON THE NORTH-SOUTH ROUTE

According to the data on handling in the sea ports and inland ports in Belgium, the increase in volumes reached more than 3% in 2007. Detailed data was not available at the time of drafting the present publication.

### ON THE EAST-WEST ROUTE

The total volume transported increased by approximately 2.9% on the Mittelland Canal. The increase was brought about mainly by iron and steel products (+61.7%), construction materials (+18.1%) and coal (+5.4%). On the other hand, the transport of oil products fell substantially (-22.8%) because of the high prices on the world market.

### ON THE UPPER REACHES OF THE DANUBE

According to the initial results for the German section of the Danube, the favourable evolution of the transport of goods continued in 2007 on the Main-Danube route, with an increase in volumes transported of 2.9% on the Main and 6.5% on the Main-Danube canal. The volumes transported increased here by 2.1% (in tonnes). In Austria, volumes transported increased by 11.6%. This increase is mainly the result of the intensity of international traffic with Slovakia (ore and metal scrap) and the Ukraine.

### 3. New transport capacity on the market

According to the indications provided by the IVR, 160 000 tonnes of new transport capacity came onto the market for the transport of dry goods during 2007.

80% of these new self-propelled goods vessels have capacity of more than 3 000 tonnes; 16% of them have capacity of between 2 000 and 3 000 tonnes. 60% of new pusher barges have capacity of between 2 000 and 3 000 tonnes. The remainder have either more (more than 3 500 tonnes) or less (less than 1 500 tonnes).

In all, approximately 350 dry goods vessels were put onto the market between 2002 and 2007, two-thirds of them being goods vessels and the remaining third being pusher barges. This corresponds to capacity of 800 000 tonnes, corresponding to an increase of approximately 8.6%. In annual terms, this indicates an increase of approximately 1.7%. This evolution in the offer of transport capacity should be set alongside the evolution of the volumes transported on the Rhine, which achieved annual growth in the region of 2% between 2002 and 2007, taking cyclical fluctuations into account.

For tanker transport, approximately 60 000 tonnes of new capacity came onto the market. This is broken down as follows for the various tonnages: 30% of the vessels had capacity of less than 2 000 tonnes, 35% had capacity of between 2 000 and 3 000 tonnes, and approximately 35% had capacity of more than 3 000 tonnes. Between 2002 and 2007, capacity increased by more than 600 000 tonnes. This corresponds to an annual increase of more than 6.5%. This increase in available capacity should be set alongside the stagnation in the volumes of goods transported by tanker vessels. The decrease in the sector of oil-based products is in fact so great that it cannot be compensated for by the substantial increase in the chemicals sector (one-third of the total volume transported). However, the situation on this market cannot be compared to that of the transport of dry goods, since the fleet is in the process of being restructured to adapt it to the demands of users and to future regulations on protection of the environment.

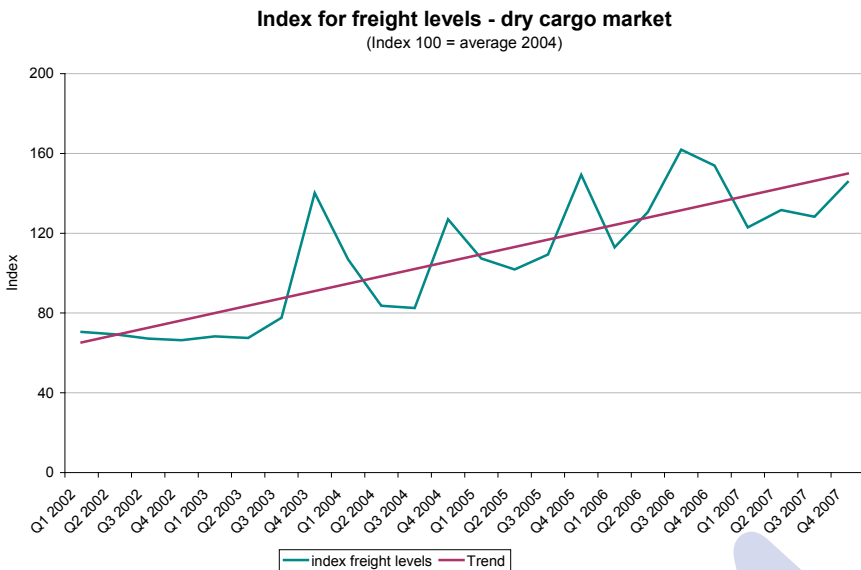
Two questions are nevertheless raised – to what extent is the speed at which new constructions are being made available sufficient to allow observance of the interim deadlines prescribed by the ADNR (and by the ADN in the short term), and to what extent can the market bear this conversion?

## Section 2 Economic aspects

### 1. Evolution of prices for transport and of volumes transported

#### 1.1 Transport of dry goods

In both 2006 and 2007, the evolution in the price per tonne of dry goods transported was in an upwards direction. The graph below illustrates this evolution. In general, there was an increase in demand for the transport of dry goods during the two years mentioned. Freight levels maintained a relatively high level despite average - and hence satisfactory - water conditions. However, these higher transport prices are gross; they include the effects of the fuel oil surcharge clauses that are having an increasingly substantial effect on the profits earned by transport in the present economic situation. Thus the increase in the price of fuel oil has repercussions to some extent on the increase in the price of transport and may involve price increases during periods of low water.

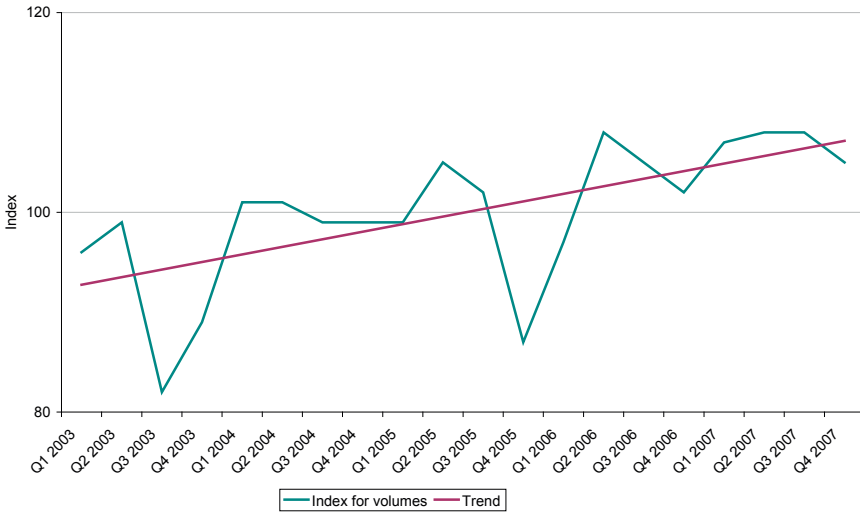


Sources: NEA; CCR Secretariat

There was a favourable trend in the volumes of goods transported by dry goods vessels on the Rhine.

### Index for transported volumes of dry cargo (Rhine)

(Index 100 = Average 2004)



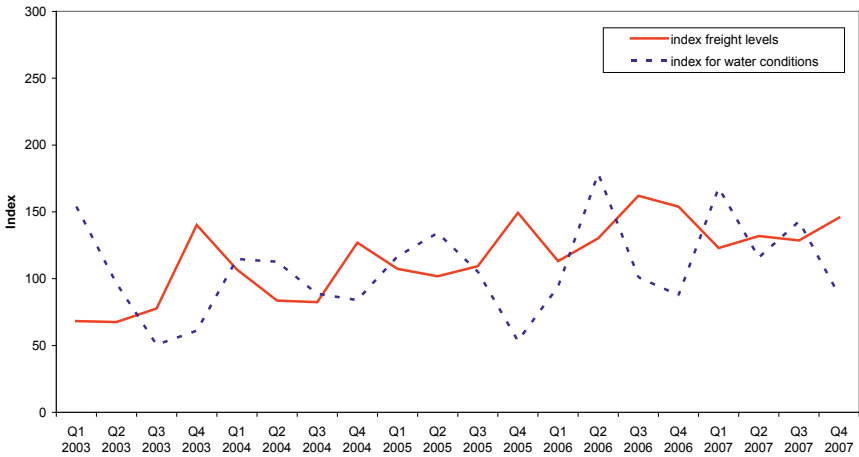
Source: CCR Secretariat

The correlated evolution of water conditions and transport prices is illustrated in the following graph.

There has also been a continuous increase in transport prices and volumes. This makes it possible to conclude that there has been an improvement in the economic situation in recent years.

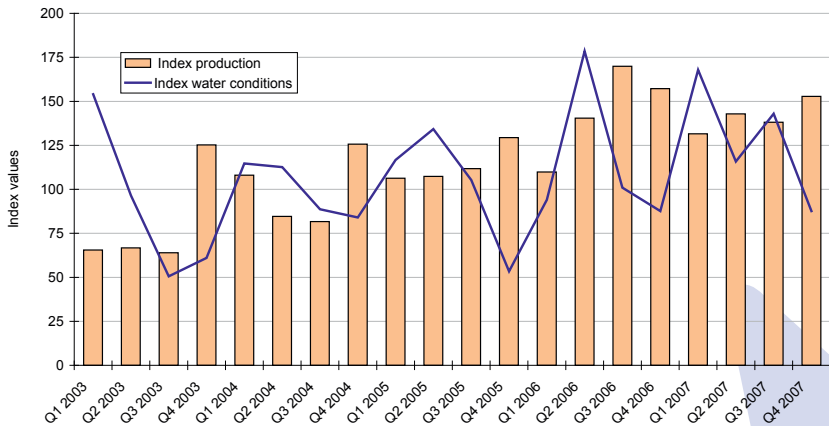


**Indexes for freight levels and water conditions for dry cargo** (quarterly)  
(Index 100 = average 2004)



Source: CCR Secretariat

**Indexes for water levels and production on the dry cargo market** (quarterly)  
(Index 100 = average 2004)



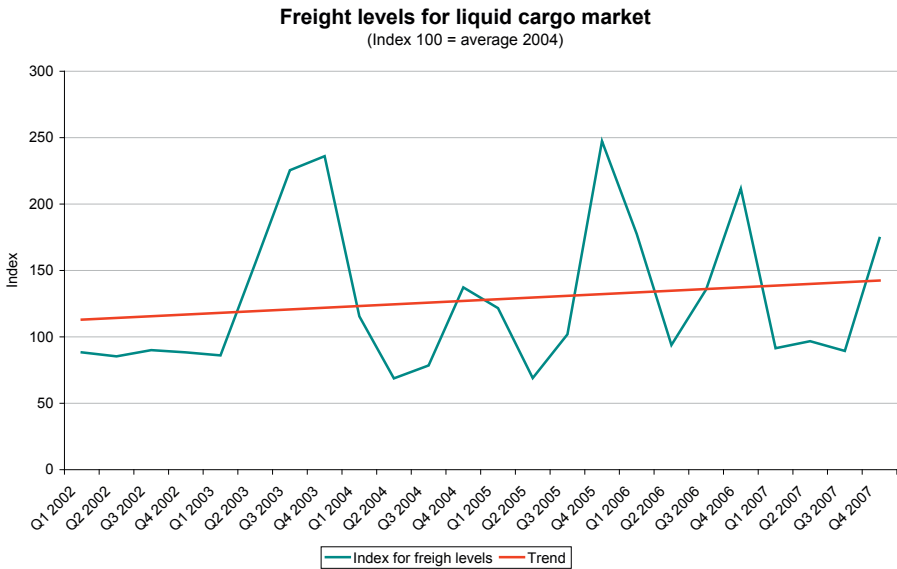
Source: CCR Secretariat

## 1.2 Tanker transport

In general terms, tanker vessels are used for two segments of the market – the transport of chemicals, and the transport of oil-based products. For these two segments, the evolution in demand has diverged substantially in the past two years. The trend is upwards for demand for the transport of chemicals whereas it is downwards for the transport of oil-based products.

In the chemicals sector, the evolution in the price of transport has been similar to that recorded for the transport of dry goods.

In the market for oil-based products, transport prices fluctuated considerably in 2006. These fluctuations are directly linked to those for demand at the moment. In 2007, however, transport prices remained relatively stable because of low demand and the very high price of oil on world markets. Water conditions were satisfactory, so there was no reason to increase transport prices.



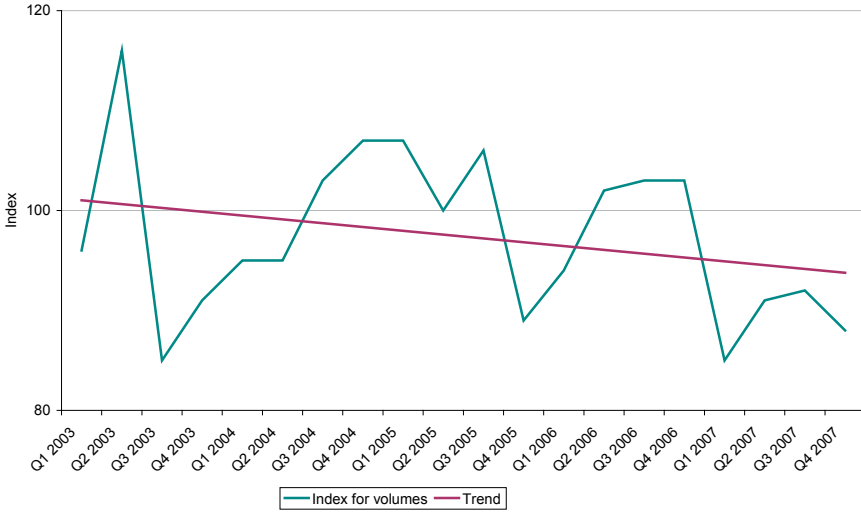
Sources: CCR Secretariat - NEA - P J K International b.v.

This index has been drawn up on the basis of the price of transport for the various oil-based products on the various sections of the Rhine. As for the transport of dry goods, it has suffered the effects of the fuel oil surcharge clauses provided for in the contracts and any price increases for periods of low water.

As for the transport of dry goods, appreciation of the evolution in turnover for tanker transport needs to take account of the volumes transported. The following graph shows the evolution over the past five years on the Rhine, which is the waterway used for most of the transport of this type.

### Index for transported volumes of liquid cargo (Rhine)

(Index 100 = Average 2004)

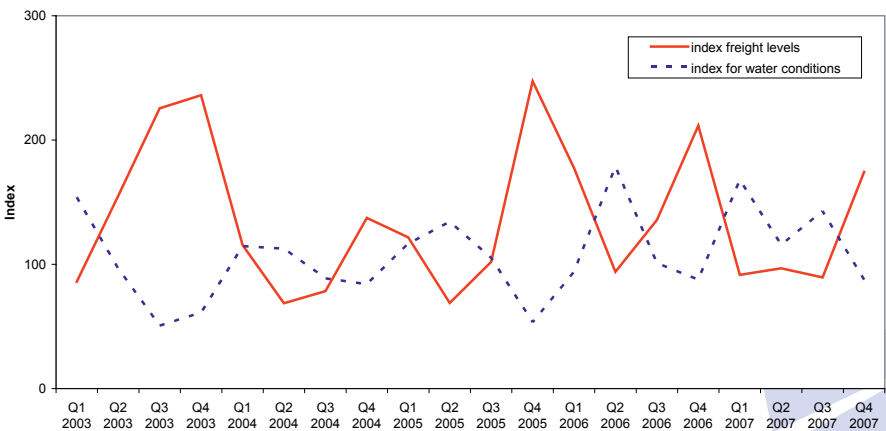


Source: CCR Secretariat

The chart below illustrates the interaction of water conditions and the price of transport.

### Indexes for freight levels and water conditions for liquid cargo (quarterly)

(Basis 100 = average 2004)

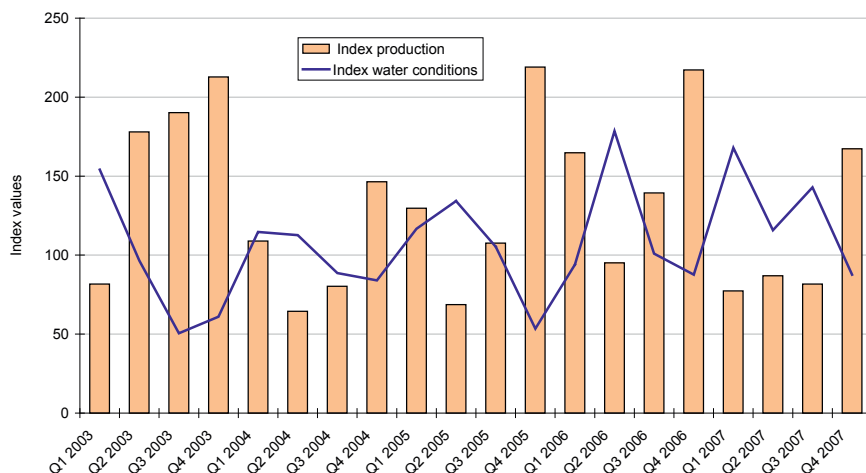


Source: CCR Secretariat

At the same time, tanker transport has recorded a drop in volumes transported and a slight tendency towards an increase in transport prices. On the basis of this it may be concluded that profits will be lower in 2007. However, the result concerns mainly the transport of oil-based products, as the evolution of the chemicals sector has been positive. It should nevertheless be borne in mind that the sector of oil-based products represents more than two-thirds of the volumes transported by tanker vessels.

### Indexes for water level and production on the liquid cargo market

(quarterly) (Index 100 = average 2004)



Source: CCR Secretariat

## 2. Evolution in operating costs

### 2.1 Price of vessels

In general, there has been a visible increase in the cost of vessels in recent years. This concerns new constructions above all and is partly the result of strong demand for new constructions and the high price of steel. This increase in the price of new vessels also provokes an increase in the price of second-hand vessels. Thus the price per tonne of available capacity increased by more than 40% between 2003 and 2007. In terms of operating costs, this increase in the price of vessels affects a number of headings, the first being interest, since the acquisition of a vessel calls for more substantial borrowing. Moreover, this increase in the price of vessels also results in an increase in the cost of insurance, as the value to be covered is higher.

In order to appreciate the evolution of operating costs, a calculation has been made according to the following model, taking 2004 as the base year. It offers a theoretical breakdown of costs for a vessel with a capacity of 2.500 tonnes.

## Structure of costs for new self-propelled vessels

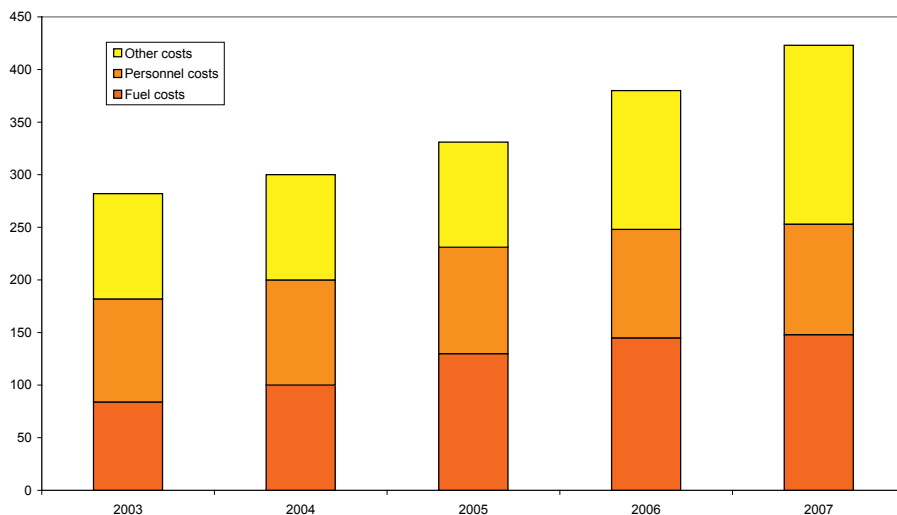
2004		self-propelled vessels (individuals)	self-propelled tanker vessels (shipowners)
<b>Cost of fuel</b>		20 %	18 %
<b>Cost of salaries and personnel</b>		40 %	42 %
<b>Other costs</b>	Interest	40 %	40 %
	Insurance		
	Maintenance		

Source: CNR Secretariat

Indexes	2003	2004	2005	2006	2007
<b>Cost of fuel oil</b>	84	100	130	145	148
<b>Cost of salaries and personnel</b>	98	100	101	103	105
<b>Other costs</b>	100	100	100	132	170
<b>Global annual index for costs and transport of dry goods</b>	<b>96,0</b>	<b>100,0</b>	<b>106,4</b>	<b>123,0</b>	<b>139,6</b>
<b>Global annual index for costs of tanker transport</b>	<b>94,3</b>	<b>98,0</b>	<b>103,8</b>	<b>120,1</b>	<b>136,6</b>

Source: CCR Secretariat

### Evolution of the cost for inland navigation



Source: CCR Secretariat

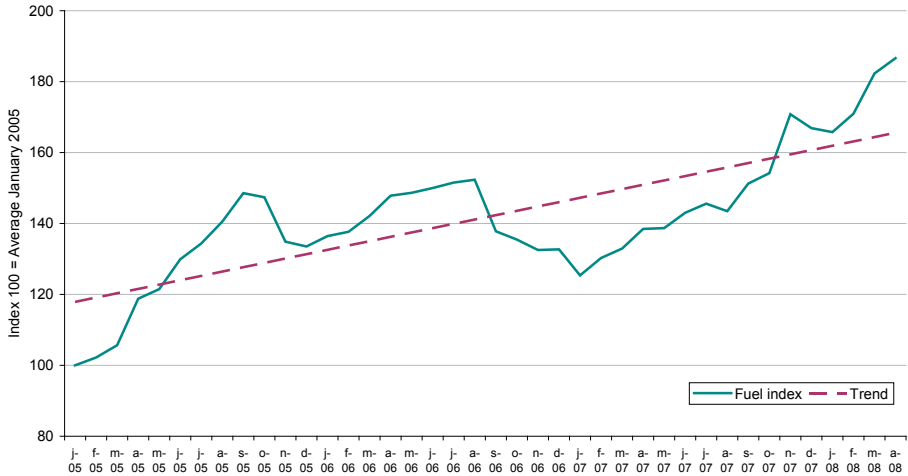
## 2.2 Brandstoffkosten

The main increase in the price of fuel oil occurred in 2005. The price of fuel then stabilised at a high level during 2006. Over the second half of 2006, there was even a decrease of approximately 15% for a short period of time.

In 2007, fuel prices increased continuously and this increase even accelerated over the closing months of the year and even more at the start of 2008.

It may be concluded from observation of the global market for oil over the past three years that there will be no lasting and significant drop in prices and that this cost heading will occupy an increasingly large proportion of operating costs. This high level of prices constitutes a particularly important cost heading in those sectors where there are no fuel oil surcharge clauses.

## Evolution of the price of fuel



Source: CBRB

## Average annual values <sup>2)</sup>

Year	2002	2003	2004	2005	2006	2007	2008
Price of 100 litres in euros	28,50	30,07	35,88	46,67	52,12	53,16	64,64

Source: CBRB

Over the past six years the annual average price of fuel oil has risen by more than 80%.

For the first four months of 2008, the increase was 12%. The average price over these four months is approximately 20% higher than the average price in 2007.

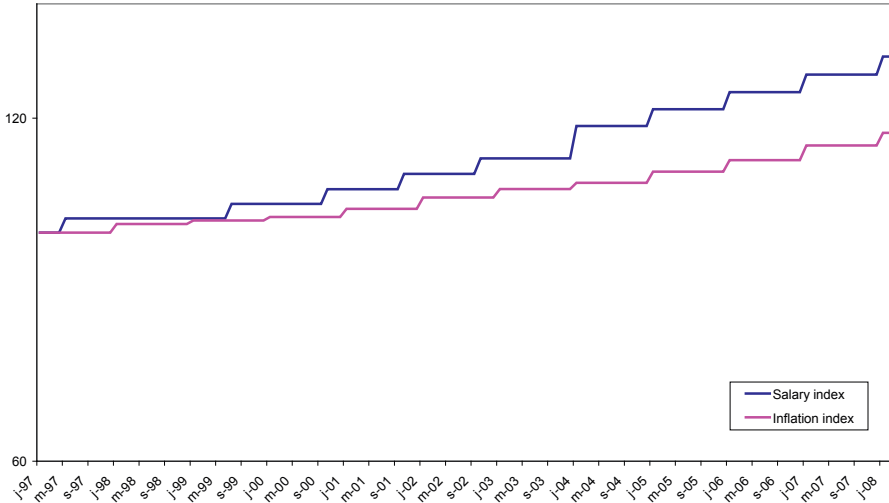
In view of the current context and recent developments, it is expected that the price of vessel fuel will continue to rise in 2008.

2) NB : These values only reflect trends.

## 2.3 Charges for personnel

The evolution of the cost of personnel is analysed initially on the basis of an index drawn up by the Arbeitsgeberverband der Deutschen Binnenschifffahrt (ADB / German association of employers in transport on inland waterways). The base value (100) of this index corresponds to the value at 1 January 1990.

Salary costs compared to inflation



This graph shows that, since 2004, salary costs have increased much faster than inflation. It should be noted that salary costs increased by more than 6% between 2006 and the start of 2008. These salary costs are affected more particularly by the demand for labour, which is becoming much harder to find. This trend is likely to become even more marked in coming years.

## 2.4 Cost of maintenance <sup>3)</sup>

This index is drawn up on the basis of the cost of steel and average hourly wages.

The cost of materials is estimated at 20%, whereas salary and other costs are estimated at 80%.

<sup>3)</sup> Information on the evolution of the cost of maintenance has been provided by ITB in the form of an index, drawn up on the basis of surveys carried out among professionals in Belgium.

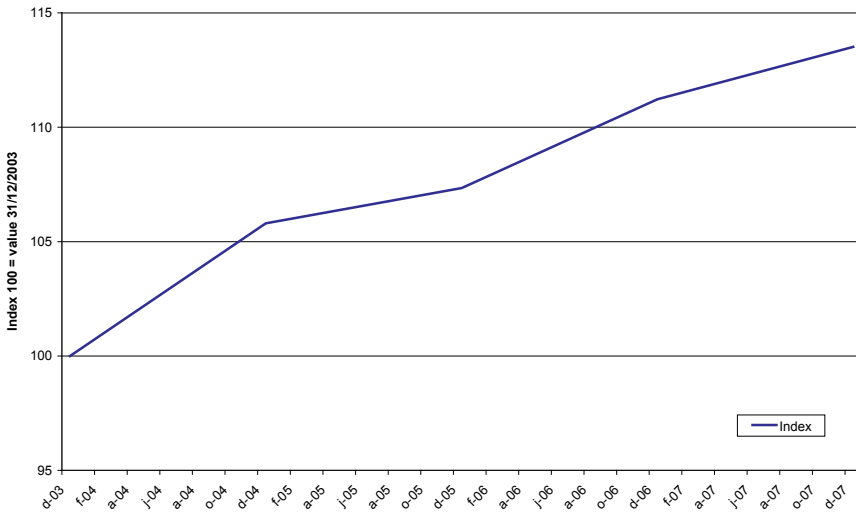


## Index for cost of maintenance

Date	Index
31/12/2004	100,0
31/12/2005	101,5
31/12/2006	105,1
31/12/2007	107,3

(Base 100 at 31 December 2003)

### Index for cost of maintenance for inland navigation



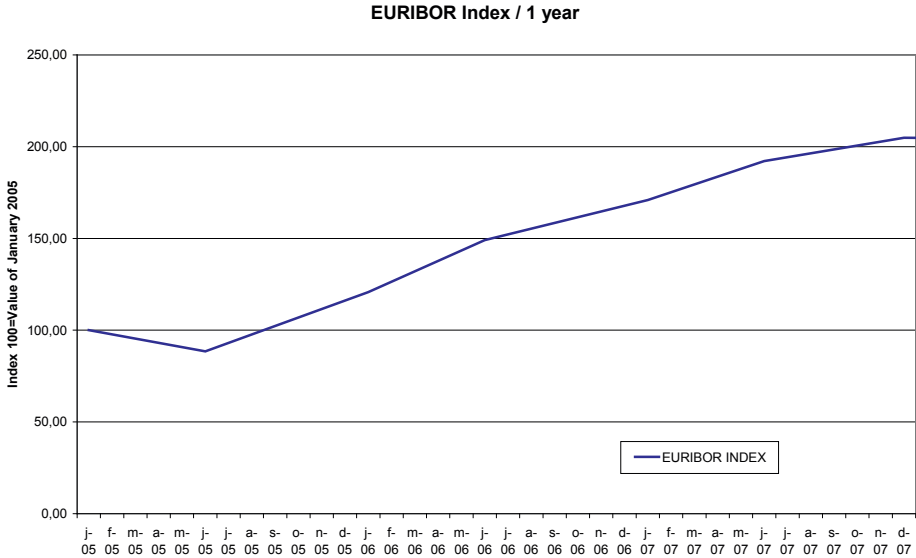
Source: ITB

This graph shows an increase in maintenance costs of approximately 12% over the past three years. Strong demand at shipbuilding yards concerning the maintenance, construction and refitting of vessels results in an increase in maintenance costs. The high price of steel also has an effect.

In view of the determining factors to be taken into account, it is probable that this trend will continue in the near future.

## 2.5 Financial charges

The evolution in the cost of interest is appreciated by using an index based on the Euribor (one year) rate. This index takes the place of a reference value for determining the interest rate for most loans taken out for transport on inland waterways.



This shows very clearly that interest rates have increased considerably since 2005. Interest rates doubled between January 2005 and January 2008. This evolution affects new investments and variable rate borrowing.

Remark: For financing the purchase of vessels, account must also be taken of the fact that vessel prices have increased by more than 40% over the past four years, and this is reflected in both the amounts borrowed and the amount of interest.

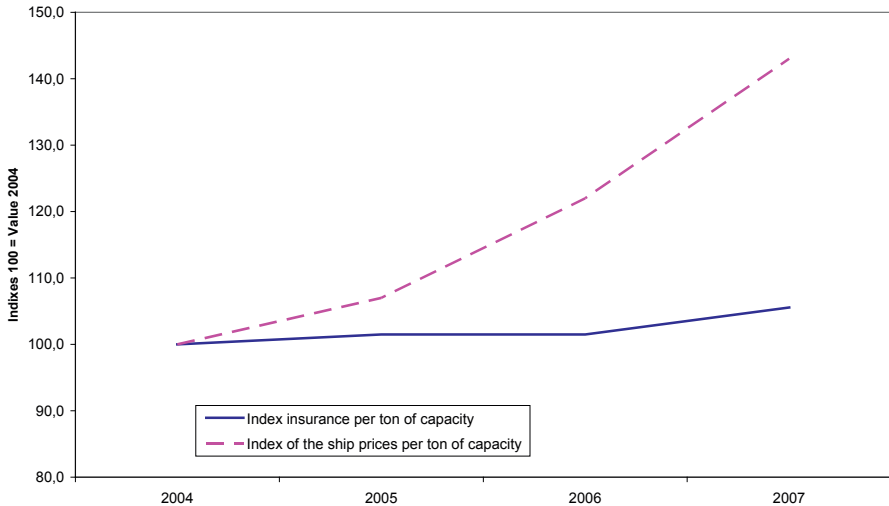
## 2.6 Insurance costs

The evolution in the insurance heading is appreciated on the basis of two references:

- evolution in the insurance value per tonne of transport capacity for a given type of vessel (new vessel), and
- evolution in the insurance premium per tonne of transport capacity.

These two variables are presented in the form of an index.

## Insurance costs (value and premiums)



Source: CCR Secretariat

This graph presents the evolution in insurance costs. The blue index shows the evolution in insurance premiums for a given value, and it shows that premiums have increased by about 5.6% since 2004.

The second index shows the evolution in the price of new vessels. It is based on the example of a vessel 110 metres long built in China. Experience shows that the cost of fitting out is evolving in a similar fashion. According to this index, the value of a new vessel has increased on average by more than 40% over the past four years. This evolution has also affected the price for selling older vessels. Theoretically, the insured value is increasing proportionately. The increase in insurance premiums is linked to the evolution in the values to be insured. This shows that the increase in the cost of insurance noted over the past four years is mainly the result of the increase in the values insured.



## Section 3

### Passenger transport

#### Introduction

Passenger transport is part of commercial transport on inland waterways and lakes. It traditionally includes both day trips and transport with accommodation. These two segments have specific geographical and functional features, and their market is undergoing a dynamic process of extension. Coastal transport is a very interesting new market segment in economic terms, situated between true river cruising and sea cruising.

Demand for transport capacity, based on the number of passengers carried, can only be appreciated directly by the profession concerned. Contrary to data on the transport of goods, States do not generally have data on the transport of passengers available.

The capacity of available transport may be determined on the basis of the number of vessels in existence and their capacity. The following tables provide initial indications. These indications are taken from the official registers of vessels in the States concerned. The fleet is sub-divided into two main segments – day-trip vessels, and cruise vessels.

<i>Day-trip vessels by State, in 2006</i>	<b>Number of vessels</b>	<b>Seats on board</b>
<b>Germany</b>	955	237402
<b>Belgium</b>	149	6162
<b>France (*)</b>	303	45035
<b>G.-D. of Luxembourg</b>	4	1250
<b>Netherlands</b>	708	177000
<b>Switzerland</b>	8	1735
<b>Total</b>	<b>2127</b>	<b>468584</b>

Cruise vessels by State, in 2006	Number of vessels	Seats on board
Germany (**)	58	6675
Belgium	0	0
France (*)	87	4640
G.-D. of Luxembourg	0	0
Netherlands (***)	180	23400
Switzerland (**)	44	4947
<b>Total</b>	<b>369</b>	<b>39662</b>

Sources: national waterways transport administrations

Observations:

- For 2007, the 369 units include 195 “modern” cruise vessels with capacity of approximately 25 000 beds. (Source: Hader&Hader “The River Cruise Fleet Handbook 2007/08”.)
- (\*) For France, the data is for 2003, as more recent data was not available. The “cruise vessel” category also includes old barges now used for tourism purposes.
- (\*\*) Expressed as the number of beds.
- (\*\*\*) Expressed as the number of passengers.
- For the Netherlands, the number of cruise vessels also includes what is called the “brown fleet” (passenger sailing vessels) as well as old barges now used for tourism purposes.

The two main segments referred to above may be subdivided as follows:

**Cruise vessels** are characterised by the presence of cabins and beds, and include:

- **cabin vessels:** vessels fitted with cabins and beds that are used for travel, and floating hotels operated while moored at a quay;
- **the “brown fleet”:** former commercial sailing ships currently operated in coastal areas and on lakes for tourism purposes;
- **former commercial vessels:** usually operated on canals for cruises with overnight accommodation;
- **coastal cruising vessels:** cruise vessels operated along the coastline.

**Day-trip vessels**, fitted out for shorter journeys, usually lasting less than one day; these may be subdivided as follows:

- **Day-trip vessels:** vessels intended for day trips, usually offering meals on board. These vessels are usually also used for festive occasions. There has also been an increase in the number of events (theatre, music, or product presentation) and special out-of-season trips (in the run-up to Christmas, New Year). This trend has been confirmed by the modern design of the vessels (gallery vessels, etc);
- **Small excursion vessels:** these are small vessels intended for short excursions;
- **Fast vessels and ferries:** these are vessels that carry passengers from one point to another, and often form part of a public transport service.

(\*) Some all-in offers combine excursions on day-trip vessels with overnight accommodation on land.

The segment that has developed most strongly in recent years is that of cabin vessels. This segment of the market still has much potential for development, and this is also the case for coastal excursion vessels and, in those regions where tourism is not yet particularly developed, for day-trip vessels.

The situation is relatively stable in the day-trip excursion vessel segment, which is a traditional area of transport on inland waterways. In those States where the fleet is large, the segment has developed turnover and capacity constantly by extending the traditional seasonal offer (source: EBU passenger transport commission).

According to the estimates of the *Bundesverbandes der Deutschen Binnenschifffahrt* (federal association for transport in German inland waterways), 15 million passengers each year take a day trip on an excursion vessel in Germany, the country that has the largest fleet of this type of vessel. The main targets in the market are families, the elderly, and groups. The market on the Rhine features a large number of foreign travellers.

## 1.2 Cruise transport

The importance of the market for river cruises can be estimated by examining the fleet operated over the entire continent of Europe, as these vessels – with very few exceptions – are not necessarily attached to specific waterways. The number of these vessels has risen constantly in recent years. Their number doubled between 1970 and 1990, increasing from 30 to 60 units. Between 1990 and 2000 the number increased from 60 to 105. The most substantial increase was recorded between 2000 and 2004, with an increase from 105 to 177 vessels (source: IG River Advice Basel). In 2007, there were 195 vessels in the fleet within the European Union, with more than 25 000 beds (source: Hader and Hader). Most of the vessels in this segment are registered in Switzerland, the Netherlands, Germany and France. In 2004, 44 vessels were operated under the Swiss flag, 40 under the German flag, 36 under the Dutch flag, and about 30 under the French flag (source: IG River Advice Basel).

This market has been extremely successful on the Rhine, and in recent years has extended to other regions of the European Union. Since the main interest of a river cruise is the cultural aspect, the scenery, and nature along the route, the number of inland waterways that can be used is relatively limited. Cruises are currently being offered on the main European rivers, including the Elbe, the Seine, the Moselle, the Rhine, the Danube, the Rhône, the Douro, the Guadiana and the Vistula. The season extends from March to October. November is generally a quiet month, but vessels are sometimes rented as floating hotels at the end of the season. There are usually Christmas-themed cruises in December. Bookings are usually taken throughout the year from companies for trips for employees. Thus there are usually 240 days of transport over the year. The average number of passengers carried is currently 140, with a crew of 25 to 35.

Since these cruises were launched, the target public has been that with an above-average income, with time to spend on leisure and an interest in culture. Typical travellers are therefore well-off, well-educated couples over the age of 50. Visitors come from all over the world, but an evolution has been noticeable over the years. Americans have always constituted

an important group (and indeed the main group in France). In 2006, French cruise vessels carried approximately 150 000 passengers (source: Odit). German and British travellers (the latter now able to travel to continental Europe using low-cost flights) have always been well-represented. In 2007, 300 000 Germans took a river cruise, either in their own country or elsewhere (source: Transocean Bremen). The number of Australians is increasing, and the – lower – number of Japanese and Chinese remains stable. Much is expected from travellers from India, who usually have more time available when they visit Europe.

The market for river cruises generates important added economic value for the sector. The turnover for the German companies reached more than 250 million euros in 2005, for 2,6 million passengers carried (source: IG River Advice Basel). In 2005 the German company Transocean achieved turnover of 21 million euros with river cruises, having carried 17 000 passengers. The money spent by passengers each time the boats moor has an effect on the national and regional economies, particularly in towns. Each time a vessel moors in a town, each tourist spends 32 euros on average (source: Transocean Bremen). Another example – in 2003, river and sea cruises represented turnover of 51 million euros for Amsterdam and the surrounding area. The number of visitors is sometimes considerable – in 2004, 698 river trip vessels carrying 87 830 passengers moored in Amsterdam (the number increased to 170 000 passengers in 2007).

### **1.3 Potential for development**

The international market for river cruises has continued to develop in recent decades, and is now a flourishing sector. The market has continued to expand in recent years, with an annual increase of 5 to 7%, and has still not reached saturation point. The number of people who have already taken a cruise is probably about 1% for Europeans and about 3% for Americans. This means that there is still considerable potential, particularly as many passengers take more than one cruise and the target public continues to grow as the population ages.

In view of the forecast growth, the fleet continues to expand. As an indication, approximately 10 new vessels are commissioned each year on the European market, although this has slowed down slightly since 2006. New regulations and steel prices mean an increase in the cost of shipbuilding. The Dutch shipyards currently enjoy a dominant position for new constructions (source: Hader&Hader). In general, maximum draught and hence the water conditions of the rivers do not constitute a major problem for cruise transport. Nevertheless, the dimensions of the infrastructures limit the size of the vessels (height and width). In this context, care is taken to optimise the use made of the space available on the vessels. Economic reality obliges operators to increase the number of beds, sometimes to as many as 160, to be able to reach the necessary profitability threshold. There is the fear in this respect that the smaller vessels will disappear from European waterways, as it is not profitable to adapt them to meet modern requirements (lifts, comfort, sanitary facilities, security, etc) (source: IG River Advice Basel).

A new concept that is developing rapidly is called coastal cruising. These cruises combine river and sea cruises. Sea cruise vessels are mass-produced and the possibilities for mooring are limited for these very large vessels. Coach trips are therefore generally arranged from the mooring ports. Coastal cruises use smaller vessels, offering a more personal ambience and making it possible to reach interesting sites directly, such as on the Mediterranean coast.



Here again, the interest of these cruises lies in the cultural offer on land and not in the activities available on board. Many companies are able to rely on their experience in river cruising and their networks to develop this concept of coastal cruising.

## Conclusions and prospects

### General evolution of the market in the first quarter of 2008

Volumes transported have continued their positive evolution during the first quarter of 2008. For most goods, the forecasts for the various sectors are favourable for the coming months. Prices were higher at the beginning of the year because of the water conditions. Over the first months of 2008, the market was also relatively active for tanker transport. Demand for the transport of dry goods dropped slightly during the spring, as the favourable water conditions of the initial months had made it possible to transport a large part of the stocks in sea ports to inland ports during that period.

### Evolution of capacity

- **Situation for the transport of dry goods**

Although the new capacity coming onto the market has better productivity, the evolution of the dry transport sector is not worrying, since demand in this sector follows a pace of growth in proportion to that of the offer of transport capacity. The average level of freight rates noted in recent years confirms this impression.

- **Evolution of transport by tanker**

Transport by tanker is in a restructuring phase. The demand for transport from the chemicals sector is increasing, while demand for the transport of oil-based products (two-thirds of the market) is regressing. Overall, demand for transport by tanker is stagnating. The increase in capacity in the form of double-hulled vessels and the fact that very few single-hulled vessels are being withdrawn from the market means that the situation could become worrying in the future. A relatively low average freight rate level for oil-based products appears to confirm this forecast.

- **Supervision of capacity**

In view of the number of new vessels that have come onto the market in recent years, it appears to be important to establish an instrument on the basis of which it would be possible to monitor the evolution of the balance of the market (offer of and demand for transport), taking the main factors into account. Given that all the necessary indications are not available, particularly as regards the Danube sector, this instrument will be established initially for western Europe. Preliminary results covering the last five years will be available in the course of 2008.

## 2007 operating year

- **Costs**

In general, there was an increase in costs for the main headings during 2006 and 2007. The biggest increases were in diesel fuel oil and interest rates. Maintenance costs and salaries also increased because of strong demand and a shortage of personnel.

- **Income**

2006 and 2007 were favourable for the transport of dry goods because of strong demand and freight rates stabilising at a relatively high level because of favourable water conditions. Tanker transport saw a slight increase in volumes transported in 2006, although freight rates suffered from the considerable fluctuations that are a feature of this market. 2007 was very quiet for this segment until the autumn. Demand has been low and, because of satisfactory water conditions, freight rates stayed at a low level. The market only rallied slightly at the end of 2007 and early 2008.

# Appendices

## New buildings at the end of 2007

Type of vessel	2002			2003			2004		
	Number	Capacity	kW	Number	Capacity	kW	Number	Capacity	kW
<b>Motorvessels for dry cargo</b>	45	113114	56138	34	89676	41894	28	71326	34400
<b>Push barges</b>	29	37180		28	78156		14	23636	
<b>Total</b>	<b>74</b>	<b>150294</b>	<b>56138</b>	<b>62</b>	<b>167832</b>	<b>41894</b>	<b>42</b>	<b>94962</b>	<b>34400</b>
<b>Motortankervessels</b>	22	65548	30547	45	131455	50332	54	139718	61236
<b>Tanker push barges</b>	2	178		1	1800		3	2427	
<b>Total</b>	<b>24</b>	<b>65726</b>	<b>30547</b>	<b>46</b>	<b>133255</b>	<b>50332</b>	<b>57</b>	<b>142145</b>	<b>61236</b>
<b>Pusher tugs</b>	2		1276	0		0	1		992
<b>Tugs</b>	3		11670	1		279	1		177
<b>Total</b>	<b>5</b>		<b>12946</b>	<b>1</b>		<b>279</b>	<b>2</b>		<b>1169</b>
<b>Cruise boats</b>	17		13251	10		7238	5		4021
<b>Day-trip boats</b>	9		4834	1		1566	1		662
<b>Total</b>	<b>26</b>		<b>18085</b>	<b>11</b>		<b>8804</b>	<b>6</b>		<b>4683</b>

Type of vessel	2005			2006			2007		
	Number	Capacity	kW	Number	Capacity	kW	Number	Capacity	kW
<b>Motorvessels for dry cargo</b> <b>Push barges</b>	34	87645	27490	33	93985	26637	35	111655	31460
<b>Vr.duwbakken</b>	12	11401		18	18385		29	54336	
<b>Total</b>	<b>46</b>	<b>99046</b>	<b>27490</b>	<b>51</b>	<b>112370</b>	<b>26637</b>	<b>64</b>	<b>165991</b>	<b>31460</b>
<b>Motortankervessels</b>	46	130860	43736	28	77565	24637	23	50333	16534
<b>Tanker push barges</b>	2	2527		0	0	0	0	0	0
<b>Total</b>	<b>48</b>	<b>133387</b>	<b>43736</b>	<b>28</b>	<b>77565</b>	<b>24637</b>	<b>23</b>	<b>50333</b>	<b>16534</b>
<b>Pusher tugs</b>	0		0	0		0	1		0
<b>Tugs</b>	0		0	0		0			
<b>Total</b>	<b>0</b>		<b>0</b>	<b>0</b>		<b>0</b>	<b>1</b>		<b>0</b>
<b>Cruise boats</b>	5		6280	4	1644	3186	2		1816
<b>Day-trip boats</b>	5		2832	2	1959	2244	1		1570
<b>Total</b>	<b>10</b>		<b>9112</b>	<b>6</b>		<b>5430</b>	<b>3</b>		<b>3386</b>

Type of vessel	total 2002 - 2007								
	Number	Capacity	kW						
<b>Motorvessels for dry cargo Push barges</b>	209	567401	218019						
<b>Motortankervessels</b>	130	223094							
<b>Total</b>	<b>339</b>	<b>790495</b>	<b>218019</b>						
<b>Motortankervessels</b>	218	595479	227022						
<b>Tanker push barges</b>	8	6932							
<b>Total</b>	<b>226</b>	<b>602411</b>	<b>227022</b>						
<b>Pusher tugs</b>	4	0	2268						
<b>Tugs</b>	5	0	12126						
<b>Total</b>	<b>9</b>	<b>0</b>	<b>14394</b>						
<b>Cruise boats</b>	43	1644	35792						
<b>Day-trip boats</b>	19	1959	13708						
<b>Total</b>	<b>62</b>	<b>3603</b>	<b>49500</b>						

Source: IVR

## Transport of containers on the Rhine (in TEUs) (from the Dutch border to Basel)

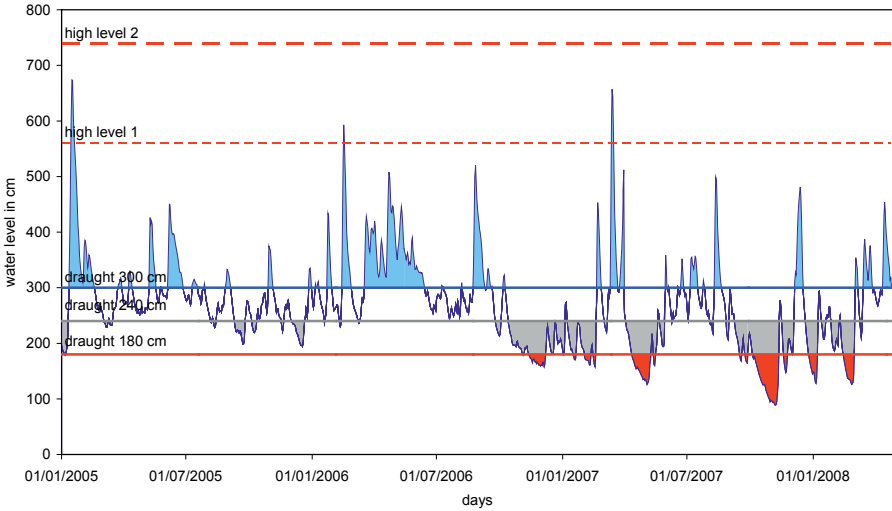
Years	Total	Rhine – downstream			Rhine – upstream		
		Total	empty	loaded	Total	empty	loaded
<b>Total for the traditional Rhine</b>							
<b><i>Rheinfelden Emmerich</i></b>							
2003	1541996	806501	119078	687423	735495	405396	330099
2004	1810669	957730	122601	835129	852939	489520	363419
2005	1960870	1025033	164259	860774	935837	536631	399206
2006	1935023	999765	109888	889877	935258	531729	403529
2007	1968958	1030018	121614	908404	938940	503465	435475
	<b>1,75%</b>	<b>3,03%</b>	<b>10,67%</b>	<b>2,08%</b>	<b>0,39%</b>	<b>-5,32%</b>	<b>7,92%</b>
<b>Upper Rhine</b>							
<b><i>Rheinfelden Strasbourg</i></b>							
2003	191520	94122	12561	81561	97398	55871	41527
2004	211926	108702	10440	98262	103224	59939	43285
2005	200346	106106	11697	94409	94240	50637	43603
2006	212934	113179	14608	98571	99755	51035	48720
2007	220721	111227	18039	93188	109494	50271	59223
	<b>3,66%</b>	<b>-1,72%</b>	<b>23,49%</b>	<b>-5,46%</b>	<b>9,76%</b>	<b>-1,50%</b>	<b>21,56%</b>
<b><i>Straßburg Neuburgweier</i></b>							
2003	238171	122526	13520	109006	115645	68974	46671
2004	291488	155710	12524	143186	135778	85372	50406
2005	272092	144547	13598	130949	127545	75277	52268
2006	263573	140608	17647	122961	122965	66927	56038
2007	279155	145555	22100	123455	133600	66360	67240
	<b>5,91%</b>	<b>3,52%</b>	<b>25,23%</b>	<b>0,40%</b>	<b>8,65%</b>	<b>-0,85%</b>	<b>19,99%</b>
<b><i>Neuburgweier Mannheim</i></b>							
2003	659638	344219	28293	315926	315419	200356	115063
2004	804327	424978	26749	398229	379349	251620	127729
2005	826591	428997	38740	390257	397594	260807	136787
2006	809905	412291	35753	376538	397614	261109	136505
2007	806707	425241	39792	385449	381466	229570	151896
	<b>-0,39%</b>	<b>3,14%</b>	<b>11,30%</b>	<b>2,37%</b>	<b>-4,06%</b>	<b>-12,08%</b>	<b>11,28%</b>

Years	Total	Rhine – downstream			Rhine – upstream		
		Total	empty	loaded	Total	empty	loaded
<b>Middle Rhine</b>							
<b>Mannheim Bingen</b>							
2003	861153	446949	41005	405944	414204	232784	181420
2004	1043002	551059	45002	506057	491943	289128	202815
2005	1092998	575468	85004	490464	517530	304494	213036
2006	1051485	532874	47705	485169	518611	306729	211882
2007	1037694	536546	50070	486476	501148	267976	233172
	<b>-1,31%</b>	<b>0,69%</b>	<b>4,96%</b>	<b>0,27%</b>	<b>-3,37%</b>	<b>-12,63%</b>	<b>10,05%</b>
<b>Bingen Lülsdorf</b>							
2003	929011	490904	45938	444966	438107	246487	191620
2004	1149006	612931	50789	562142	536075	316625	219450
2005	1230759	646390	91203	555187	584369	353477	230892
2006	1172605	600549	52483	548066	572056	344205	227851
2007	1167369	610671	55641	555030	556698	302490	254208
	<b>-0,45%</b>	<b>1,69%</b>	<b>6,02%</b>	<b>1,27%</b>	<b>-2,68%</b>	<b>-12,12%</b>	<b>11,57%</b>
<b>Lower Rhine</b>							
<b>Lulsdorf Orsoy</b>							
2003	1414998	738026	96592	641434	676972	365096	311876
2004	1686072	888651	100939	787712	797421	450111	347310
2005	1847298	969068	145651	823417	878230	498795	379435
2006	1806059	933077	85656	847421	872982	492189	380793
2007	1817409	952054	92764	859290	865355	458543	406812
	<b>0,63%</b>	<b>2,03%</b>	<b>8,30%</b>	<b>1,40%</b>	<b>-0,87%</b>	<b>-6,84%</b>	<b>6,83%</b>
<b>Orsoy Emmerich</b>							
2003	1485675	772369	103117	669252	713306	384474	328832
2004	1745474	912949	105183	807766	832525	470112	362413
2005	1885195	972788	127207	845581	912407	517699	394708
2006	1876188	968057	94828	873229	908131	507914	400217
2007	1917945	999996	107323	892673	917949	485217	432732
	<b>2,23%</b>	<b>3,30%</b>	<b>13,18%</b>	<b>2,23%</b>	<b>1,08%</b>	<b>-4,47%</b>	<b>8,12%</b>

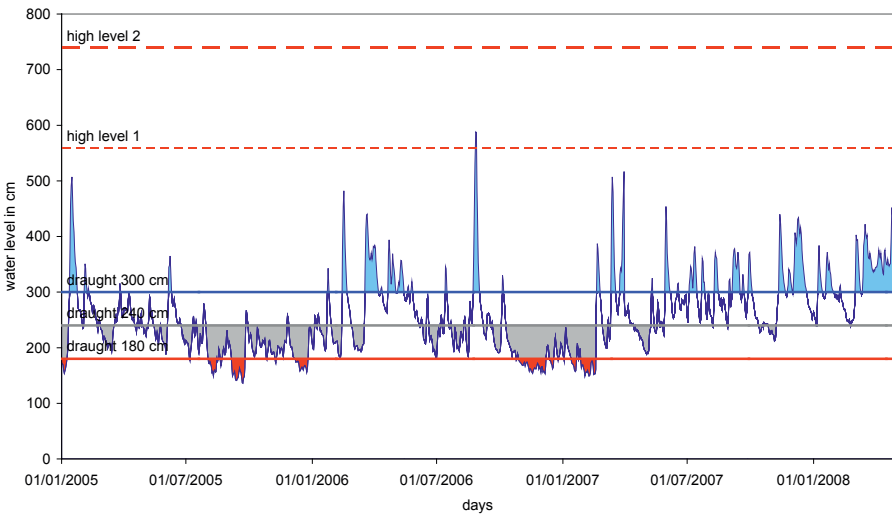
Source: St BA, Wiesbaden

## Source: St BA, Wiesbaden

### Waterlevels at Kaub



### Waterlevels at Hofkirchen



Source: Bundesanstalt für Gewässerkunde



## Glossary

**ARA ports:** Abbreviation for the three major European ports of Amsterdam, Rotterdam and Antwerp.

**Downstream or downstream navigation:** Refers to the part of an inland waterway located between a given point and the embouchure or confluence.

**Draught:** Height of the immersed part of a vessel; thus draught affects the loading level.

**Dry hold:** Used for the transport of dry cargo.

**Freight:** Refers to goods being transported or the price of transport.

**Handling:** Transshipment of goods from one means of transport to another.

**Hold:** Compartment covering the larger part of a commercial vessel, for the storage of cargo to be transported.

**Inland navigation / inland waterways transport:** Transport of goods or persons on board a vessel intended for transport on a given network of inland waterways.

**Inland waterway:** Navigable inland waterways that may be used with a normal load by vessels with a minimum deadweight of 50 tonnes. Inland waterways include navigable rivers, lakes and canals.

**Offer of transport or of capacity:** Total loading capacity of the available fleet, expressed in tonnes.

**Production/yield:** The notion of production/yield as used in this publication is intended to define in index form the activity of inland waterways transport, taking into account a given level of demand and the freight rates applied on the market.

**River/sea transport:** Transport of goods on board a river/sea vessel (seagoing vessel designed for use on inland waterways), carried out entirely or partly on the inland waterways network.

**Service:** Refers to the service of the transport of goods, expressed in tonnes/kilometre.

**Tanker hold:** Used for the transport of cargo in tankers.

**Tonnes/kilometre (Tkm):** Unit of measurement for transport services, corresponding to the transport of one tonne over one kilometre of an inland waterway. Determined by multiplying the volume carried in tonnes by the distance travelled in kilometres.

**Transshipment:** Unloading of a cargo from one seagoing freight vessel and loading onto another seagoing freight vessel, even if the cargo has remained on land for any length of time before the transport continues.

**twenty-foot Equivalent Units (TEUs):** Unit of measurement for registering containers according to their dimensions and for the description of the capacity of container vessels and terminals. One ISO 20-foot container (20 feet long and 8 feet wide) corresponds to 1 TEU.

**Upstream or upstream navigation:** Refers to the part of an inland waterway located between a given point and the source.

**Water conditions:** Height of the water in a river or canal, in cm.

## Sources of information

### International organisations

EUROSTAT  
CEMT  
DANUBE COMMISSION  
MOSELLE COMMISSION

### National administrations

Statistisches Bundesamt (Germany)  
WSD Süd-West (Germany)  
WSD Ost (Germany)  
Bundesanstalt für Gewässerkunde (Germany)  
Bundesamt für Güterverkehr (Germany)  
CBS (Netherlands)  
Voies Navigables de France (France)  
Statistic Austria (Austria)  
Via Donau (Austria)  
Institut National Statistique (Belgium)  
Service public fédéral Mobilité and Transports (Belgium)

### Economic institutes and consultants

Arbeitgeberverband der Deutschen Binnenschifffahrt (ADB)  
Institut pour le Transport par Batellerie (ITB)  
NEA Consulting  
P J K International b.v.  
IG River Advice Basel  
Planco  
Hader&Hader

### Inland waterways transport organisations

IVR  
CBRB (Netherlands)  
EBU  
ESO  
VBW

### Industrial organisations

Mineralölwirtschaftsverband  
BDI  
CEFIC  
Fédération Française de l'Acier  
Fertilizer Industry Association  
Hauptverband der deutschen Bauindustrie  
International Iron and Steel Institute  
Verein der deutschen Kohleimporteure  
Stahl Online

### Ports

Antwerp  
Rotterdam  
Amsterdam  
Hamburg  
Bremen  
Zeebrugge  
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