

# INLAND NAVIGATION IN EUROPE

Marketobservation

2010

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# **Market Observation - No. 12**

**Analysis of the economic situation - Autumn 2010**

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*December 2010*

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(2009 and the first half of 2010)

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## FOREWORD

This edition of the market observation marks a significant step towards a European dimension for European inland navigation. Even if the picture is still incomplete on a number of points, this publication offers a view on inland navigation on the upper reaches of the Danube and in the Danube delta. The aim here was to focus particular attention on logistical relationships such as the delivery and outbound transportation of raw materials and finished products for the important industrial sectors and agriculture. It also takes account of the critical importance of the seaports in the development of transportation using inland waterways. For a high potential transport market - in terms of the waterway's capacity - it is precisely this core network of transport relationships which it is especially important to monitor, as it is this analysis, as opposed to a qualitative perspective, which makes it possible to highlight the comparative advantage that inland navigation enjoys in a specific sector. However, this process also identifies possible weaknesses in this network.

The labour market also comes in for renewed attention. A number of important issues in the employment arena are raised. For example, ageing, and with it company succession within the group of independent owner operators, is an aspect that merits attention. Moreover, internationalisation and globalisation demand a watchful eye when observing the framework as regards training, the necessary specialist knowledge, working and living conditions and employment relationships in inland navigation. In the second labour market fact sheet it is now possible to submit supplementary qualitative and quantitative information for the largest inland navigation countries (in terms of the number of people employed in inland navigation).

But economic development by industrial sector remains the main focus, as it were, of this market observation. Inland navigation supply and demand are at the heart of it. The expectations previously expressed regarding a recovery in demand seem to have been vindicated, which does not however necessarily mean that we have already largely put the crisis behind us. Uncertainty remains the watchword and there are still sufficient threats, alongside the generally positive indicators of industrial development and consumer confidence – especially in Germany with its pivotal role in inland navigation- to exercise extreme caution, at least in the medium term. Also, it should not be forgotten that the crisis began in the financial sector

and that it is precisely there that it is premature to talk of stability. This is as a result both of the debt situation in a number of (EU) countries as well as structural factors, such as the considerable differences between the most important economies in the eurozone and finally the pressure from the currency market.

Despite that the recovery in inland navigation is manifest. Transport volume has risen again in most segments even if it has not yet returned to 2007 levels. With freight rates as well there is evidence of a return to an upward trend, at least in dry goods shipping. In the light of this development, discussions on crisis measures seem to some extent to have receded into the background.

The fact that tanker freight rates have already been languishing at rock bottom for a protracted period shows once again that this segment – at least as far as mineral oil products are concerned – is following its own economic path dictated less by industrial activity than it is by specific mineral oil market factors. An important aspect of this is the structural decline in transport demand; the change in the composition of the fleet also plays a role in this segment.



**Fact sheet 1**

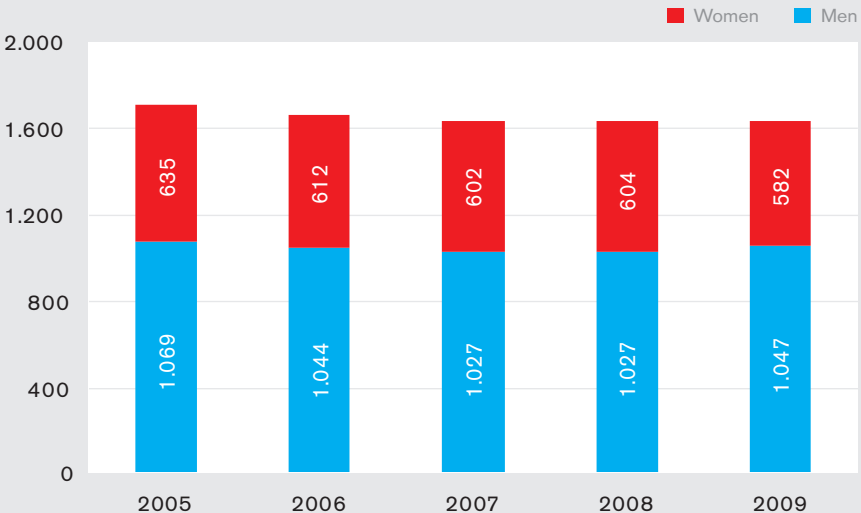
# **Labour market**

## Belgium

In Belgium, the number of self-employed in inland navigation is recorded by the National Institute for Social Insurance for the Self-Employed (INASTI in French, RSVZ in Dutch). This entails counting all self-employed persons living in Belgium or abroad and who exercise their profession in Belgium. The employees subject to social security deductions, on the other hand, are registered by the National Social Security Office (ONSS in French, RSZ in Dutch).

The number of self-employed in Belgium's inland navigation industry exceeds the number of employees. This was noted back in the 2009-1 market report. Moreover, the general employment trend between 1994 and 2007 was negative. In the last three years, however, there have been hardly any more job losses. As a result, the number of private owner operators in 2009, 1,629, was exactly the same as in 2007 and two fewer than in 2008.<sup>1</sup>

**Figure 1: Number of self-employed inland navigation operators in Belgium**



Source: INASTI / RSVZ

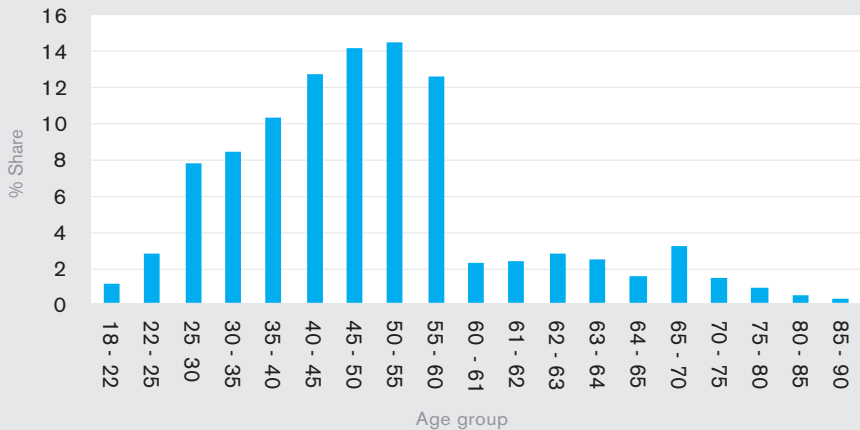
<sup>1</sup> Source: INASTI

At around 36% the proportion of women among the self-employed is very high, which leads one to conclude that family members helping out in the business is a very common form of employment.<sup>2</sup>

On 31.12.2009, rather less than 6% of Belgian private owner operators were still active in their company after reaching retirement age. This proportion, however small it might be, has increased steadily in recent years, which could be interpreted as evidence of problems attracting new recruits into the Belgian inland navigation industry. The graph below shows the detailed age distribution of Belgian private owner operators.

As can be seen, the largest groups, with around 14% apiece, were the age groups between 45 and 50 and 50 and 55 years of age. The percentage shares of those aged over 65 totalled not quite 6%. The proportion of those older than 50 is 43.5%. This is a significantly higher figure than for employees (31.2%). That means a more unfavourable age structure among the self-employed than among those who are not.

**Figure 2: Age distribution of self-employed inland navigation operators in Belgium (%)**



Source: INASTI / RSVZ

2 Since 2003 family members helping out in the business (in practice often the wives of the inland navigation operators) have been included in the number of self-employed.

The following table shows the regional distribution of Belgian private owner operators by individual province. Antwerp has the highest number, followed by East Flanders. At the end of 2009, 54 Belgian private owner operators were located abroad but active in Belgium.

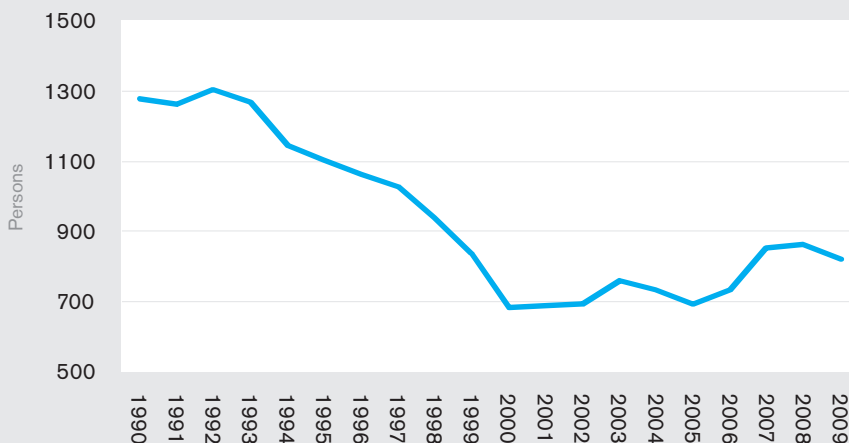
**Table 1: Number of self-employed inland navigation operators in Belgium by residence**

Province	Number of self-employed
Antwerp	667
East Flanders	295
Hainaut	270
West Flanders	200
Liege	73
Abroad	54
Limburg	38
Namur	15
Flemish Brabant	14
Wallonian Brabant	2
Luxembourg	1
Brussels region	-

Source: INASTI / RSVZ

Whereas self-employment remained broadly stable between 2007 and 2009, employment subject to social security deductions in this period fell slightly in Belgium. However, despite that, an upward trend has been discernible since the beginning of the current decade (see graph).

**Figure 3: Employment subject to social security deductions in Belgian inland navigation**



Source: ONSS / RSZ

The following aggregate picture emerges of overall employment in Belgian inland navigation:

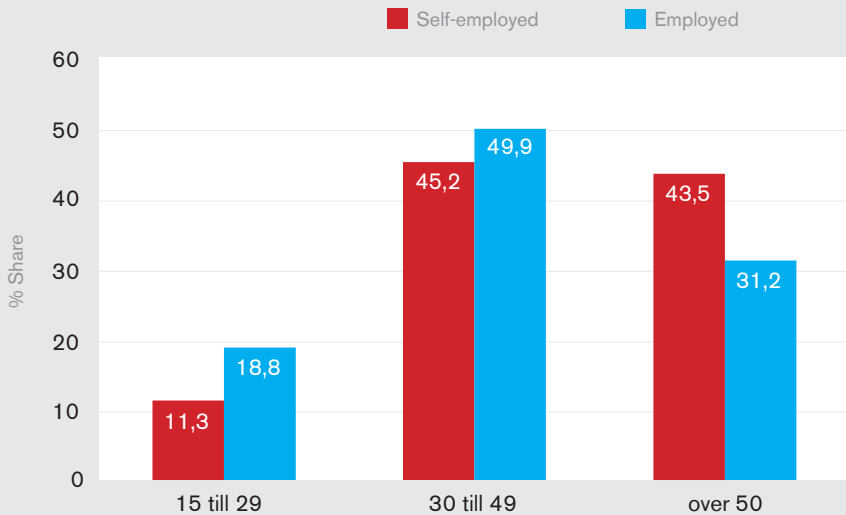
**Table 2: Overall employment in Belgian inland navigation by type of employment**

Year	Self-employed	Employees	Total
2005	1704	690	2394
2006	1656	727	2383
2007	1629	845	2474
2008	1631	860	2491
2009	1629	817	2446

Source: Calculations by the CCNR secretariat, based on: INASTI / RSVZ and ONSS / RSZ

According to this, total employment in 2009 dipped slightly (by 2%), whereas it increased by 4.5% between 2006 and 2008. The decline in 2009 corresponds to the economic crisis in the shipping industry. The previous increase reflects the boom and increasing demand for transport during these years. There is a significant difference in the age structure and proportion of women between self-employment and employment.

**Figure 4: Comparative age structure of the self-employed and employed in the Belgian inland shipping industry (2009)**



Source: Calculations by the CCNR secretariat, based on: INASTI / RSVZ and ONSS / RSZ

This begs the question of the aging of the self-employed population compared with employees in even more urgent terms. This highlights the problem of company succession in the Belgian inland navigation industry, as it does in its German counterpart (see following section).

By way of qualification, it must however be conceded that to some extent the above picture is distorted by the fact that by virtue of a different professional career, the self-employed tend to be older than employees. For example, more professional

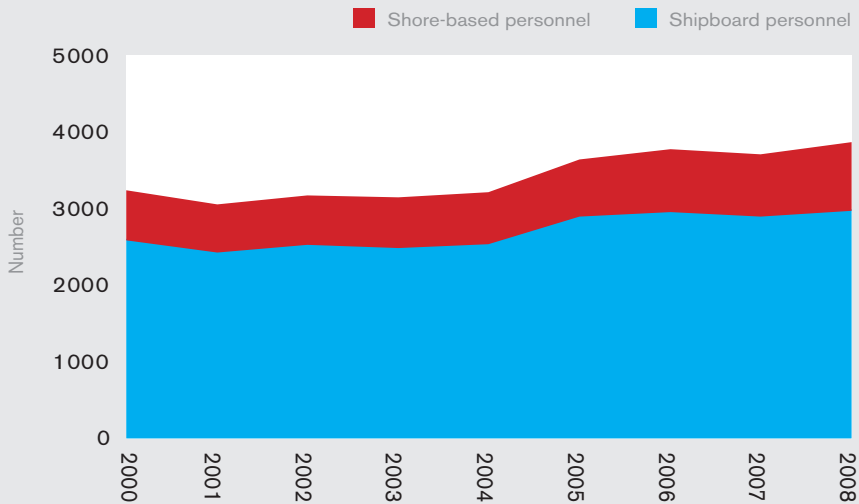
experience is required to work as a skipper. The aforementioned evidence should not however be neglected in discussions on attracting new blood.

Among employees, the proportion of women in late 2009 was 4.6%. This is significantly lower than among the self-employed, where it was 36%.

## Germany

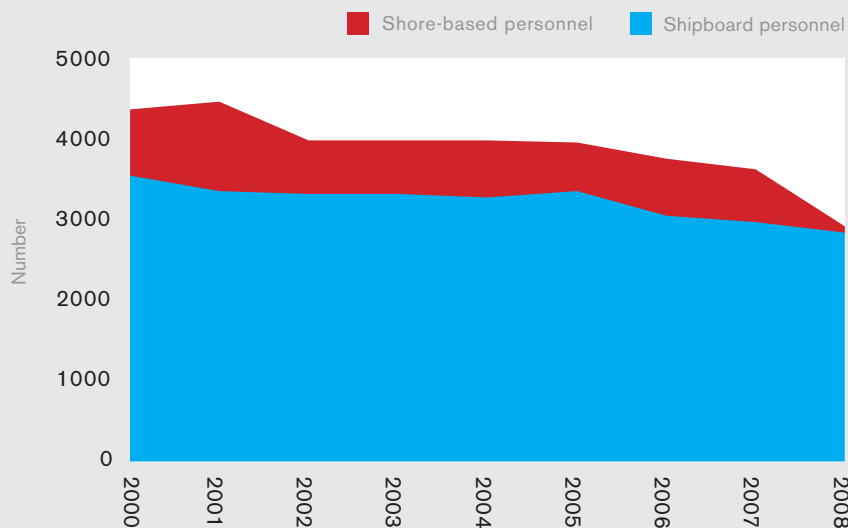
As already explained in the Market Observation report 2009-1, overall employment in the German inland navigation sector has been stagnant since the beginning of the decade. This stagnation is the result of two equal and opposite trends: rising employment in passenger navigation and a declining trend in freight navigation. Since 2006, employment in passenger navigation has exceeded that in freight navigation. The proportion of shipboard personnel in relation to total personnel is somewhat lower in passenger navigation than in freight navigation. Between 2000 and 2008, this proportion in passenger navigation averaged 78.6% whereas it was 83.3% in freight navigation. These differences can be explained by the differences in the range of activities between passenger and freight navigation.

**Figure 5: Passenger navigation employment in Germany**



Source: destatis

**Figure 6: Freight navigation employment in Germany \***



Source: destatis \* for the year 2008, no figures about the shore-based personnel in companies with a loading capacity of more than 10.000 tonnes are available.

The following table shows the figures for both segments from 2001 onwards.

**Table 3: Total and Sectoral employment in German inland navigation**

Year	Total	Freight navigation	Passenger navigation
2001	7556	4482	3074
2002	7689	3997	3189
2003	7690	4003	3167
2004	7612	4003	3229
2005	8116	3977	3669
2006	7960	3769	3800
2007	7812	3644	3731
2008	7628	2928	3900

Source: destatis, BAG



The statistics for employment subject to social security deductions permit further analysis of employment, which is not possible for total employment figures owing to missing information. Employment subject to social security deductions allows analysis of different structural attributes (age structure, unemployment, educational background, employment by economic sector, potential earnings, proportion of foreigners, absences, etc).

It is also possible to ascertain interim employment figures that shed light on seasonal employment patterns. We have to accept that employment subject to social security deductions does not include an important inland navigation subgroup, the self-employed. Nor does it include any mini jobs, which however has less of an impact as there are not very many of them in the sector.

The following structural characteristics therefore relate solely to inland navigation employees subject to social security deductions.

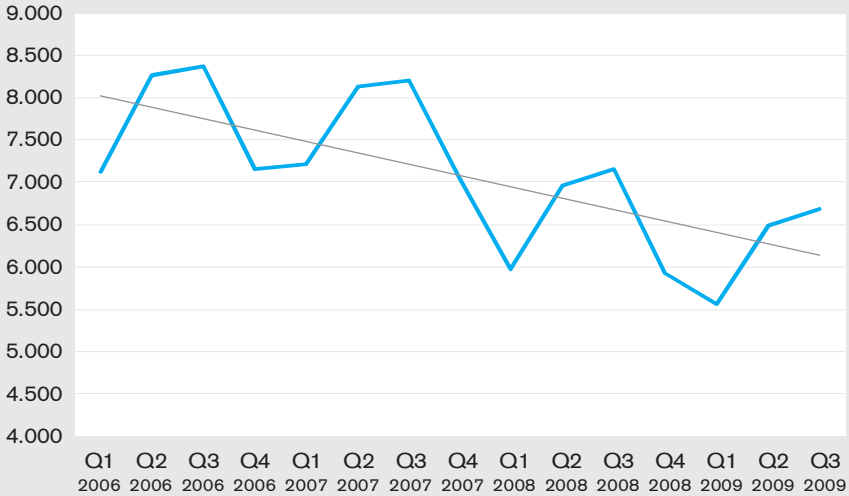
Interim employment trends exhibit a relatively constant pattern over the year. Employment is low in the first and fourth quarters; in essence, the period between late autumn and the end of winter. It increases between spring until the summer, peaking in the period between July and September. This pattern can be explained in part by the passenger navigation season. The season ends in the autumn, which can be expected to have an impact on the employment of the gastronomic and nautical personnel.<sup>3</sup>

What also emerges from the figure is that the underlying employment trend in recent years has been negative, independently of seasonal fluctuations.

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<sup>3</sup> See also: BAG (2009), *Monitoring of Working Conditions in Freight Traffic and Logistics 2009-1*, page 72; published in July 2009.

**Figure 7: Seasonal fluctuations and the trend in employment subject to social security deductions in German inland navigation.**



Source: Federal Labour Office; Q1 = 31.03.; Q2 = 30.06.; Q3 = 30.09.; Q4 = 31.12. of each year in question.

Concerning the age structure it has already been noted in the market observation report 2009-1 that in 2008, 40% of the German inland navigation workforce fell into the 50 to 65 age group. The figure for 2009 is now slightly higher at 40.5%.

**Table 4: Age structure (% share) of German inland navigation employees subject to social security deductions**

	1999	2001	2003	2005	2007	2009
<b>Under 25</b>	3.4	4.3	5.7	4.7	4.6	4.9
<b>25 to 35</b>	19.7	16.9	16.8	15.4	13.7	13.1
<b>35 to under 50</b>	39.5	41.4	41.7	42.8	42.5	41.4
<b>50 years and older</b>	37.4	37.4	35.9	37.1	39.1	40.5

Source: Institute for Employment Research (IAB)

There is evidence from the sector that the issue of age structure among the self-employed is at least as acute as it is among employees. For example, numerous skippers are on the verge of retirement age.<sup>4</sup> For a number of years, the proportion of women has held relatively constant at 9%. This proportion is also being achieved among current trainees.

The proportion of foreigners in German inland navigation has risen over a number of years. In 2009 it was approximately 20%.<sup>5</sup> It is important to note here that the proportion of foreigners differs markedly between passenger navigation and freight navigation. Averaged over 2009 it was 9% in passenger navigation compared with 27.6% in freight navigation. It is therefore significantly higher for freight transport than it is in the passenger traffic segment.

A previously unanalysed indicator is unemployment among inland navigation operators. There is vocational statistical information available on the subject. It looks at everyone intending on making a career as an inland navigation operator, irrespective of the economic sector in which they work.<sup>6</sup> In 2009, for example, only 66%, or not quite, of everyone wishing to make a career as an inland navigation operator was working in the transport sector. 18.7% worked in public administration, a further 18% in manufacturing. The remaining percentage points are distributed between commerce (2.5%) and the construction industry (2.6%) and a few other economic sectors.

The unemployment rate in 2009 among individuals intending to make a career as an inland navigation operator was 3.4%. The trend rate since 2009 has been down; in 2000 it was still at 8.5%. This fall can mainly be explained by the increasing labour shortage in inland navigation. The economic crisis has somewhat overshadowed the falling unemployment trend.

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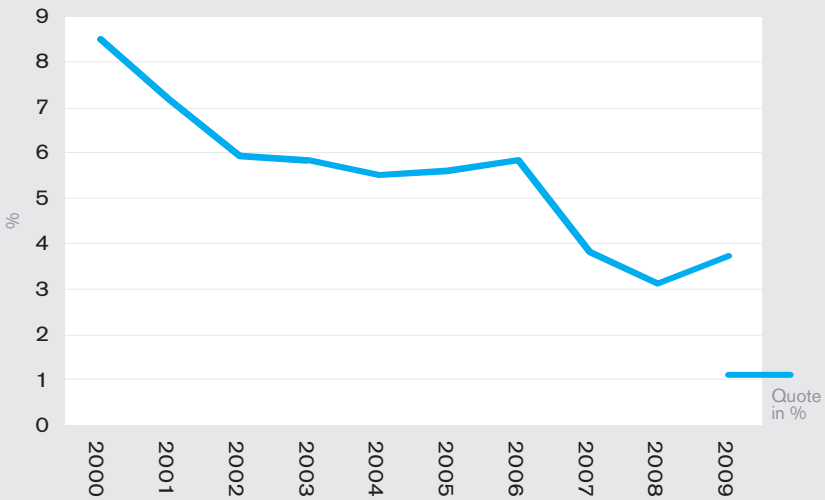
4 See the newspaper article "Uns geh'n die Matrosen aus" (We're short of sailors") describing the mood in the industry in lower Franconia. Published in: *Main-Netz*, on 14.09.2010.

5 Source: Federal Labour Office: CCNR calculations. Effective date 31.12.2009.

6 Source: IAB. The vocational statistics therefore differ from the employment statistics by economic sector that underpinned earlier assessments.

In 2009 for example there was a small increase of 0.4 percentage points. That this increase was so modest must have been to do with offsetting initiatives. For example, overtime was cut back during periods in which order volumes were low, ships were sent for maintenance or personnel were temporarily sent on holiday. Short time working arrangements – especially with shipping companies – also protected employment.

**Figure 8: Unemployment rate in German inland navigation\***



Source: Institute for Employment Research IAB;\* based on people intending to make a career as an inland navigation operator, port boatman, bargee, including foreign employees.

Among foreigners resident in Germany intending to make a career as an inland navigation operator, however, the unemployment rate is greater than the average, at 9% in 2009 and 7.5% the year before.

As the data indicates, the unemployment rate among older inland navigation operators (50 years and older) is no higher than the average but is exactly the average.<sup>7</sup> Among 35 to 50 year olds it is even below average. It is disproportionately high among younger people; this applies in particular to the under 25 age group. This youngest age group accounts for approximately 5% of employment total. But its share of all unemployed inland navigation operators is approximately twice as high at 10.5%.

Clues as to the physical stresses to which inland navigation operators are exposed can be inferred from individual sickness insurance fund statistics. According to a report by the German Association for Company Health Insurance BKK the number of days of incapacity for work among inland navigation operators is significantly higher than the average for all occupational groups. At 22.4 days per member, inland navigation operators were equally frequently unfit for work as maritime shipping deckhands, crane operators, forestry workers and railway shunters. The average level of illness and days lost to sickness across all occupational groups in 2008 was 12.1 days.<sup>8</sup> Overall, inland ship operators were ranked 13th out of 312 occupations in this comparison.

While training activities in the German industry, which had increased since the beginning of the decade, remain at a high level, in 2009 they declined slightly compared with the two previous years. While the number of training contracts in the whole of Germany in 2009 (153) is relatively high compared with the previous decade, it is somewhat lower than in 2008 and 2007.

Moreover, the number of examination candidates declined from 169 in 2008 to 116 in 2009. The number of exam passes also fell.<sup>9</sup> In summer 2009 the number of exam passes leading to qualification as an inland navigation operator differed significantly by individual federal state. There are two examination sessions per

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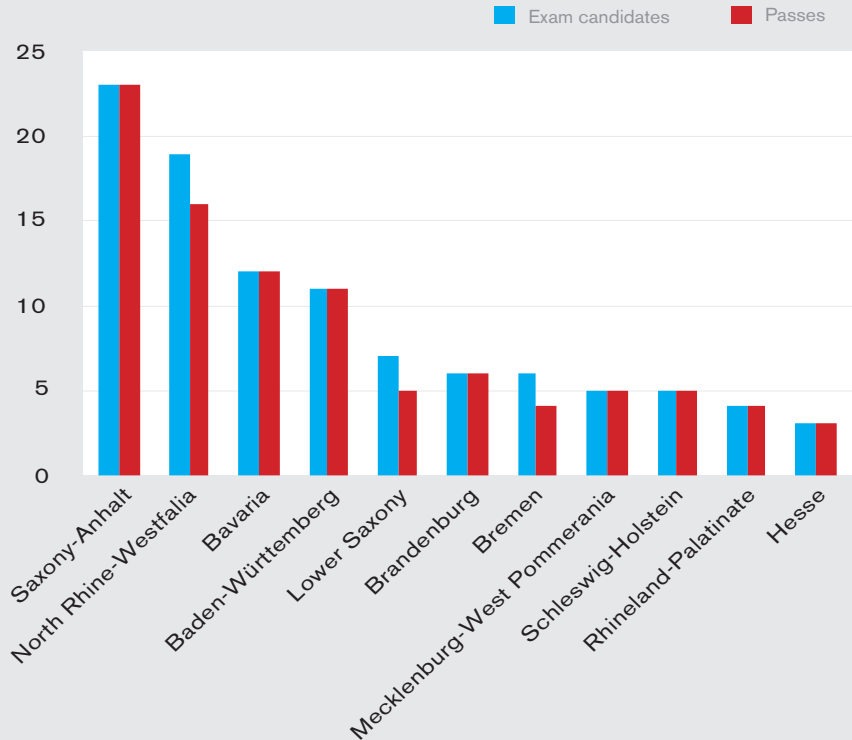
7 *The unemployed in this age group as a proportion of all unemployed inland navigation operators correlates exactly with the proportion of this age group among total employment in the inland navigation sector (approximately 40%).*

8 *Source: Incapacity for work by occupation, BKK German Association*

9 *Source: DIHK; Inland Navigation Employers' Federation*

year, one in the summer and one in the winter. Summer 2009 yielded the following distribution of examination statistics by individual federal state. Saxony-Anhalt, home to one of two German inland navigation schools, achieved the most exam passes.

**Figure 9: Exam candidates and exam passes in summer 2009 by trainee inland navigation operators in Germany**

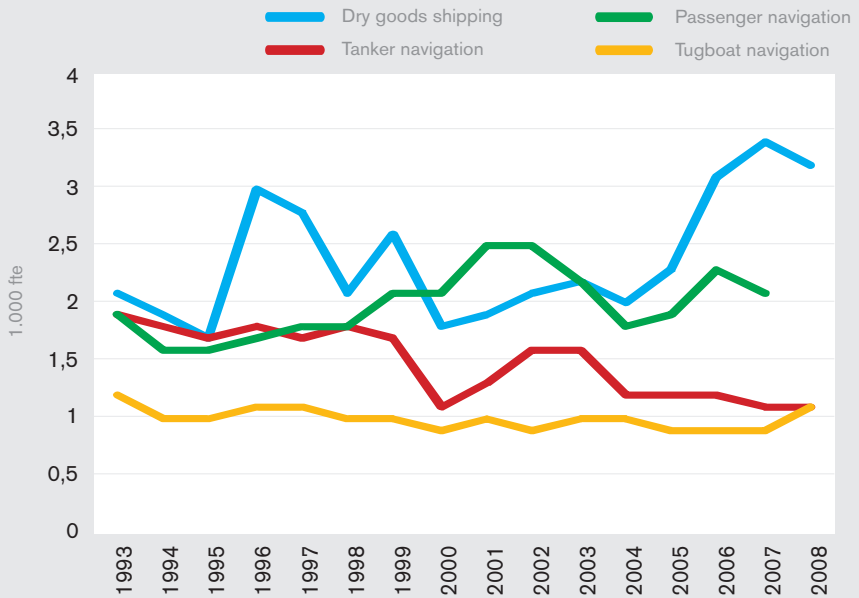


Source: Magdeburg Chamber of Commerce and Industry; exam statistics of chambers of commerce and industry nationwide; Note: There were no exam candidates in Berlin, Hamburg, Saxony, Thuringia and the Saarland

## Netherlands

Employment trends in inland navigation in the Netherlands exhibits relatively pronounced fluctuations. But there has been a slight upward trend in the period since 1993. This is driven first and foremost by the increase in the dry goods shipping sector that has assumed increasing prominence notably since 2004 (see figure). On aggregate, passenger navigation has also exhibited growth. In tanker navigation on the other hand a declining trend in employment figures is to be observed.

**Figure 10: Employment in Dutch inland navigation by sector**



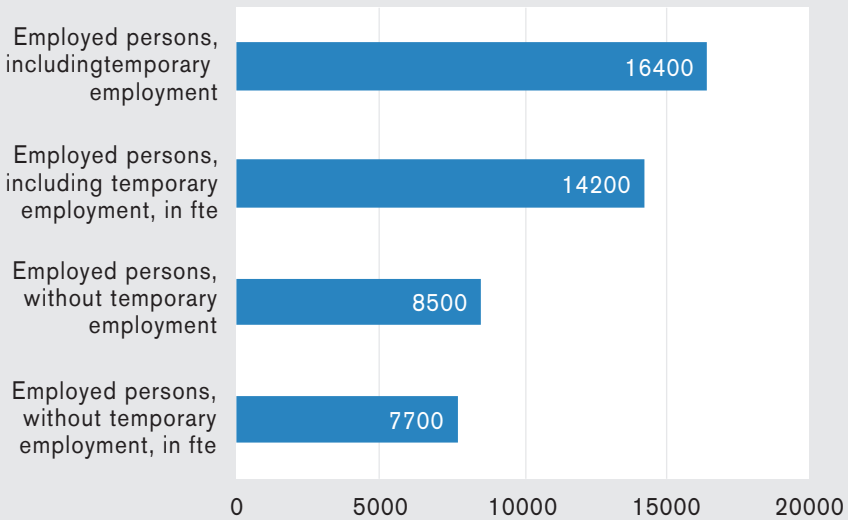
Source: Centraal Bureau voor de Statistiek (CBS); fte = full time equivalents

The Dutch labour market differentiates between the total number of employees and the number of full time equivalents. A full time job corresponds to a full time equivalent. But a part-time job corresponds only to half a full time equivalent.

The employment depicted in the above graph is based on full time equivalents and is thus less than the total number of individuals working in the Dutch inland navigation industry. For example, in 2008 a total of 8,500 people were employed, including of course numerous part time workers, whereas there were 7,700 full time equivalents.

An even higher employment total is arrived at if temporary employees are also included. According to this calculation there were 16,400 employees in 2008. If one converts part time workers into full time equivalents, then there were 14,200 jobs in existence. <sup>10</sup> The following graph summarises the figures stated once again:

**Figure 11: Employment in inland navigation in the Netherlands in 2008 by type of employment**



Source: CBS. fte = full time equivalent

In 2008, total employment (full time equivalents) increased by approximately 200 posts compared with the previous year, to 7,700 posts. This was attributable to an

<sup>10</sup> Source: CBS



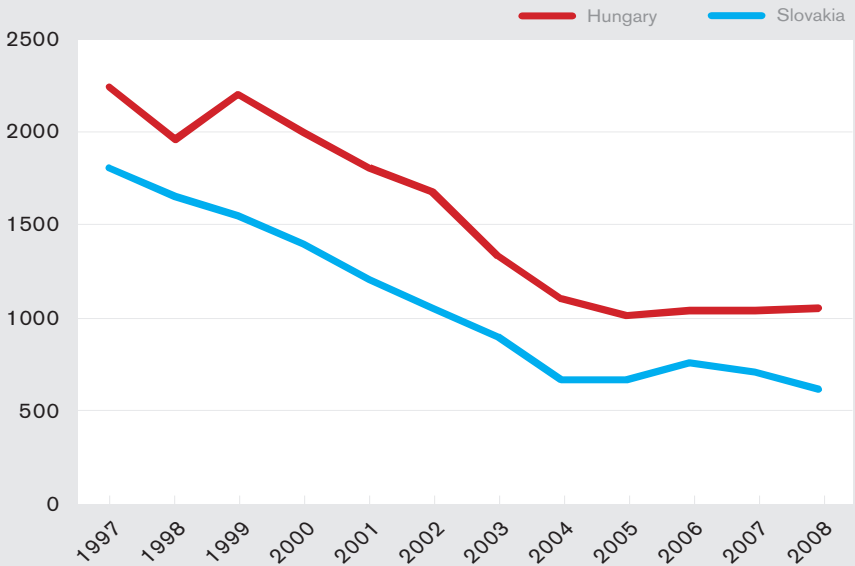
increase in tugboat traffic and pushed barges, whereas there was no change in tanker navigation and a decline in dry goods shipping. There was no data available for passenger navigation.

The proportion of women in the entire inland navigation sector in the Netherlands is 18%. Provided that the calculation methodology is approximately comparable, that would make it twice as high as in inland navigation in Germany. This is presumably attributable to the greater number of family members helping out in the business (frequently the wives of self-employed inland navigation operators).

### Slovakia, Hungary and Romania

The employment trend in Slovakia and Hungary from the end of the 1990s until the middle of the current decade was down. Since then the situation has stabilised and the level of employment has scarcely reduced since around 2005.

**Figure 12: Total employment in inland navigation in Hungary and Slovakia**



Sources: Eurostat (Slovakia, Hungary before 2000), Hungarian Statistical Office (Hungary from 2000 onwards)

The following information on the inland navigation labour market is available from the Romanian Statistical Office.

**Table 5: Key indicators for the Romanian inland navigation labour market**

	2008	2009
<b>Number of companies</b>	112	104
<b>Number of employees*</b>	2.067	2.112
<b>Average number of employees per company</b>	18,4	20,3
<b>Personnel costs (million Leu)</b>	61,4	n.a

Source: Romanian Statistical Office; \*annual average

That makes employment in Romania approximately twice as high as it is in Hungary. There was a relatively marked fall in the number of companies in the year of the crisis. But despite that, employment increased. One reason could be that it was primarily small companies that exited the market with the employees of these small companies finding a job with the companies that were left. At any rate, these are the scenarios that are also being observed in Western Europe.

There is a marked regional differential when it comes to potential earnings in European inland navigation. According to information from the Hungarian shipping industry, this is the reason many Hungarian inland navigation operators go abroad to Western Europe to earn higher wages than in their own home country. Conversely, there are many Romanians working in Hungary itself. Moldavian inland navigation operators are mainly leaving for Ukraine because of their Russian language skills whereas their Romanian industry colleagues are primarily moving to Hungary, Germany and the Netherlands.

This is resulting in an increasing shortage of trained personnel on the Lower Danube. It is therefore becoming increasingly difficult to form complete crews. This “brain drain” is even more evident in Moldavia than in Romania.

According to information from the Hungarian state labour administration, there were precisely 400 foreigners employed on 30th June 2010. The bulk of the foreign employees can be expected to come from Romania. To a considerable extent, this figure of 400 also includes shore based activities, such as the operation of harbour and quay installations, landing places, locks and light towers. An exact breakdown of foreign employees can be found in the following table:

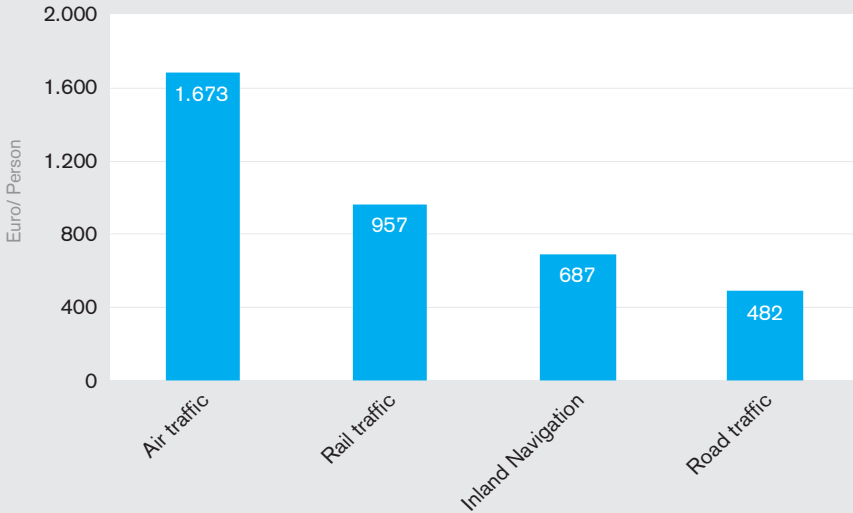
**Table 6: Number of foreign employees in Hungarian inland navigation by area of activity**

Number of foreign employees in Hungarian inland navigation		
	From EU countries	From other countries
Transportation on inland waterways	3	1
Activities ashore*	336	60
<b>Total</b>	<b>339</b>	<b>61</b>

Source: Hungarian state labour administration; \* Operation of harbour and quay installations, landing places, locks and light towers

Salaries also differ within the transport sector. For example, inland navigation salaries in Hungary are lower on average than in aviation and the railways, but higher than in road freight traffic. The following figure illustrates this salary comparison for 2008.

**Figure 13: Average gross monthly salaries in the Hungarian transport sector (2008)**



Source: Hungarian National Statistical Office; figures are converted from Forint into Euros, at 2008 exchange rates

That means that aviation salaries in Hungary overall were 76% above the average for the entire transport sector; whereas for the railways, they were exactly equal to the average salary level for the transport sector. In inland navigation they were 28% lower, in road freight transport they were as much as 50% below average.

In Slovakia, inland navigation operators' salaries were lower than in all other transport sectors up until 2005. The highest salaries - as in Hungary - were paid in the aviation industry, followed by the railways, road freight transport and inland navigation. Comparable figures for all forms of transport for the period from 2005 onwards are not currently available.<sup>11</sup>

11 Source: Slovakian Statistical Office

If one compares salaries in different countries, you have to consider not just different currencies but also the different price levels in these countries in order to arrive at meaningful results. Salaries can be compared between different countries using the purchasing power parity methodology. This eliminates differences in the level of prices (for consumer goods).<sup>12</sup>

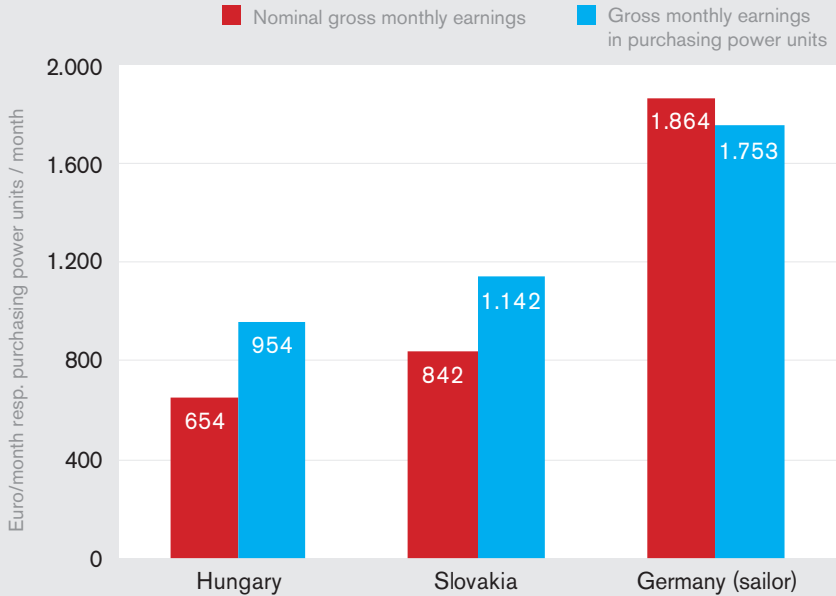
The salaries so adjusted are then compared with the basic salary for a sailor in Germany's inland navigation industry. This is of course below the average for inland navigation as a whole.

In the following figure you will find on the one hand the gross monthly salaries in Hungary and Slovakia (average salaries in Euros respectively) as well as in Germany (sailor's basic salary in Euros) together with the calculations of real purchasing power. The latter represent the "real" salaries actually received when taking account of the price level in the employee's country. Moreover they are expressed in a common currency.

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12 *For each country of the EU-27, purchasing power parities were calculated based on prices for a wide basket of consumer goods (especially foods). Regarding the methodology, see: Eurostat press release 94/2010 dated 28th June 2010, Price Level Comparison in the EU-27 in 2009.*

**Figure 14: Comparison of the purchasing power of monthly salaries in inland navigation \***



Source: Calculation by the CCNR secretariat based on Eurostat data, the German Inland Navigation Employers' Federation, statistical offices of Hungary and Slovakia. \* Germany: Sailor's basic salary

The graph confirms the previously assumed relationships. The nominal salary in Germany is thus higher than in Hungary and Slovakia. The price level in Germany is also higher, because when taking it into account the “real” salary of a German inland navigation operator falls, whereas it increases in Slovakia and Hungary.

However the increase there is not so great that the real purchasing power of a Hungarian or Slovakian inland navigation operator would be higher than in Germany. In other words, even when taking higher prices in Germany into account, the salary differential is not fully eroded.

## Excursus: Hotel personnel on river cruise ships in Europe

There are currently approximately 210 cruise ships on European rivers employing a total of approximately 7,300 staff (nautical personnel and hotel personnel). This corresponds to an average crew of 35 per ship.

When it comes to the nautical personnel there are similar problems recruiting new blood as with freight navigation. The situation regarding hotel personnel is markedly different. Looked at in the round, there are no recruitment problems as there are a lot of unskilled workers in this segment and personnel are recruited virtually worldwide.

For example, there are currently a lot of people from eastern European countries working as hotel staff (Bulgarians, Romanians, Hungarians), but also increasingly so from non EU countries such as China and the Philippines.

There are currently no collective wage agreements for hotel personnel on river cruise ships so that wages are negotiated individually. As the passenger navigation season lasts around eight months, staff are away from home for a very long time so that the annual leave is essentially spent at home in the winter after the season is over.

Employees in this segment often have to put up with very long working days and being accommodated for protracted periods in very small cabins with up to three room mates is also not an easy undertaking.<sup>13</sup> For these reasons, individual transport unions are endeavouring to introduce collective agreements in this segment.

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13 On this subject, see the report on personal experiences "Rivercruise Campaign Journal" by the European Transport Workers' Federation published in October 2010 (<http://www.itfglobal.org/etf/campaign-journal.cfm>)





**Fact sheet 2**

# **Danube market**

The Danube has long been an important trading route between Central and Eastern Europe. In more recent history, however, there have been a number of hiatuses that have had a sustained disruptive effect on navigation of the Danube. The end of the communist era in Central and Eastern Europe 20 years ago was certainly one such hiatus. This precipitated the collapse of numerous industries in these countries, with knock-on effects for transport on the Danube.

The war in Yugoslavia following hot on the heels of the collapse of the communist regime was another hiatus. Shipping was controlled to impose sanctions against the former Yugoslavian federal state of Serbia and in particular to prohibit illegal oil deliveries to Serbia. The controls also held up non military transport traffic on the Danube and adversely affected the reliability of the waterway system.

This prompted many shippers to switch permanently to other types of transport. As a result, the freight volume on the Danube fell from 91.8 million tonnes in 1987 to under 20 million tonnes in 1994.<sup>14</sup> Eventually, a number of bridges on the Danube were bombarded during the Yugoslavian war in the 1990s.

As a result, the Danube today is a waterway the potential of which is far from being fully utilised.

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<sup>14</sup> Source: *Danube commission, quoted by Martin, Edgar: International Waterway in Crisis: the case of the River Danube; Paper at the IAME Panama 2002 Conference Proceedings, 13 – 15 November 2002.*

Four countries in the Danube region will be analysed below against this historical backdrop: Slovakia and Hungary for the upper Danube market and Romania and Moldavia for the lower Danube. These analyses will entail official statistical data as well as port transshipment figures, shipping industry information and additional sources besides. The analyses are intended to provide an overview of the most important key indicators, characteristics and trends in these Danube countries but cannot be considered to be an exhaustive picture.

For all countries, the analysis is based on a selection of key indicators: The General Traffic Trends, the Modal Split, the structural split of the traffic volume between the different types of transport, goods categories, national flag market shares and the most important inland and seaports.

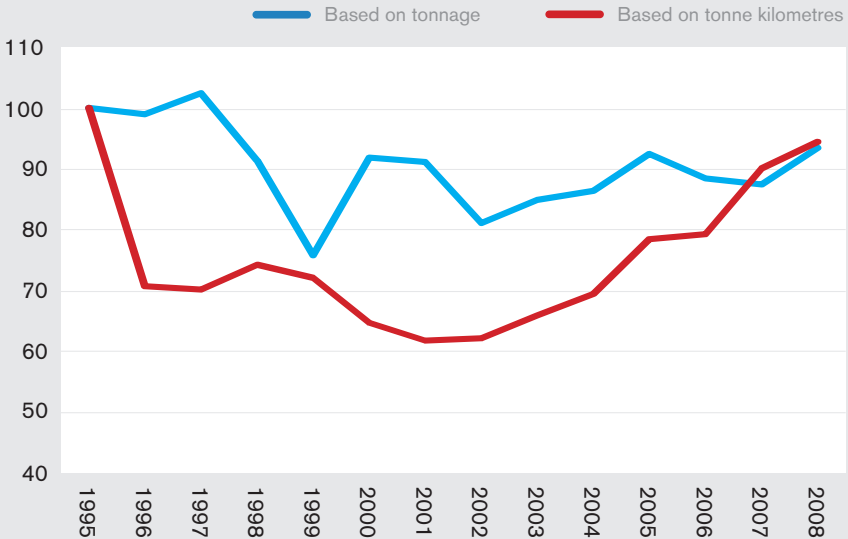
The indicators are to be seen as a guide. What one encounters in the specific analysis are differences in the data available between countries that do not permit a seamless, direct country comparison based on the above key metrics. The analysis aims to draw the main conclusions in the form of a summary.

## Slovakia

### General traffic trends

Freight traffic in Slovakia since the beginning of the decade has exhibited an upward trend. In the process, freight traffic has risen faster than traffic volume. But the 1990s had seen a decline.

**Figure 15: Trend in total freight transport in Slovakia (1995 = 100)**



Source: Slovakian Statistical Office

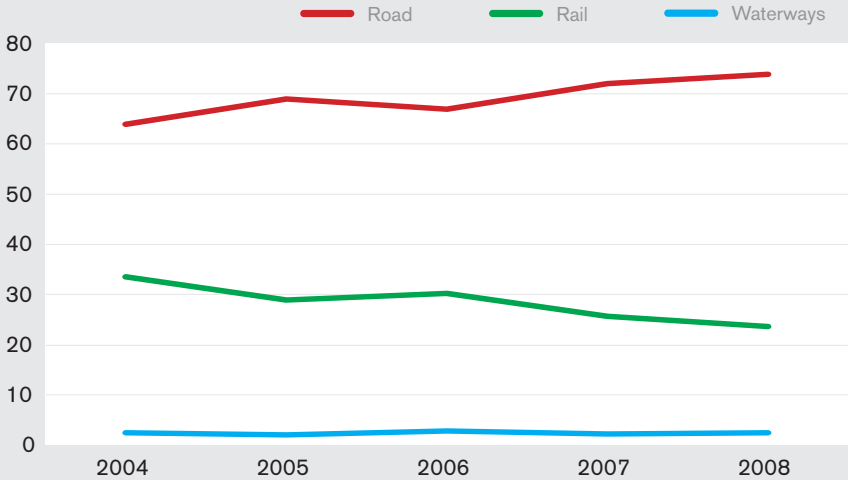
Slovakia has been a member of the EU since 2004, which has boosted trade and freight traffic.

### Modal Split

Inland navigation currently has less than a 5% share of the modal split in Slovakia. As recently as the late 1990s this share, as a proportion of freight traffic, was in excess of 10%. That means that the waterways have been far less successful than road freight transport in benefiting from the growth in traffic that commenced at the

beginning of the decade. Rail has also lost market share since the end of the 1990s (see graph).

**Figure 16: Modal split trends in freight transport in Slovakia (%)**



Source: Slovakian Statistical Office; data based on transport performance (TKM); there are no data available for pipelines

One point that is not conducive to the modal split share concerns the country's steel industry and energy sector. While Slovakia possesses a modern steel industry, it scarcely makes any use of inland navigation.

The larger of the two Slovakian steel works is situated in the east of the country, far away from the Danube and uses a rail link from the Ukraine for its raw materials logistics.

The energy sector, inasmuch as it is based on hard coal, is supplied first and foremost by rail. In the container segment as well, rail currently clearly occupies a stronger market position than inland navigation.

**Table 7: Modal split for freight transport in Slovakia (2008)**

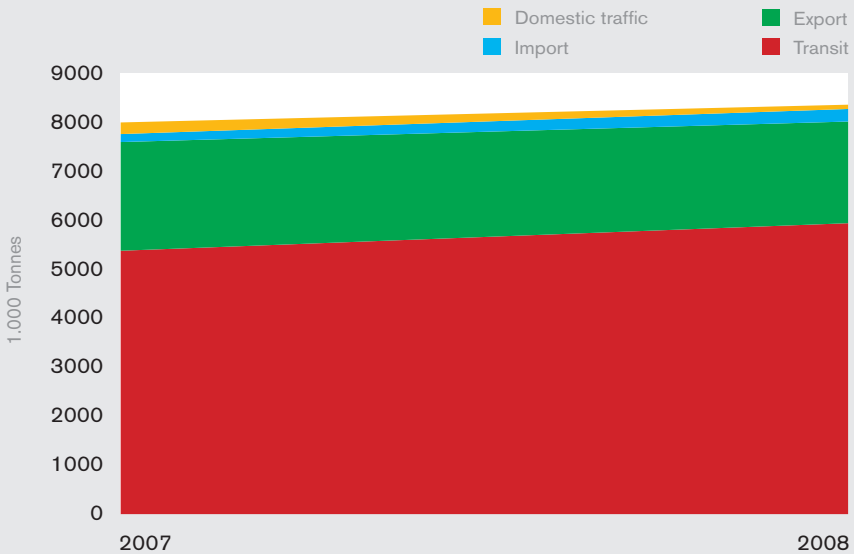
Figures in %	Tonnes	Tonne kilometres
Road	80.0	73.9
Rail	19.2	23.6
Waterways	0.7	2.5

Source: Slovakian Statistical Office; calculations by the CCNR Secretariat

### Transport types

Inland waterways transport movements are largely transit traffic. Exports are in second place, whereas imports and national traffic are very minor.

**Figure 17: Inland navigation traffic types in Slovakia**



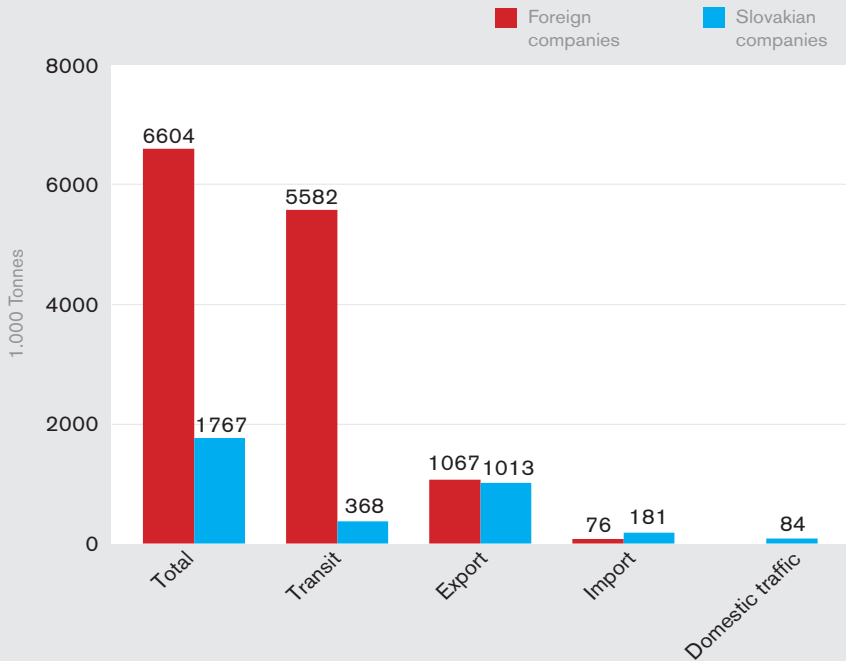
Source: Slovakian Statistical Office

The large amount of transit traffic reflects the country's bridging role. It is mainly ores being transported from the seaports on the Black Sea to the Austrian steel industry in Linz.

### Flag market shares

Foreign companies dominate the provision of transport services. This is especially true of transit traffic. When it comes to exports, Slovakian ships are as important as foreign ones. When it comes to imports – which admittedly are not of great importance – Slovakian ships predominate.

**Figure 18: Freight traffic on Slovakian waterways by nationality 2008**



Source: Slovakian Statistical Office

## Goods categories

According to the Slovakian Statistical Office, metal ores and other mining products are far and away the most important freight category on Slovakian waterways. Chemical products together with plant and machinery are next. Agricultural products bring up the rear in the freight statistics and do not have the same importance as, for example, in Hungary.

Reliable quantitative information on transport by freight category is currently not available for the Slovakian waterways. This is because the Slovakian Statistical Office cannot provide a breakdown by type of goods for transit traffic, which accounts for the greatest proportion of waterway transport.

Because of this fact, what follows is a description of the most important industrial sectors that use inland navigation in any way with regard to their logistical relationships. This is primarily based on an evaluation of information from the Slovakian port administration and shipping industry. This information is supplemented by various statistics on the steel industry, oil industry and energy sector.

By way of illustration, the following map shows the two most important inland ports in Slovakia: Bratislava and Komarno.



**Figure 19: Location of the most important inland ports in Slovakia**



Source: Image CCNR Secretariat. Inland ports in red

### **Steel industry**

According to the Slovakian Statistical Office, the bulk of metal ores is transported as transit traffic. The steel industry does indeed represent an important pillar of the Slovakian economy.<sup>15</sup> However, the larger of the two Slovakian steelworks, which is situated in Kosice and belongs to the US Steel Corporation, is supplied almost exclusively by rail. For example, coal and ore for the work's furnace comes by rail from Ukraine: They are carried on the Uschhorod – Haniska railway line.

The steel work's end products are transported by rail to the port of Bratislava. Storage, goods handling and onward distribution is handled by Ferroservis Bratislava, a subsidiary of the Slovakian shipping and port company SPAP. Onward transport of the steel products from Bratislava is by rail and partly also on the Danube, especially to Austria, Germany, the Netherlands and to Belgium.

<sup>15</sup> While Slovakia produced less steel than Austria in 2009, with annual steel production of 3.7 million tonnes, it produced more than Hungary or Romania, for example.

The Danube is integrated into the logistic chains within the context of broken or multimodal transport. This is especially true for steel products' and raw materials' transit traffic. The following examples may illustrate this:

- Ore concentrates from Poland are transported by rail to the port of Komarno. Here the raw materials are loaded into ships and transported on the Danube to Lom in Bulgaria.<sup>16</sup>
- Coking coal from Poland is transported by rail to Komarno, onward from there by waterway to Galati/Romania.
- Various steel end products from Ferroservis Bratislava that arrive by inland ship from ports on the Danube (Constanza, Smederovo, Galati) are unloaded and transferred onto lorries and trains. These transport movements are primarily destined for the Czech Republic and Slovakian hinterland.

## Containers

To date there has been only very limited development of container traffic on the Danube. The waterways system sees itself here faced with the following problems:

- Limited number of industrial conurbations in the Danube region;
- Low population density (consumers);
- Extremely large distances between sea terminals and the hinterland;
- Industry in the upper Danube region has better rail connections with North Sea ports

This is why the bulk of container traffic is handled by rail. The north German ports of Hamburg and Bremen in particular have a significantly stronger link here with Slovakia (via container railway lines) than do the Dutch-Belgian seaports via inland container navigation.

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<sup>16</sup> According to information from the company Express Slovakia

Two container railway lines are: <sup>17</sup>

- regular container trains operated by the Czech company CSKD<sup>18</sup> between the seaports of Hamburg, Bremerhaven and Rotterdam on the one hand and Prague, Bratislava and Sládkovicovo (in western Slovakia) on the other hand. There is also a train service three times a week between the seaport of Koper in Slovenia and Bratislava.
- a container train service operated by the company Eurogate between Bremerhaven, Hamburg and Budapest.<sup>19</sup>

### **Mineral oil and petrochemical industry**

There is still considerable potential here for inland navigation as Slovakia is an important location for the mineral oil processing industry. In 2009 Slovakia exported approximately 3.7 million tonnes of mineral oil products, putting it way ahead of its two neighbours Hungary and Austria (cf. figure).

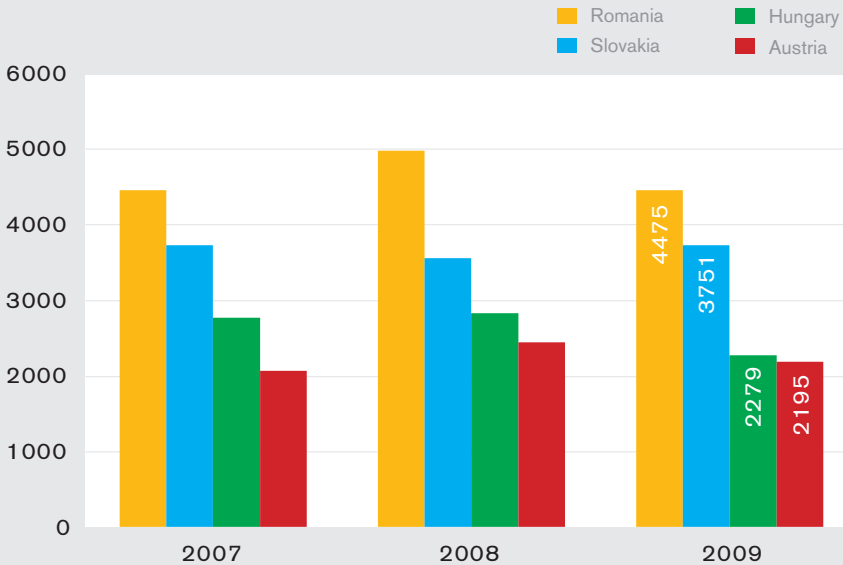
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<sup>17</sup> A line operated by the Dutch transport company ERS between Rotterdam and Bratislava had to be discontinued at the end of 2009 owing to the loss of the customer.

<sup>18</sup> Container Shuttle Train Services

<sup>19</sup> Four trains per week are currently in operation; Eurogate is currently planning to increase this to six trains per week. Source: Company information July 2010

**Figure 20: Exports of mineral oil products\* from Danube countries (1,000 t)**



Source: Eurostat – *Statistical Aspects of the Oil Economy in 2009*; \* diesel, gas oil, kerosene, petrol, etc.

When it comes to transporting mineral oil products, the waterways have a very small modal split share. According to cautious estimates based on Slovakian Statistical Office data, it amounts to approximately 10%.

Further information is forthcoming from Slovakia's largest oil company, Slovnaft, a subsidiary of the Hungarian MOL Group. Slovnaft owns a modern refinery in the south of Bratislava. According to company information, approximately 10 to 15% of mineral oil products deliveries are by tanker ships on the Danube, the remainder being delivered by lorries. A pipeline for crude oil coming from Russia is used for inbound logistics.

## **Energy sector**

Nuclear power accounts for the lion's share of electricity generation in Slovakia.<sup>20</sup> Hard coal is a distant second, closely followed by hydro-electric power (Gabcikovo power station on the Danube) and natural gas.

The country's only hard coal power station is at Michalovce, a town approximately midway between Kosice and the Ukrainian border. The Uschhorod – Haniska railway line already referred to above also passes this town, originating just over the Ukrainian border and terminating south of Kosice.

As this stretch of line serves to supply the steelworks in Kosice with ore and coal, it is probable that the anthracite coal fired power station in Michalovce receives its coal supplies by rail as well.

## **Chemical products and fertilisers**

Slovakia's chemical industry is situated in the west of the country, within a radius of approximately 50 to 70 km north east of Bratislava (Sala, Senica and Hlohovec). Whereas the Sala site is situated on the river Vah, the two other chemical sites are not located on rivers.

There is an artificial fertiliser factory north of Bratislava, exporting 200,000 tonnes per annum to Germany and which carries out transport movements on the Danube.

## **Agricultural sector**

The south west of the country is home to an important agricultural region. Grain from this region reaches the port of Klizska Nema (near Komarno) mainly by lorry. Here the grain is loaded into ships and transported up the Danube. Its ultimate destination is as far afield as Amsterdam via the Rhine-Main-Danube canal and the Rhine.

## **Automotive industry & other industrial sectors**

Slovakia has become an important location for the automotive industry and supplier industry. As a result, a number of major automotive companies have production plants in Slovakia: A Volkswagen factory is situated near Bratislava, Peugeot-

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20 Source: International Energy Agency IEA

Citroen has a location in Tyrnau (Trnava, in the west of the country) and Kia has a production plant in Zilina in the north of the country. Admittedly, these factories primarily use the railway, both for inbound and outbound logistics.

Heavy goods transport plays an increasing role. For example, Siemens generators from Austria and Germany are shipped to the Slovak Republic on the Danube.

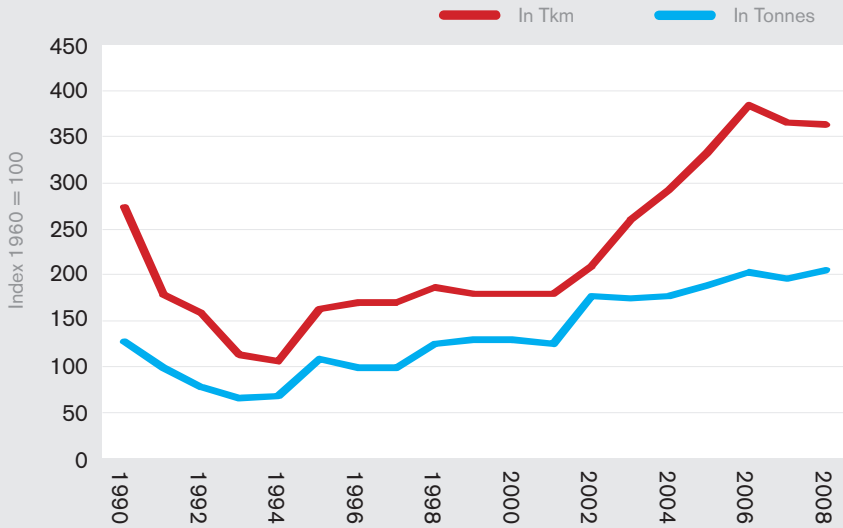
Another industrial sector worthy of mention is the glass industry, which previously received its raw materials from Turkey via lorry from the port of Antwerp. Recently these raw materials have been imported on the waterways. At the same time the geographical supply route has changed. The raw materials are now transported from Turkey to the seaport of Izmail in Ukraine, from where they are shipped to Bratislava via the Danube.

## Hungary

### General traffic trends

Hungary's foreign trade has intensified significantly from around 2003, which is probably related to the EU accession of the four Visegrad countries (Hungary, Slovakia, the Czech Republic and Poland). Starting in 2003, freight transport growth accelerated along with increased foreign trade activity.

**Figure 21: Trend in overall freight transport in Hungary from 1990 onward**



Source: Hungarian Central Statistical Office

While Hungary's trade with its neighbours Slovakia and Romania has increased significantly from 2003 onwards, Germany, with an approximately 25% share of Hungarian imports and exports, remains Hungary's most important trading partner. Other important trading partners are Russia, China, Austria and the Netherlands (for imports) as well as Italy, Great Britain, France, Romania and Slovakia (for exports). These countries' share of Hungarian exports or imports is between 5% and 8% respectively.

Far and away Hungary's most important export goods are machinery and electrical goods (a share of not quite 50% of exports). Vehicles are in second place on 12% (cars, lorries, components and accessories). Metals and metal goods have an approximately 6% share, as do the agricultural products traditionally so important for Hungary. In 2009 79% of Hungarian exports went to the EU 27 with only approximately 5% to Asia.<sup>21</sup>

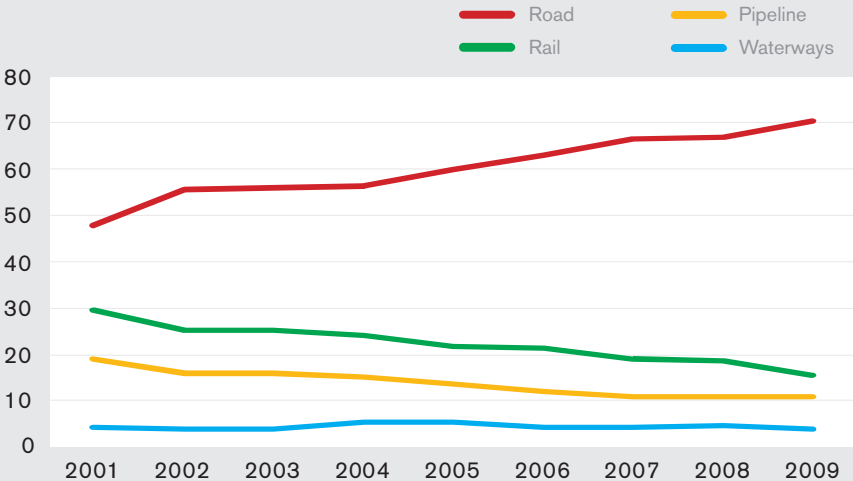
21 Source: German-Hungarian Chamber of Commerce

## Modal Split

Depending on calculation method, the modal split share of inland navigation in Hungary in recent years has been between 2.5% and 5%. If one bases it on transport performance in tonne kilometres then the waterways' market share in 2009 was 3.6%. Compared with 2001, when it was 4 %, that means it has remained essentially stable. Based on transport volume, the modal split share is lower; it was 2.5% in 2009.

Road freight transport benefited most from the increased traffic growth from 2003 onwards. By way of illustration, the increase in transport performance (measured in tonne kilometres) during 2004-2008 rose 18% for waterways and 13% for rail, compared with 73% for road freight transport. Road has therefore increased its market share since the beginning of the decade whereas rail and pipelines have lost market share.

**Figure 22: Modal split trends in freight transport in Hungary (%)**



Source: Hungarian Central Statistical Office; CCNR Secretariat calculations; based on transport performance (tonne kilometres)



Regarding traffic volume, there was a 20% growth on the waterways between 2004 and 2008.<sup>22</sup> Road freight haulage grew by a similar margin, 21%, but at a far higher absolute level. Road freight transport is approximately 30 times higher than transport by waterways (258.4 million tonnes compared with 8.8 million tonnes in 2008). Rail transport increased slightly between 2004 and 2006 before returning to 2004 levels for the remainder of the period to 2008.

Road currently accounts for far and away the greatest share of freight transport with just under 76%, followed by the railway (14%) and pipelines (7 ½ %).<sup>23</sup> (cf. table).

**Table 8: Modal split for freight transport in Hungary (2009)**

Figures in %	Tonnes	Tonne kilometres
Road	75.8	70.4
Rail	14.0	15.4
Waterways	2.5	3.6
Pipeline	7.7	10.5

Source: Hungarian Central Statistical Office; calculations by the CCNR Secretariat

The waterways' low market share is also to do with structural factors. Hungary, for example, has a very small steel industry. In 2009 the country produced 1.4 million tonnes of steel. By way of comparison: Austria (5.6 million tonnes), Slovakia (3.7 million tonnes), Romania (2.7 million tonnes) boasted significantly higher production although they themselves are not important steel producing countries.<sup>24</sup>

The energy sector is dominated by nuclear power, natural gas and hydro electric power: Just less than 40% of electricity generation, for example, is based on nuclear power. Natural gas accounts for a similarly high proportion, the remainder being covered by hydro electric power and coal (mostly brown coal).

<sup>22</sup> Owing to a change in statistical methods, values for previous years are in no way comparable with 2004 values and afterwards. The reason is that prior to 2004, foreign flagged ships were not included in traffic statistics.

<sup>23</sup> Source: Hungarian Central Statistical Office

<sup>24</sup> Source: Eurofer.

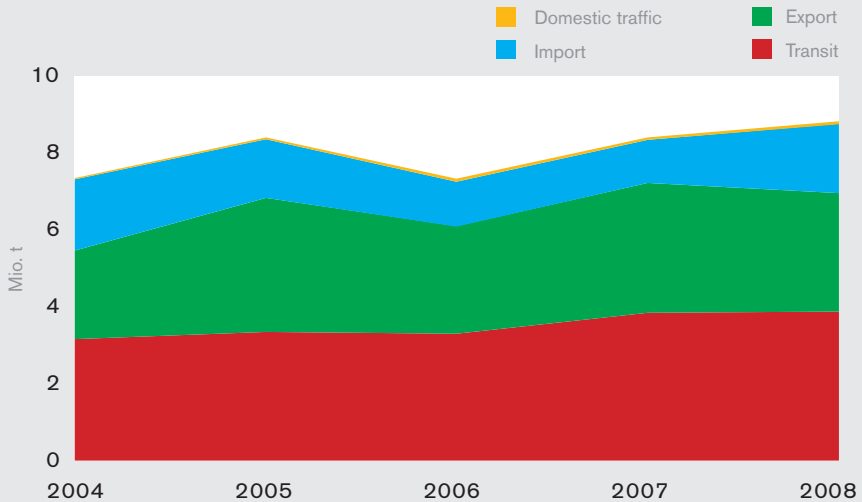
That means that two important economic sectors, in which inland navigation traditionally enjoys a competitive advantage (steel industry and hard coal based power generation) are not very strongly represented. There is more potential to be found among agricultural goods and feedstuffs, for three main reasons:

1. because these have traditionally been mainstays of the Hungarian economy
2. because these goods are also bulk goods where inland navigation enjoys competitive advantages, and
3. because agricultural goods are very export orientated and are thus transported over long distances, which implies cost advantages for inland navigation.

### Transport types

Hungarian inland navigation is dominated by transit traffic and exports. Imports are in third place while domestic traffic is almost totally insignificant.

**Figure 23: Hungarian inland navigation by type of transport**



Source: Hungarian Central Statistical Office

Interestingly there is also a relationship between the types of transport and the goods transported. For example, almost half of transit traffic (approximately 45%) is comprised of ores and metal wastes. These are ores that are imported via the seaports on the Black Sea and transported up the Danube. A further 20% of transit traffic is made up of metals and metal products. Coal has only a 6% share of transit traffic.

The Austrian steel industry (Voest Alpine AG) in Linz/Upper Austria is the primary destination of the transit traffic of ores headed up the Danube. When it comes to the delivery of ores, it uses both Black Sea and North Sea ports. The company receives approximately 1.5 million tonnes of ores annually from the seaports on the Black Sea.<sup>25</sup>

By way of comparison: In 2008 approximately 2.15 million tonnes of ores and other mining minerals were carried on Hungarian waterways, including 1.7 million tonnes as transit traffic. That means that the greater proportion of the transit traffic of ores on Hungarian waterways is accounted for by ores imports for the Austrian steel industry in Linz.<sup>26</sup>

Exports on Hungarian waterways are dominated by agricultural produce with a share of almost 60%. This is to do with Hungary's productive agricultural industry, which has traditionally generated a surplus for export.

A further 28% of exports on the waterways are accounted for by mineral oil products. One thinks here of the MOL Group's refinery at Szazhalombatta, south of Budapest (see inland ports). Metals and metal products have a 9% share of exports on the waterways.

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25 *Source: voestalpine Rohstoffbeschaffungs GmbH, situation as at: October 2010.*

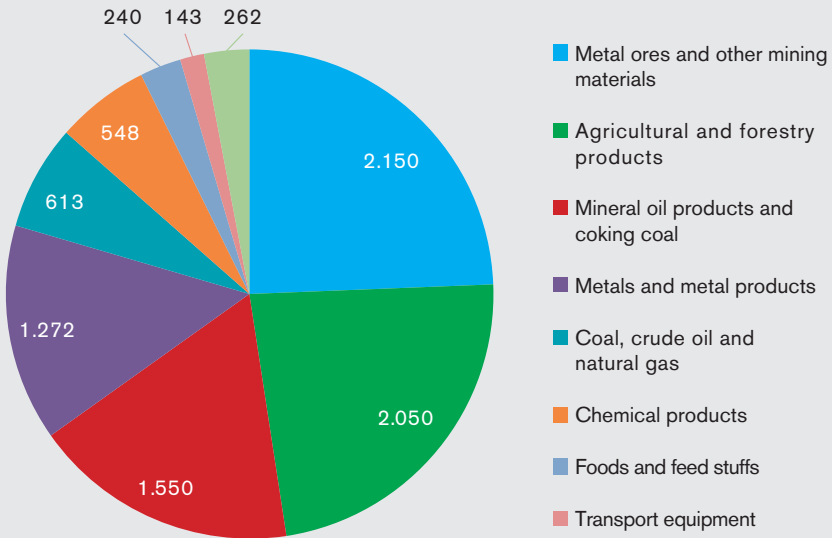
26 *The proportion should in fact be somewhat higher because other mining minerals are included in the traffic statistics along with iron ores, uranium and thorium for example, which are not required in the steel industry.*

Imports are in somewhat more of a balance. There is no category of goods here that stands out. But hard coal and coke, metal ores and chemical products are important. In the next section the importance of the various categories of goods is examined once again in overview.

### Goods categories

The following figure shows the types of goods in Hungarian inland navigation for 2008.

**Figure 24: Hungarian inland navigation traffic by type of goods**



Source: Hungarian Central Statistical Office; data in 1,000 tonnes

The carriage of ores and other mining products, 81% of it as transit traffic, has exhibited a modest upward trend in recent years.<sup>27</sup> The trend for metal goods, chemical products and agricultural and forestry products, on the other hand, can be described as broadly stable.

The Hungarian steel industry, which, as has already been mentioned above, has a relatively small output, currently comprises four sites. Steel is produced at three of the four sites whereas the fourth site only manufactures finished steel products.<sup>28</sup> Two of the three steel producing works are equipped with an electric furnace, meaning that they require scrap as a raw material. These are the steelworks in Ozd and in Miskolc, both of them towns in the north of Hungary. These works are a long way from the Danube.

The country's third steel plant, which at the same time is the only one situated on a waterway, is situated in Dunaujvaros on the Danube. This plant, belonging to Dunafer, is an oxygen steelworks that relies on ore and coal as raw materials.<sup>29</sup>

The Hungarian steel industry is completed by the Csepel works in Budapest, where steel rings and pipes are manufactured. This plant uses the Danube to some extent to deliver its products. This is reflected in the main categories of goods handled by the port of Budapest (see section on Hungarian inland ports).

The structure of the goods categories reveals that hard coal accounts for a small proportion of waterways transport in Hungary.<sup>30</sup> The Hungarian energy sector is currently increasing its reliance on natural gas. New pipelines are being built to con-

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27 *Calculated in terms of tonne kilometres, then as much as 91% of the ore and mining minerals freight volume carried on Hungarian waterways is transit traffic.*

28 *The owner of this steel works is a Ukrainian holding company which was itself acquired by a Russian bank at the beginning of 2010. Source: Pester Lloyd – daily newspaper for Hungary and Eastern Europe*

29 *Source: Pester Lloyd – daily newspaper for Hungary and Eastern Europe, 06.01.2010*

30 *Admittedly, there is coking coal as well but this is used in the steel industry.*

nect neighbouring countries' (Austria, Croatia) natural gas networks and Russia's as well, with the Hungarian network.

At approximately 38%, natural gas accounts for the largest share of the electricity supply and this share should rise yet further.<sup>31</sup> Nuclear power is on 37% and coal (mainly lignite) on 18%. Of the country's thirteen large power stations, seven are gas fired power stations, one (very large) nuclear power station, four lignite-fired power stations and one oil-fired power station.<sup>32</sup> There is indeed a project for a new hard coal-fired power station in Mohacs/Danube but energy experts are sceptical as to whether it will come to fruition.

It seems as a result as if there is no great future in Hungary for generating power from hard coal. The implication for navigation on the Danube is that it cannot expect much of an impetus from this quarter.

### **Flag market shares**

In terms of ships employed in transporting goods, the Ukrainian flag is in first place (see graph) with approximately a one quarter share of freight traffic. Romania follows in second place with a 19% share and Germany in third place with approximately 16%. Hungarian flagged ships account for a share of just under 9% of total TKM performance<sup>33</sup>

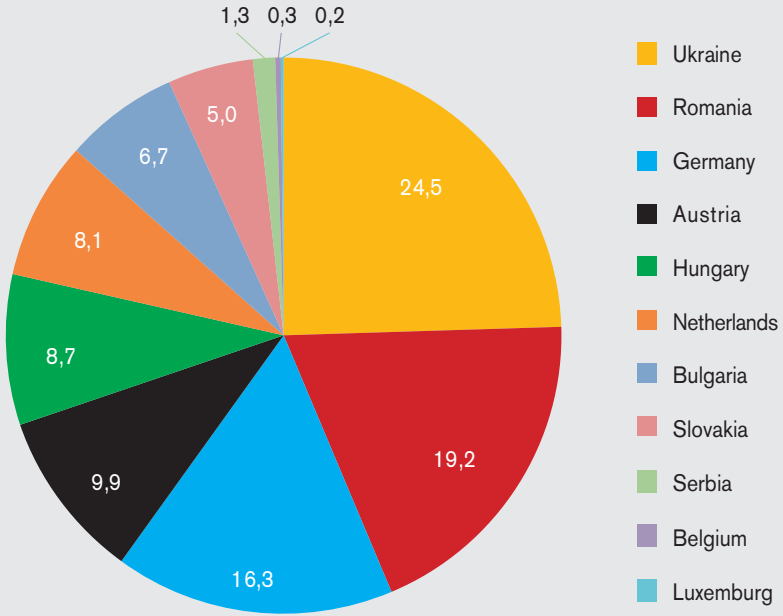
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31 *Source: Enerdata*

32 *Source: Germany Trade & Invest*

33 *TKM performance = freight traffic expressed in tonne kilometres. These figures relate to the situation in the first quarter of 2010*

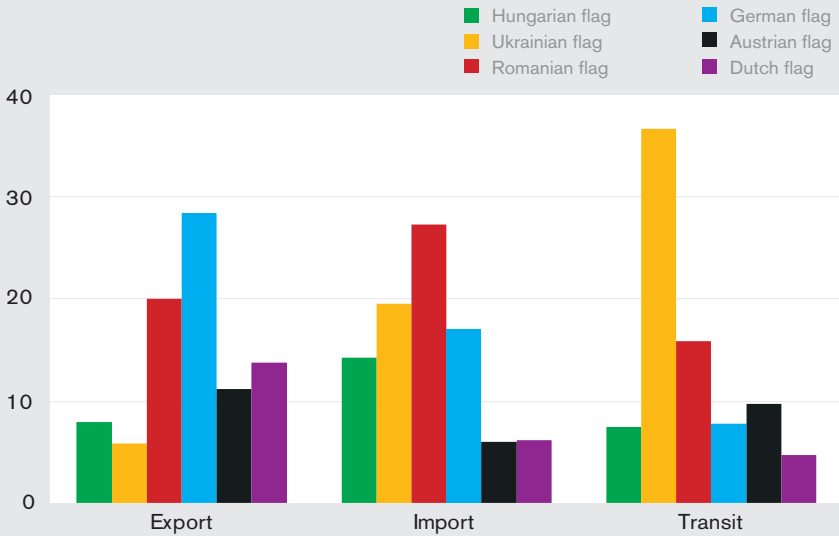
**Figure 25: Flag share of freight traffic on Hungarian waterways (%)**



Source: Hungarian Central Statistical Office; calculations by the CCNR Secretariat;  
 Situation: first quarter 2010

The picture becomes more nuanced if one looks at ship nationality by individual types of transport (see graph below). What emerges from this is that Ukrainian ships have a very high market share (approximately 37%), especially for transit traffic. This transit traffic mainly comprises iron ore and coal. The latter are imported via the Ukrainian Danube ports of Reni and Izmail from abroad (Australia, Brazil, South Africa), pass through the Hungarian sector of the Danube and from there into Slovakia and on to Austria.

**Figure 26: Flag shares of international freight traffic on Hungarian waterways (%)**



Source: Hungarian Central Statistical Office; calculations by the CCNR Secretariat;  
 Situation: first quarter 2010

At 16%, Romanian ships also have a very high share of total transit traffic on Hungarian waterways. As with the Ukrainian fleet, the Romanian fleet is also primarily engaged in transporting ores and coal. The ores carried by the Romanian fleet enter the Danube primarily through the seaports of Constanza and Galati.

According to Eurostat figures, the bulk of the ores unloaded in the seaport of Constanza between 2006 and Q1/2010, originated from Brazil. Other countries of origin were India, Australia and Canada.<sup>34</sup> By contrast, the ores offloaded in the port of Galati tend to come from the Ukraine. This is plausible inasmuch as Galati is far closer to the Ukrainian border than Constanza.

<sup>34</sup> Furthermore, the ports of loading in Turkey also played an important role, allowing us however to conclude that the ores were only temporarily stored in Turkish ports and actually come from overseas as well.



15% of national traffic, which is of little importance, is handled by the Hungarian fleet and 85% by the Slovakian. The Slovakian fleet has a 2.6% share of Hungarian exports, 3.1% of imports and 6.4% of transit traffic. Other countries not mentioned in the graph above are Serbia, Belgium and Luxembourg. These countries' fleets are of very little importance in Hungary's freight traffic.

### Inland ports in Hungary

The transshipment statistics for inland ports for 2009 and the main categories of goods they handle are listed below. The following map shows where the ports are located. The Hungarian inland ports are distributed along the length of the Danube, which flows through the country from north to south.

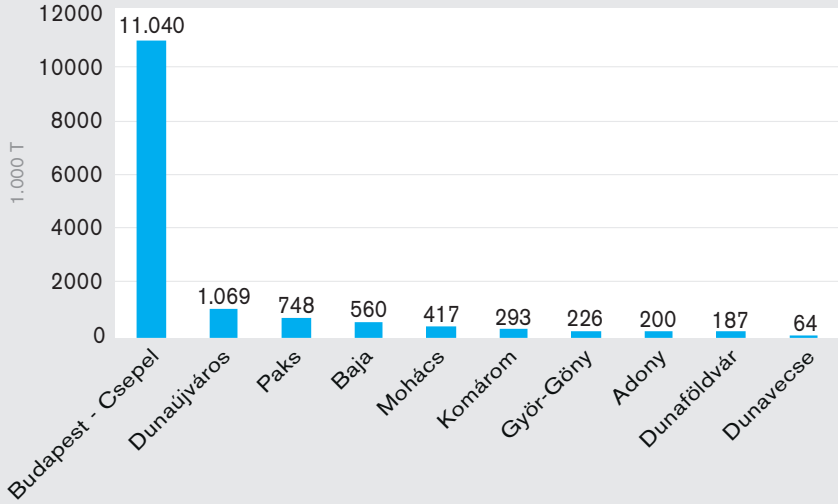
**Figure 27: Location of Hungary's most important inland ports**



Source: CCNR map. Inland ports in red

Inland port transhipments are very strongly concentrated on the port of Budapest, far and away Hungary's largest inland port.

**Figure 28: Inland ports in Hungary and transhipment volume 2009**



Source: Hungarian Ministry for National Development

The main focus areas of Hungary's five most important ports are: <sup>35</sup>

**Budapest:** Mineral oil products, crude oil, agricultural products, aluminium, finished steel products, fertilisers, Ro-Ro traffic, containers (to a limited extent)

**Dunaujvaros:** Coke, coal, iron ore, agricultural produce, sheet steel and steel rings, fertiliser

**Paks:** Agricultural produce

**Baja:** Agricultural products, containers, Ro-Ro traffic

**Mohacs:** Agricultural products (incl. soya)

The port of Budapest possesses four different terminals and an oil terminal. Dunaujvaros is a private port belonging to the Dunafer steelworks referred to above. Paks, Baja and Mohacs in the south of the country are dominated by the feedstuff industry and grain transshipment. In Mohacs a Hungarian animal feed company uses inland ships to import large quantities of soy flour, used as an animal feed additive, from the Dutch seaports.

This soy flour is obtained from oil mills in Rotterdam and Amsterdam. The beans originally come from the American Mid West, from where the harvest is shipped on the Mississippi to the ports on the Gulf of Mexico and from there to Rotterdam and Amsterdam. A small proportion of the soya beans also come from South America.

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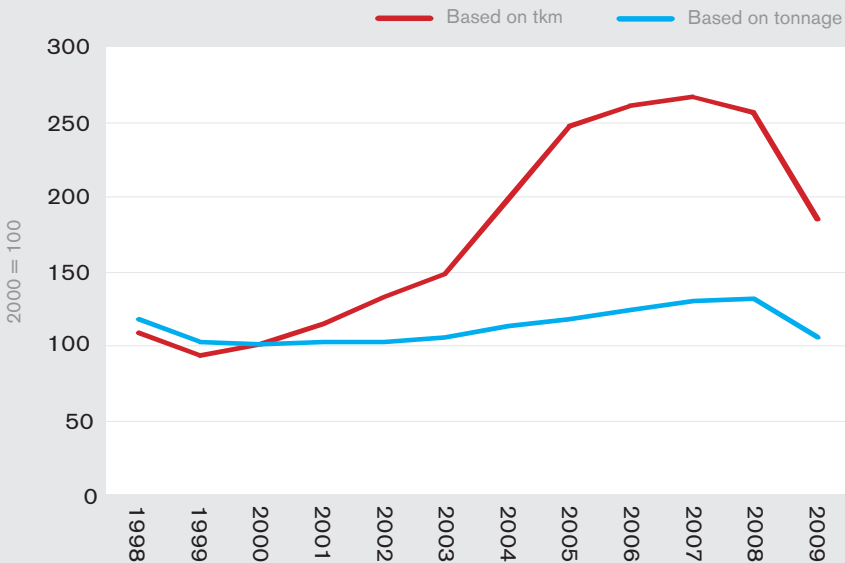
35 Source: Hungarian National Shipping Federation and Danube Commission

## Romania

### General traffic trends

The Romanian transport sector posted strong growth between 2003 and approximately 2007. But there was a significant decline in 2008 and 2009, probably as a result of the economic crisis.

**Figure 29: Trend in overall freight transport in Romania from 1998 onward**



Source: Romanian Statistical Office; ITF

The most important destination countries for Romanian exports are Germany, Italy and France.<sup>36</sup> Hungary's share is approximately 5%, Slovakia and Ukraine each have a share of somewhat more than 1%, Austria 2%. Romania's economy is now strongly focused on the plant and machinery sectors and on the textile industry. Automotive production is also one of the mainstays.

<sup>36</sup> Source of all foreign trade information: Romanian Statistical Office

The individual modes of transport have developed along very different lines in the past ten years. Rail traffic output in terms of tonne kilometres fell 25% between 1999 and 2009. Road freight transport has risen 154% in the same period, namely has more than doubled. Inland navigation posted growth of 76%. These different trends have naturally had a considerable influence on the modal split in the Romanian transport sector.

### Modal Split

The breakdown in Romania is structurally different from the situation in Hungary and Slovakia. The waterways have a far higher share and the railways a far smaller one.

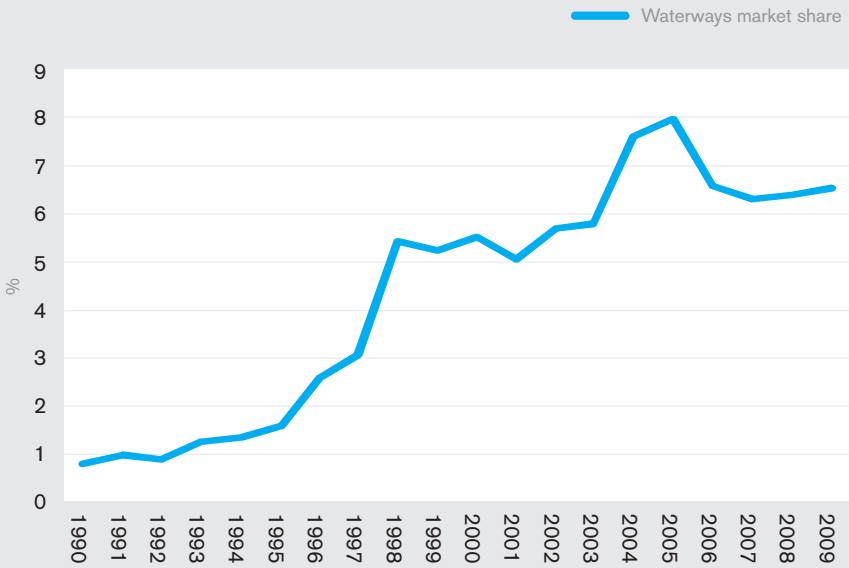
**Table 9: Modal split for freight transport in Romania (2009)**

Figures in %	Tonnes	Tonne kilometres
Road	77.0	68.7
Rail	13.3	18.6
Waterways	6.7	10.6
Pipeline	3.2	2.1

*Source: Romanian Statistical Office; Romanian Ministry for Transport; calculations by the CCNR Secretariat*

Inland navigation's share increased from 1% to 6.7% between 1990 and 2009. As regards transport performance, in the past three years it has regularly fluctuated around the 10% mark whereas in terms of transport volume it mainly fell in a range between 6 and 7%.

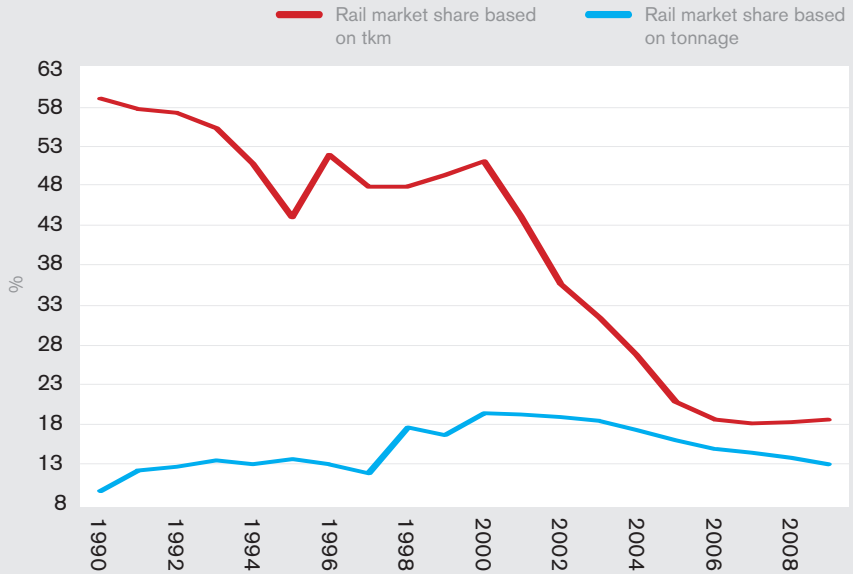
**Figure 30: Market share of the waterways in Romania**



Source: Romanian Statistical Office; based on traffic volume (tonnes)

Rail's market share has fallen significantly since 2000, as the figure below indicates. A major reason for this is out of date infrastructure. We are talking about incompletely electrified lines, out of date locomotives and wagon rolling stock.

**Figure 31: Rail market share of Romanian freight traffic**



Source: Romanian Statistical Office; Romanian Ministry for Transport; calculations by the CCNR Secretariat

But rail still has the highest market share for solid fuels. The waterways account for approximately 11% in this market. They managed to gain modest ground in recent years.

But to gain further market share generally, inland navigation would have to become far more involved in the container market. Currently there is only one regular container line service on the Danube. This scheduled service run by the Austrian company Helologistics operates weekly upstream and down between Budapest, Belgrade and Constanza.

The line currently operates between August and December. The passage from Budapest to Belgrade takes four days, from Belgrade to Constanza three days.<sup>37</sup> The upstream journey times are slightly longer. The container barges each have a capacity of 144 TEU and are organised into units for bulk goods transport. Potential customers are importers of cheap products under little time pressure.<sup>38</sup>

Greater use could also be made of the Romanian Danube for exporting steel products from Austria, Hungary and Slovakia.

### **Goods categories**

More than half of Romanian waterways transport is accounted for by metal ores. Coal plays the second most important role, with agricultural and forestry products in only third place. Agricultural and forestry products have a smaller share than in neighbouring Hungary, as do mineral oil products.

The important status of ores is only partially attributable to transit traffic bound for Austria. A further factor is that Romania has significantly greater steel production than Hungary and that the Romanian steel industry - with the Galati steelworks – lies on the Danube. However, this plant, which belongs to the AcelorMittal Group, has to undergo further modernisation in order to comply with European environmental regulations.<sup>39</sup>

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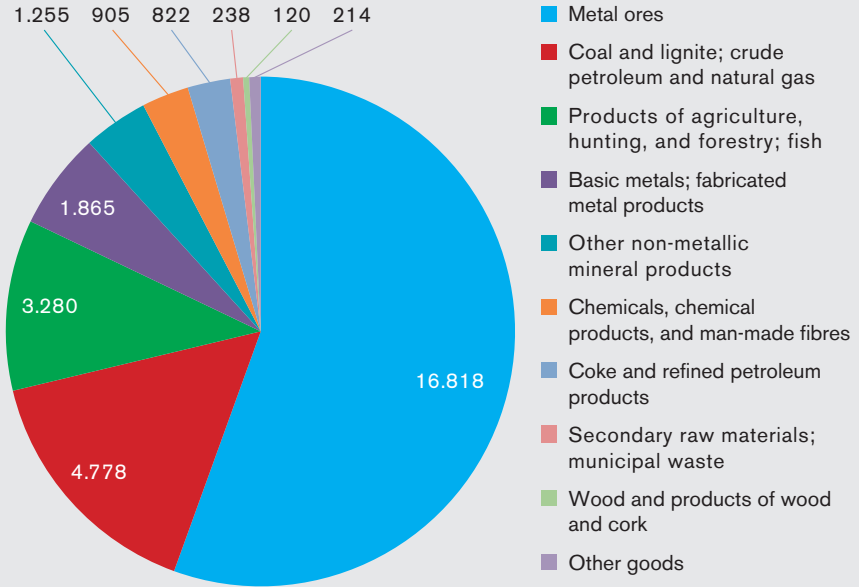
37 Source: <http://www.helogistics.at/index.php?pid=13&lang=1&nid=6>

38 Source: Austrian Waterway and Navigation Society ÖWSV

39 VDI news 21.12.2007



**Figure 32: Romanian inland navigation transport movements by freight category 2008**

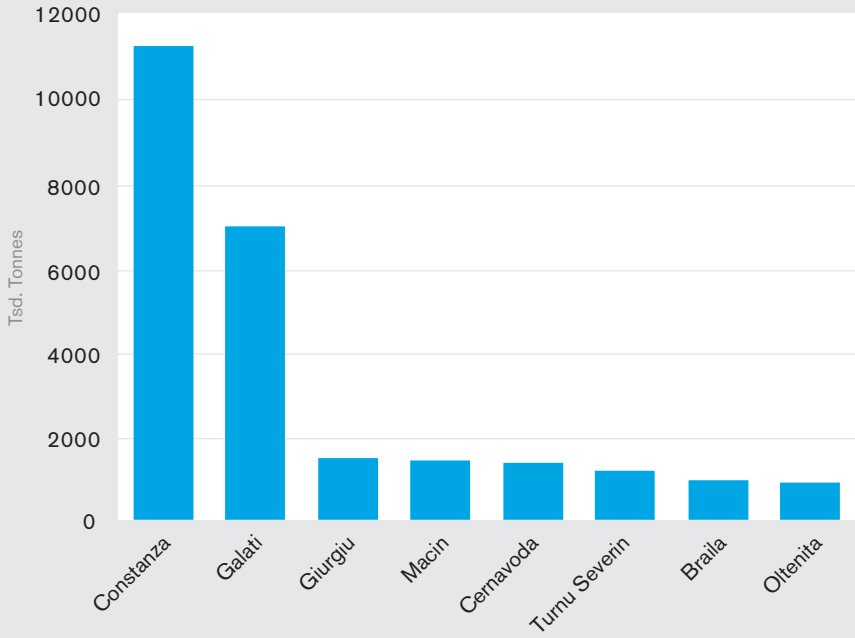


Source: Romanian Statistical Office; figures in 1,000 tonnes

### Inland ports in Romania

The country's two most important ports are Constanza and Galati. Both are combined sea and inland ports. Other ports are Giurgiu, to the southwest of Bucharest, the ports of Macin, Braila and Tulcea in the vicinity of Galati, Oltenita near Constanza and Turnu-Severin in the west. The location of these ports can be found on the following map.

**Figure 33: Inland ports in Romania 2008**



Source: Romanian Statistical Office

**Figure 34: Location of the most important Romanian inland ports and inland port transshipment\***



Source: Image provided by CCNR Secretariat; inland/seaports in red

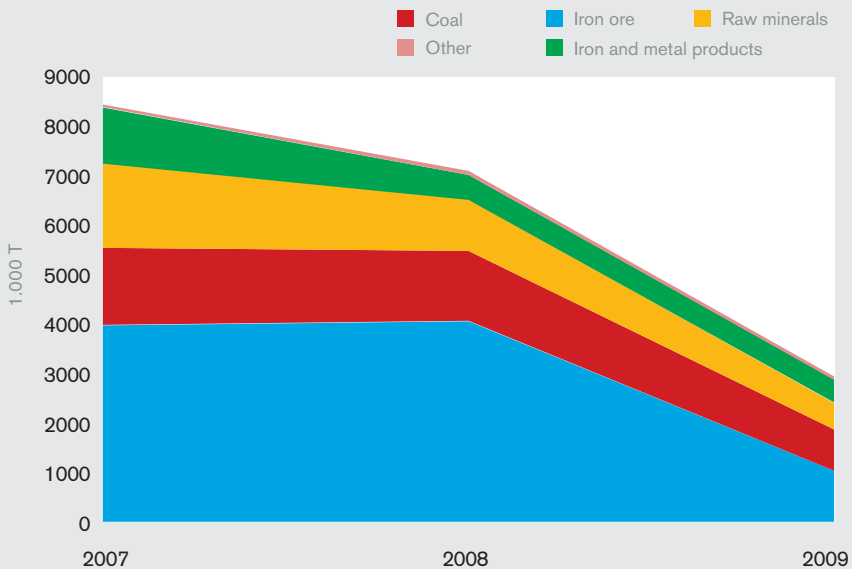
- Yearly harbour transshipment > 10 Mio. tonnes
- Yearly harbour transshipment between 6 Mio. tonnes and 8 Mio. tonnes
- Yearly harbour transshipment below 2 Mio. tonnes

The port of Galati is entirely dominated by the steel industry and the ArcelorMittal works located there. As such coal, ores and other raw materials along with iron and metal goods accounted for between approximately 97 – 99% of the total inland port transshipments between 2007 and 2009 (see figure). Other categories of goods, including agricultural and forestry as well as chemical and mineral oil products account for a minuscule share.

Of little surprise is the decline in total transshipments as a result of the economic crisis in the steel industry. The total volume in 2009 was 58% lower than in 2008. But what is astonishing is that volumes in 2008 were already lower than those of 2007. As the graph shows, this is attributable to a decline in raw minerals as well as iron and metal goods. Ore and coal transshipments on the other hand were broadly the same as the year before.

100% of coal and iron ores are imported. Iron and metal products on the other hand are to be found overwhelmingly on the outbound side of the port. Raw minerals are carried by foreign shipping companies and received as imports.

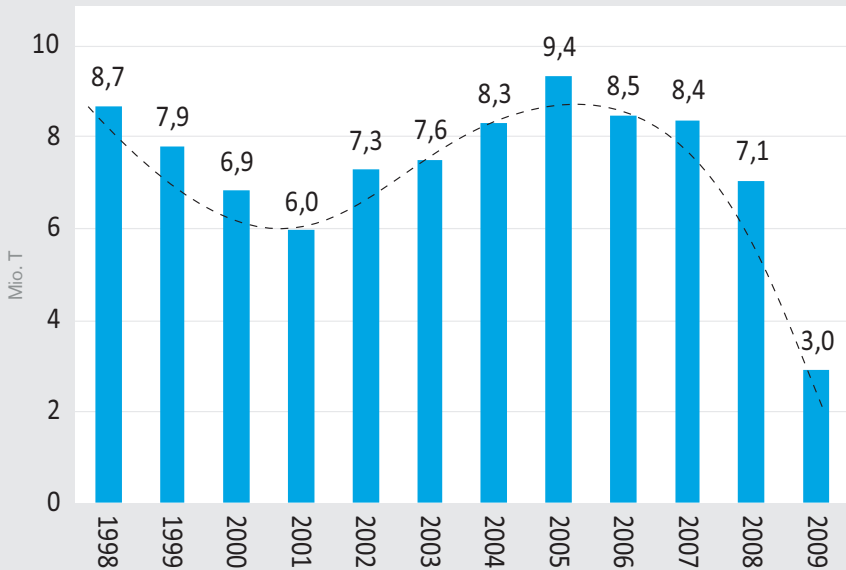
**Figure 35: Inland port transshipments in Galati by goods category**



Source: Port of Galati. Other = agricultural and forestry products, liquid goods, building materials, plant & machinery, fertilisers, scrap metal.

What emerges from the overall trend for the port is that between 2001 and 2005 there was an increase followed by a decline lasting several years. This cannot be explained solely by the economic crisis. Also the logistics of the steel work has changed, namely with respect to coking coal. The latter had previously been imported from overseas, whereas from the year 2009 onwards it is obtained from Poland, partly by rail and partly by inland navigation.

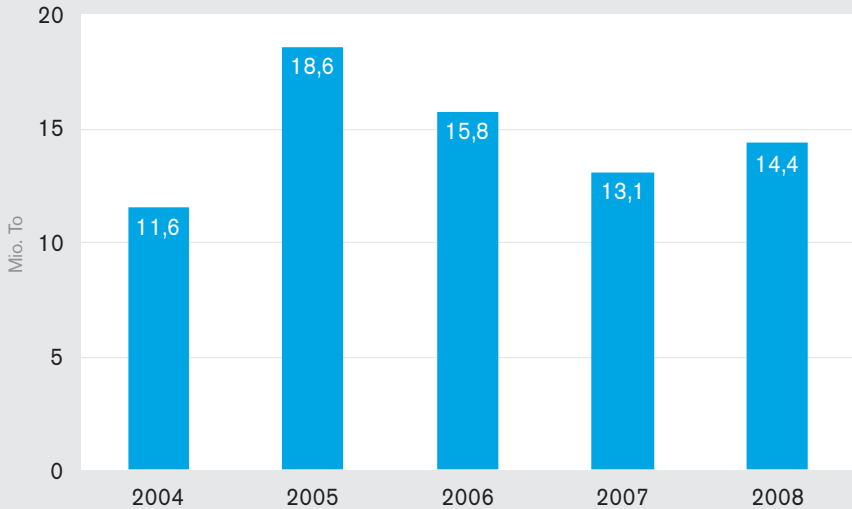
**Figure 36: Inland port transhipments in Galati**



Source: Maritime Danube Ports Administration

The volume of inland port transshipments in Constanza is generally higher, but the trend in recent years has been a slight decline:

**Figure 37: Inland ports transshipments in Constanza**



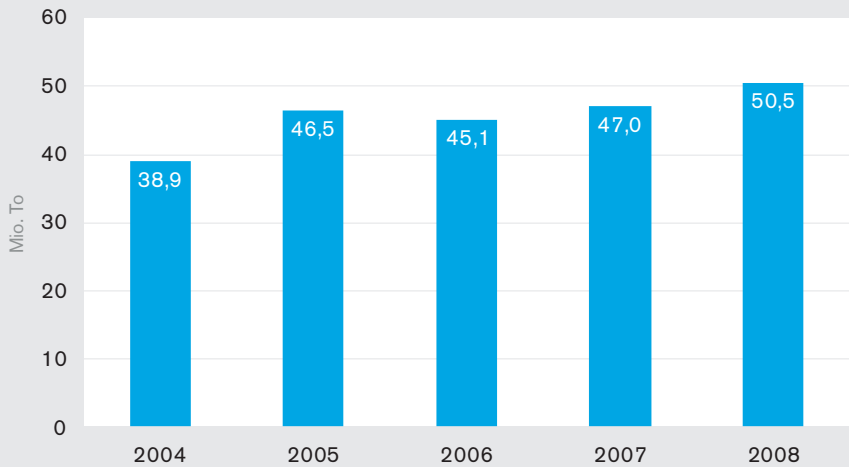
Source: Port of Constanza

### Seaports in the Danube region

The port of Constanza, connected to the Danube via a canal, is the most important seaport in the Danube region. The port of Midia, only a few kilometres north of Constanza, originally came into being as a satellite port of Constanza and was primarily built for the neighbouring petrochemical industry. This also explains why the port is more specialised in tanker cargos.

All market segments are strongly represented when it comes to seaport transshipments in Constanza. The most important goods category is iron ores and scrap metal. The trend in maritime transshipments was slightly up. In 2008 it was approximately 50 million tonnes.

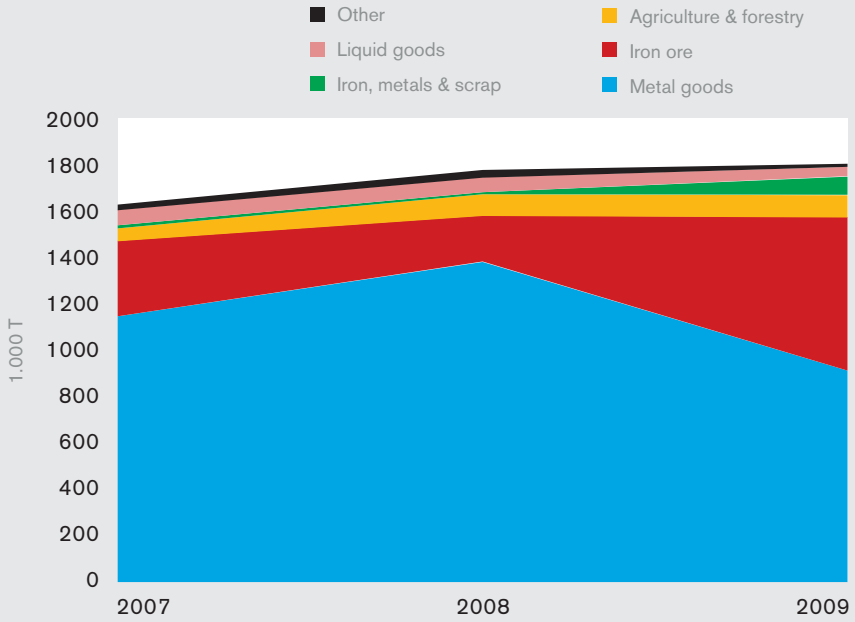
**Figure 38: Maritime port transshipments in Constanza**



Source: Port of Constanza

Seaport traffic in Galati is dominated by the steel industry, as is inland traffic. When it comes to seawards transshipments 100% of iron ores and liquid goods are to be found on the import side. The year of crisis in 2009 precipitated a sharp fall in ore traffic. Metal goods, scrap and agricultural and forestry products are to be found predominantly on the export side.

**Figure 39: Seaport transshipments in Galati**



Source: Port of Galati; other = food and feedstuffs, textiles, machinery, raw minerals, coal.



## Moldavia

Romania's eastern neighbour is served by the free port of Giurgiulesti, which is also accessible by ocean going vessels and is therefore to be seen as a combined inland and seaport. It is located in the south of the country in the immediate vicinity of Romania and Ukraine.

Moldavia's economy is primarily characterised by agriculture. The mild climate allows the cultivation of fruit and wine. Along with fruit and vegetables, wine is the main export article.

The port of Giurgiulesti features a grain terminal, intended to allow Moldavia's agricultural sector to tap into world markets. There is also an oil terminal capable of accommodating ocean going vessels with a capacity of up to 10,000 gross register tonnage.

The port is currently enjoying astonishing growth. 76,509 tonnes of goods were transhipped in the whole of 2009. It was already 147,689 tonnes in the first half of 2010. Approximately 65% of transhipments are accounted for by grain, 21% by sand and gravel and 14% on mineral oil products.

This growth is also related to the construction of a container terminal necessitating the importing of large quantities of gravel from Romania.

## Summary

The following points are to be noted when summarising developments and structures in the Danube countries:

1. An acceleration in freight traffic growth is to be noted for Slovakia, Hungary and Romania starting approximately in 2003. An important reason is probably the EU accession of the central and eastern European Visegrad countries in 2004 (Hungary, Slovakia, Czech Republic and Poland). This acceleration in growth was temporarily halted by the economic crisis.
2. Road benefited most from stronger traffic growth from 2003 onwards, thus increasing its modal split share. Rail has lost market share in all three countries. Inland navigation has lost market share in Slovakia, in Hungary it held its ground and in Romania it won market share.
3. In Slovakia and Hungary, the bulk of waterways transport is accounted for by transit traffic. Exports are in second place. There is little domestic traffic. The data situation for Romania is not clear.
4. Metal ores are the most important category of goods on the Danube in all three countries. However, a large proportion of these transport movements is transit traffic. Agricultural and forestry products are ranked second in Hungary, third in Romania while they are not so important in Slovakia. In Slovakia chemical products are ranked second in the freight statistics.
5. Overall, the association between the steel industry and inland navigation is not as close in the Danube region as it is on the Rhine. Only in Romania is the bulk of steel production on the Danube, in Hungary only part of it and in Slovakia the main steelworks is located far away from rivers.
6. When it comes to the provision of transport services, foreign shipping companies are in the majority both in Hungary and in Slovakia. The foreign fleet's share is even higher in Hungary than it is in Slovakia. Equivalent data are not available for Romania.

7. For a number of reasons, the container market is not yet very developed in the Danube region. On the one hand the sheer distance between the seaports on the Black Sea and the industrial centres can be seen as a time consuming obstacle. On the other hand there are also still river infrastructure obstacles that first have to be solved before container traffic can be developed further.
8. Due to an often unfavorable location of the main industries related to inland navigation (steel industry, chemical industry, energy sector), there are no great growth potentials for the transport demand on the Danube in the short run.
9. In the middle and long run, a growing goods transport on the Danube could be achieved if the industrial plants that are already located at the river Danube would expand, thereby provoking a further need of raw materials delivered by ship. However, this requires in most cases a restructuring and modernization of these industrial plants.



## Section 1

# **Demand for transport in autumn 2010 and forecasts for 2011**

## I. GLOBAL ECONOMY – SITUATION AND FORECASTS

The global economy has recovered significantly since the 2009 slump. A steep upward trend was apparent until the middle of the year, especially in the steel industry and chemical industry so that many countries were back to their pre-crisis production level by May 2010. However, this was then followed by a slight dip. This probably indicates a slowdown in the economic recovery since the middle of the year, which given the previous rate of recovery also comes as no surprise. Slower growth than in the first half of 2010 is to be anticipated for the second half of 2010 and for 2011.<sup>40</sup>

The WTO forecast stronger growth for the developing, threshold and CIS countries than for the developed countries (cf. table). This is largely consistent with the observation that numerous industries in Europe, such as the chemical industry and steel industry, owe their recovery in large part to the rising demand from emerging market countries in Asia and South America.<sup>41</sup>

**Table 10: Export of goods and GDP by region, 2007 to 2010**

Annual change in % -				
	2007	2008	2009	2010*
<b>Exports of goods</b>				
World	6.5	2.2	-12.2	13.5
Developed countries	4.8	0.8	-15.3	11.5
Developing and CIS countries**	9.0	3.8	-7.8	16.5
<b>Actual GDP</b>				
World	3.8	1.6	-2.2	3.0
Developed countries	2.6	0.4	-3.5	2.1
Developing and CIS countries**	8.0	5.7	2.0	5.9

Source: WTO \* Forecast \*\* CIS countries are the successor states to the Soviet Union

40 In autumn 2010 the OECD and European Commission also expressed the judgement that growth had weakened since mid 2010.

41 Compare this with the assessment of the Federation of German Wholesale, Foreign Trade and Services (BGA). German exports to the countries outside the EU in 2010 have shown the greatest dynamism.

For Germany, as the country with the largest logistics market in Europe, the Federation of German Wholesale, Foreign Trade and Services (BGA) is assuming growth of 16% for exports and 17% for imports. 2011 should then only generate half the growth (exports: +7 %; imports: +8 %).

While most experts do not think the strong Euro to be a threat, a weakening in world trade is seen as a real danger because of increasing protectionist tendencies.

## II. DEMAND FOR TRANSPORT BY SECTOR: DEVELOPMENT AND PROSPECTS

Transport demand in Europe in the first half of 2010 followed a positive trend in most western European countries during the economic recovery described above. An exception is Switzerland, where the steep decline in the transshipment of mineral oil products has had an impact on the overall result.

**Table 11: Freight traffic on waterways in the first half of 2010 compared with 2009**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	111,391	+11.7
Belgium	39,609	+11.2
France	29,355	+9.3
Switzerland*	3,674	-8.5

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

In Germany, rail freight traffic grew by 18% in the first half compared with the year before, thus outstripping inland navigation (just under 12%). However the decline suffered by the railways in the crisis year had been even greater than for the waterways, a consequence of the railways' more rigid freight prices. Imports enjoyed the strongest growth both in inland navigation (26.5%) and on the railways (21.5%). These disproportionate increases in imports are attributable to the increased need for raw materials primarily in the steel and chemical industries.

A weakening of the upward trend in the logistics sector as a whole is anticipated for the remainder of 2010 and for 2011. In its forecast for 2010 and 2011 the Fraunhofer-Arbeitsgruppe für Supply Chain Services expects market growth of 4 to 5% for the whole of the logistics sector. That means that the logistics market should be back to its 2008 level in 2011.

For the year ahead as well, rail freight traffic is forecast to grow at a slightly faster rate than road freight traffic and inland navigation. The waterways will therefore again lose a bit of market share.<sup>42</sup>

## 2.1 Agricultural products, fertilizers, foods and feedstuffs

In all, freight traffic for foods and feedstuffs in the first half of the year grew by 9% in Germany and by 10% in France. In Belgium there was even an increase of 30%. The previous year's performance in Switzerland's Rhine ports was matched.

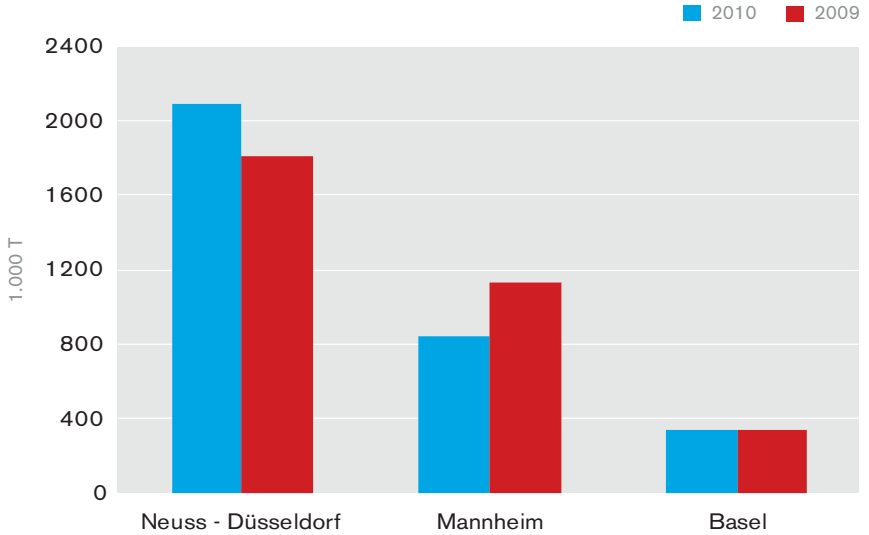
If one analyses the trend in transshipments in the three most important Rhine ports for this segment for the period January to August, the net result is approximately what it was the year before. But there are significant differences in results between ports (see figure).

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<sup>42</sup> *The Intraplan institute is assuming in its medium term forecast that inland navigation's modal split will continue to decline in 2010 and 2011.*



**Figure 40: Freight transhipments of foods and feedstuffs in the three most important Rhine ports in the period January to September 2010/2009 \***



Source: named ports; \* Basle: January to August

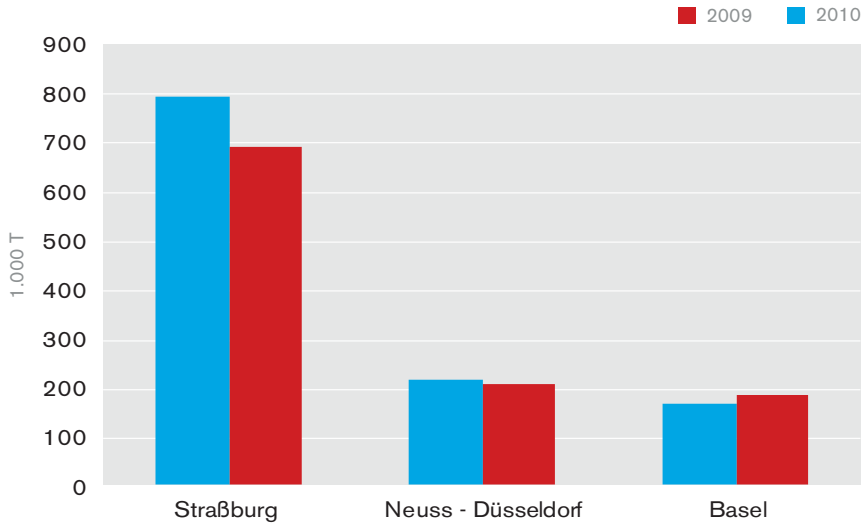
There were very mixed results for fertilisers. There was a massive increase in Germany and Switzerland (+27% in Germany). In France on the other hand there was a 31% fall. Belgium's performance was in positive territory at 10.5%.

The table below shows the trend for agricultural goods in the first half of the year for Belgium, Germany, France and Switzerland. The growth in France is also reflected in the figures for the port of Strasbourg (+10% for grain transhipments between January and July).

**Table 12: Freight traffic on waterways for agricultural products**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
France	5,535	+19.7
Germany	5,500	-3.0
Belgium	1,068	+30.8
Switzerland*	159	+/- 0

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

**Figure 41: Freight transshipments of agricultural products in the three most important Rhine ports in the period January to September 2010/2009**

Source: named ports; \* Strasbourg and Basle: January to August; Neuss-Duesseldorf: January to September

September 2010 forecasts for this year's grain harvest are mixed. But there appear to be losses compared with the year before owing to extreme weather conditions throughout the year. The yield will probably be below average, at least in the large producer countries France and Germany. It is not possible to anticipate developments in the coming year owing to the unpredictable weather, which is a major influence in this segment.

## 2.2 Iron and steel industry

The transportation of ores and metal wastes has improved decisively with the recovery in the steel sector. The table below illustrates this for a number of countries in Western Europe.

**Table 13: Freight traffic on waterways for ores and metal wastes**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	17,578	+63.2
Belgium	1,522	+6.4
France	1,425	+81.8
Switzerland*	47	+24

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

The waterways district of Nancy in France offers an impressive example of the recovery, accounting for exactly half of France's total transportation of ores and metal wastes. It essentially comprises the Lorraine region and other neighbouring areas. The transport of ores and metal wastes grew here by 284.3% in the first half of the year, from 187,000 tonnes to 717,000 tonnes. This is a consequence of the steelworks in Lorraine picking up again.

A further example can be seen in the port of Liege where one of two furnaces was brought back on line by ArcelorMittal, whereupon imports of ores and coal via the inland port increased by 400,000 tonnes in the first half of the year and exports of steel goods rose by 150,000 tonnes.

Iron and steel goods posted growth of 25% in France and 33% in Germany. In Switzerland, Basle's two Rhine ports registered an increase in imports of 84% whereas exports increased by 3%.

The automotive industry's demand for steel has recovered. Steel output in Belgium, Germany and France got back to its pre-crisis level by May 2010 but then had to accept a slow down. Capacity utilisation in Europe's steel industry should increase throughout the remainder of the year. But three of ArcelorMittal's European furnaces have still not come back on stream, one of them in Liege.

When it comes to ores and metal products, the year ahead will be characterised by further recovery and an increasing demand for transport, although the rate of growth will fall significantly.

### 2.3 Solid mineral fuels

Transport demand here has risen strongly in Germany and France but bucked the trend in Switzerland, where it fell.

**Table 14: Solid fuels freight traffic on waterways**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	17,738	+26.5
Belgium	3,383	+8.6
France	2,376	+27.6
Switzerland*	66	-14

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

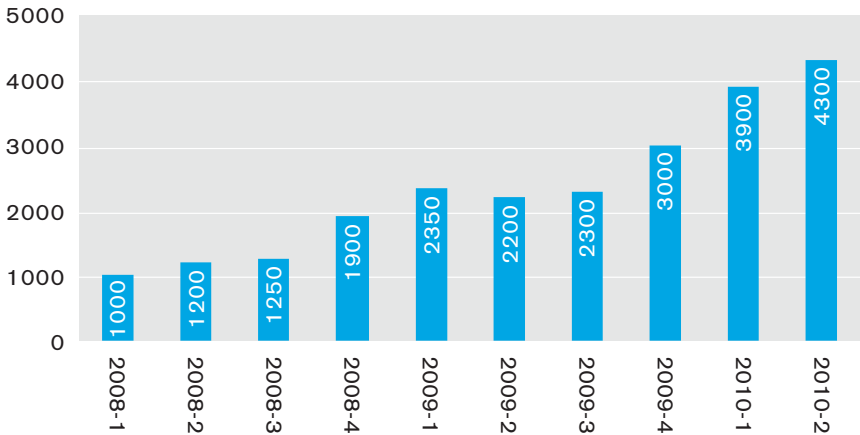
The above developments should be seen in the context of rising coal consumption. The latter increased by 35% in Germany compared with the year before, to more than 32 million tonnes. The steel industry consumed more than 9 million tonnes of this, amounting almost to a doubling compared with 2009 (4.9 million tonnes). The energy industry accounted for 22.5 million tonnes, a 23% increase compared with 2009.<sup>43</sup>

43 Source: AG Energiebilanzen

The inland ports are gearing up for further increases in coal imports. The port of Duisburg is adding significant extra coal handling capacity. The coal island in the port is for handling and stockpiling coal imported from Rotterdam. The coal is unloaded from inland ships and loaded onto inland ships or rail wagons for the onward journey. The coal island's capacity is currently being expanded from 2.5 million tonnes to 4.5 million tonnes.

But when it comes to coal transportation, inland navigation is facing a certain degree of, growing, competition from the Betuweroute between Rotterdam and Germany. Frequency on the line has increased from 3,000 trains in the first quarter of 2009 to 4,300 trains in the second quarter of 2010. A considerable proportion of these transport movements is accounted for by coal. The railway operator is the private company Keyrail.

**Figure 42: Numbers of trains on the Betuweroute by quarter**



Source: Keyrail

## 2.4 Aggregates, clay & building materials

The economic recovery in the construction industry in the first half of the year was very cautious. The cold weather early in the year delayed many construction projects. Public sector construction demand in Germany was therefore lower than the government had hoped from the numerous economic stimulus programmes.

That meant that there was no improvement in the most important segment by volume of navigation of the Rhine in the first half of 2010 but instead a slight fall in transport demand. The only exception was Belgium.

**Table 15: Freight transport on waterways for aggregates, clay & building materials**

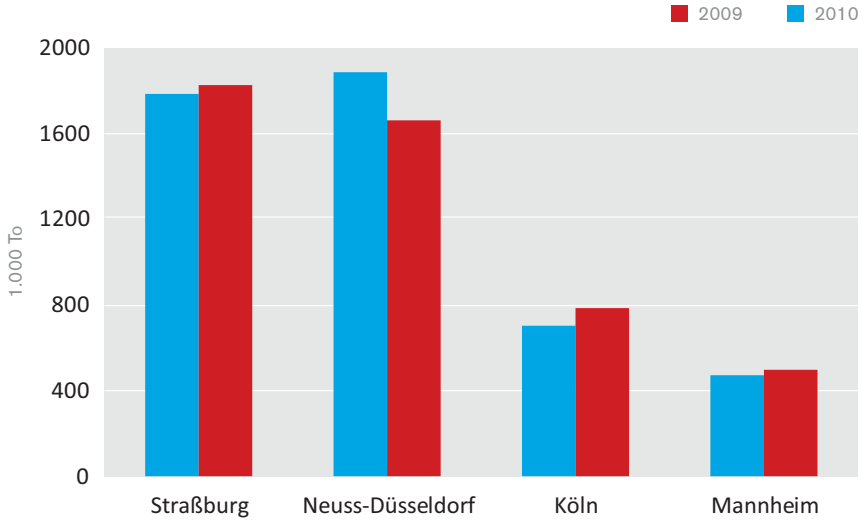
Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	20,306	-6.0
France	10,768	-2.7
Belgium	8,631	+7.6
Switzerland*	255	-2

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

The first eight months of the year saw a decline in three of the four largest Rhine ports in this segment. But there are certain signs of an improvement for the second half of the year.

In the port of Neuss-Duesseldorf the lost ground relative to the previous year was being recovered to an ever greater degree once the cold temperatures had ended. That meant that in September 2010 cumulative transshipments were already 13% higher than in the same period the year before. This can be interpreted as evidence of a recovery in transport demand in the course of the year. The German construction industry also expects a small increase of 1% for the whole of the year.

**Figure 43: Goods transhipments for aggregates, clay and building materials in the four most important Rhine ports in the period January to August 2010/2009**



Source: named ports. Neuss-Duesseldorf and Mannheim: January to September

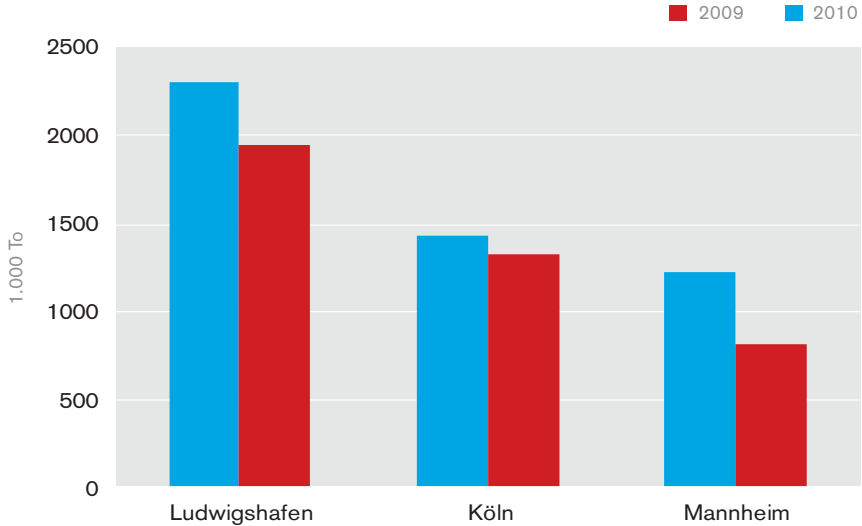
In the long term and with an eye to next year there is scarcely any potential for a radical improvement in transport demand in this segment. That is why the expectation is more one of stagnation for 2011.

## 2.5 Chemical products

The transportation of chemical products benefited very strongly from the economic recovery. The European Chemical Industry Council CEFIC is assuming strong growth for this year. But the recovery will probably slow in 2011.

In Ludwigshafen, the largest chemical port on the Rhine, transhipments of chemical goods grew 18% in the period January to August compared with the year before. In Cologne, the second most important port after Ludwigshafen, the increase was somewhat lower at 10%. Total growth for the three most important ports in this segment was approximately 22%, which was primarily a consequence of the strong growth in Mannheim.

**Figure 44: Freight transshipments of chemical products in the three most important Rhine ports in the period January to August 2010/2009 \***



Source: named ports. \* Mannheim: January to September

In France it was primarily the Rhine sector that contributed decisively to the overall national growth of +35%.

**Table 16: Freight traffic on waterways for chemical products**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	10,295	+20
Belgium	5,285	+30
France	945	+35
Switzerland*	350	-2

\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle



According to the German Chemical Industry Federation (VCI) the slump in output has now been almost completely reversed (in autumn 2010). But the VCI is also assuming a slowdown in the recovery process in the months ahead. That means that while transport demand in 2011 will probably increase yet further, the growth rate will slow.

## 2.6 Mineral oil products

For Germany and Switzerland, the first half of the year heralded a decline in transport volumes. Performance improved in France and Belgium.

**Table 17: Freight traffic on waterways for mineral oil products**

Country	1st half 2010 (in 1,000 tonnes)	% change 1st half 2010 / 1st half 2009
Germany	16,426	-10
Belgium	9,333	+5
France	2,967	+14.2
Switzerland*	1,738	-20.3

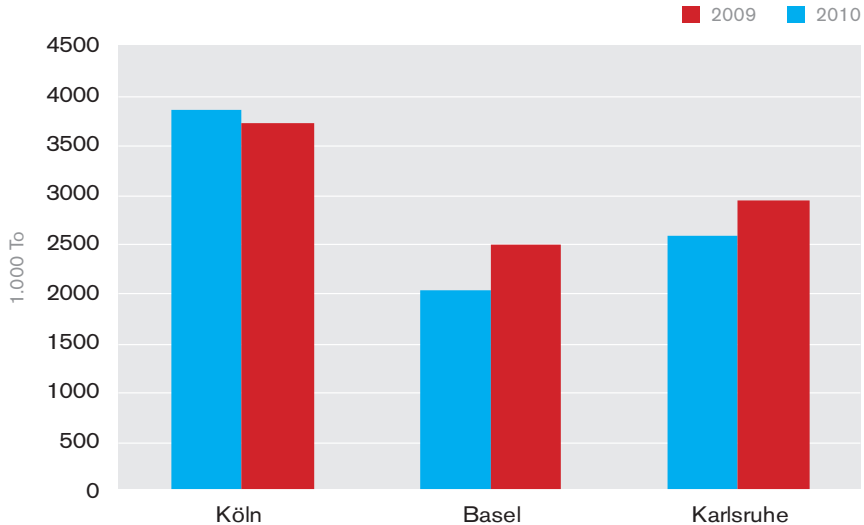
\* Rhine traffic in the Port of Basle; Sources: VNF; Destatis; ITB; Port of Basle

The reason for developments in Germany and Switzerland is the fall in the demand for mineral oil products as a result of the sharp price rise. Heating oil requirements were therefore met primarily out of own stocks.

Heating oil sales in Switzerland slumped by 40%. Stockpiling is on the cards for the second half of the year. What also speaks for this is that price movements have simmered down markedly since May.

Total transshipments in the three most important Rhine ports fell by approximately 8% in the period January to August. This entailed a decline in Basle and Karlsruhe whereas Cologne bucked the trend and posted a modest increase.

**Figure 45: Freight transshipments of mineral oil products in the three most important Rhine ports in the period January to August 2010/2009**



Source: named ports

In both of Basle's Swiss Rhine ports, additions to diesel inventories fell by approximately 10%, with additions to petrol inventories down 1.5%. As both Swiss refineries were still producing at full capacity the upshot was a reduced requirement for fuel imports, which adversely affected Rhine traffic.

Structurally, the transportation of mineral oil is currently falling. The reasons are primarily to be found in the reduction in heating oil consumption. As a result, in 2009 oil heating's share of the heating structure of the housing stock in Germany fell below the 30% mark for the first time.<sup>44</sup> For new dwellings, oil heating's market share is now only 1.6%. German consumption of gasoline and aviation fuel also continued to fall last year but with diesel consumption slightly up.

<sup>44</sup> Source: *Arbeitsgemeinschaft Energiebilanzen (2010)*

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In the long term, owing to imbalances between refinery output and diesel and/or petrol consumption, there should be some potential for trading and transporting mineral oil products. For example, because of the focus on diesel driven vehicles, more petrol is being produced in Europe than can be sold on the market. Conversely, in the USA, the demand for petrol is greater than the supply produced by the refineries. This is making possible the trading and transport of mineral oil products.

This trend has prompted the seaports of Rotterdam and Amsterdam to expand their tanker terminals and storage capacity for oil products. It is also anticipated that within the next decade refinery capacity will be relocated from Europe to the oil producing countries. In this scenario there would be a boost to mineral oil product imports through the seaports, which should also feed through into a corresponding increase in inland navigation.

## 2.7 Container

In the first half of 2010 global maritime container transshipments grew by 17.3%.<sup>45</sup> In the European seaports as well, the recovery in global trade resulted in a marked increase in the first half of the year. Inbound container transshipments in Antwerp rose 20% (by weight) in the first half of the year, or 16% (TEU). In Europe's largest container port, in Rotterdam, transshipments measured in TEU grew 18%.

Moreover, as a result of the economic crisis, inland navigation's modal split increased from 30 to 33%. Inland navigation has shown itself to be more flexible than rail in setting transport prices which, along with the lifting of the bottlenecks in the terminals, was a major reason for the increase in Rotterdam's modal split.

Waterways' traffic in the hinterland also benefited from the increase in maritime trade activity. In the first half of the year in Germany there was a 21% year-on-year increase (based on TEU). On the French waterways, container traffic measured in TEU increased by 8.5% in the first half of the year. The French Rhine sector had a clear lead here with +35%. On the Rhone and especially in the north of France there were single digit losses; the Seine equalled its previous year's performance.

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<sup>45</sup> Source: ISL Bremen based on an analysis of 70 leading ports.

According to WTO estimates world trade should slow in 2011. This will also put a brake on the growth in container traffic.

### **III. DEMAND ON THE MARKET FOR THE TRANSPORT OF PASSENGERS**

This year, day trips have had to accept a decline in passenger numbers. The reason is less to do with the economic crisis than the predominantly bad weather in the spring and again in August. In addition to the weather, the eruption of the Icelandic Eyjafjöll volcano, that interrupted flights in May and with it tourist travel, contributed to the decline.

The industry is still hoping for an increase in year end customer numbers, especially because boat trips have become increasingly fashionable with companies as the year draws to a close.

Whereas the day trip sector has posted a less good annual performance, the bad weather has not had such a marked impact on river cruises. According to industry representatives, ship booking levels were good. Demand is growing at an average of 5% per annum.

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As far as growth in demand is concerned, US American tourists, despite the current weakness of the dollar, continue to be a driving force. US American business was interrupted only briefly in May by the eruption of the Icelandic volcano. A number of trips had to be cancelled but this will not have too strong an adverse effect on the year's results.

In general there is currently a discernible river cruising trend towards product differentiation. The cruise is not offered as a homogenous commodity but in variants of many hues that differ from one another in terms of the design of their supporting programme, gastronomy and other details besides. The intention is to appeal to as many different customer groups as possible with very specific predilections and preferences.<sup>46</sup>

River cruises are being used ever more frequently to act as additional hotels at the scene of trade shows and major events. The boats moor in these towns and cities for the duration of the trade fair, thus increasing the town's hotel capacity.

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<sup>46</sup> *For example it is possible to book river trips for aficionados of particular literature.*



## Section 2

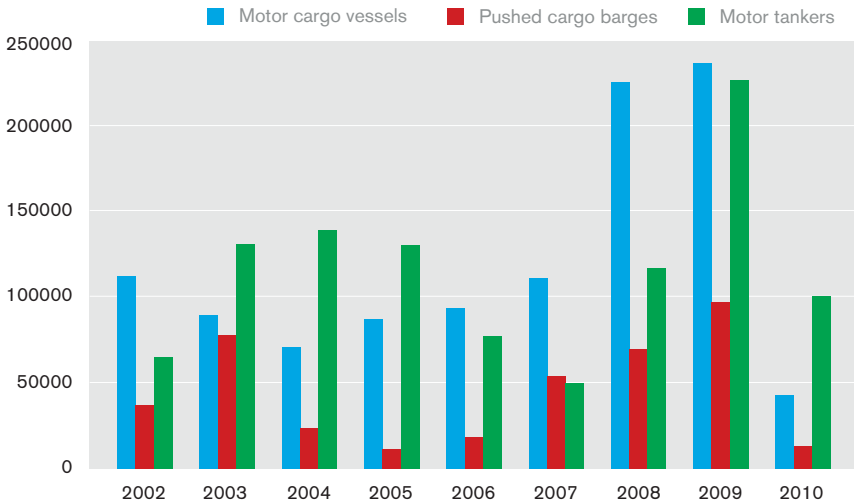
# Relationship between transport supply and demand

## INTRODUCTION

In Western Europe, transport demand has returned to its pre-financial crisis level in major segments of the dry goods shipping market as well as in the chemical sector. It therefore seems important to observe the latest transport supply developments in order to be able to assess the market situation. As far as transport demand is concerned, the crisis is not yet over in the Danube countries. There is clear freight overcapacity, it not however being possible to obtain an accurate picture of the existing overcapacity and how it is evolving. That is why this section refers to the Western European market alone.

## I. FLEET DEVELOPMENT: NEW CONSTRUCTION

*Figure 46: New construction*



Source: IVR (\*) for 2010: situation at the end of October



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### **1. Dry goods shipping freight capacity**

In the first 10 months of 2010, only 19 new motor cargo vessels with a capacity of approximately 53,000 tonnes and 9 new pushed barges with a capacity of 18,500 tonnes entered service. Compared with the same period the year before, approximately three times fewer motor cargo vessels entered service. Most of these new constructions entered service in the first 4 months. This suggests that ship building in the dry goods shipping sector will soon come to a temporary halt as there are currently no more new ships being ordered.

### **2. Tanker navigation freight capacity**

52 new motor tankers with a capacity of approximately 148,000 tonnes entered service in the first 10 months of 2010. The rate at which new construction is entering the market is absolutely comparable with 2009, suggesting that the restructuring of the tanker fleet is continuing independently of the economic crisis.

### **3. Passenger ships**

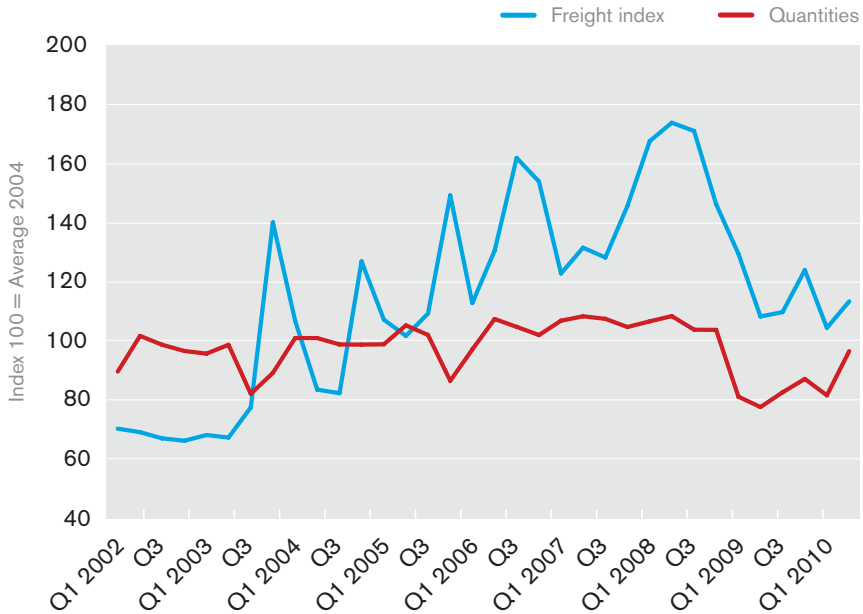
Every year approximately 10 new units enter the Western European passenger navigation market. According to the latest information, this rhythm is set to continue in 2010, as this market has remained almost entirely unscathed by the economic and financial crisis. For example, one new ship with overnight cabins and one new cruise boat were brought into service in the first 10 months of the year.

## **II. CAPACITY UTILISATION**

### **1. Dry freight capacity**

Although transport demand in the most important freight categories has been back at its pre-crisis level since March 2010 (looked at on a monthly basis), it can be noted that freight rates remain far below their pre-crisis level, this in a context of comparable water conditions.

In the current situation, the capacity utilisation of the largest vessels in particular is unsatisfactory. However, this also has a knock-on effect on the medium sized and smaller vessels, because a proportion of their normal transport demand is being cannibalised by the large vessels.

**Figure 47: Trend in quantities and freight rates on the Rhine**

Sources: Destatis, NEA

Between the beginning of 2008 and autumn 2010, almost 700,000 tonnes of highly productive capacity has been added to the market. This equates to an increase in capacity of more than 7%, in terms of tonnage. The impact on market supply is significantly greater as this is capacity that is being managed and employed very efficiently.

The growth of the fleet since 2002 was in step with the growth in demand until 2008. The balanced evolution of offer and demand on the market has been disrupted by the financial crisis. The result was a disturbance of the equilibrium of the market due to the sudden collapse of demand in the wake of the financial crisis.

As the numerous ships under construction at that time were only added to already existing capacity in 2009 and 2010, the still existing imbalance between supply

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and demand resulting from the financial crisis had sharpened in this period. An additional increase in demand will be necessary to compensate the higher capacity on the market. So the pre-crisis market equilibrium could only be restored if the demand reaches higher level than before the crisis.

## **2. Tanker freight capacity**

Ignoring seasonal cycles, the quantities of crude oil carried in the first half of 2010 have been at a rather low level (-10% compared with the year before).

In the chemicals sector on the other hand, there is a marked recovery in demand to be seen, as in the most important dry goods categories.

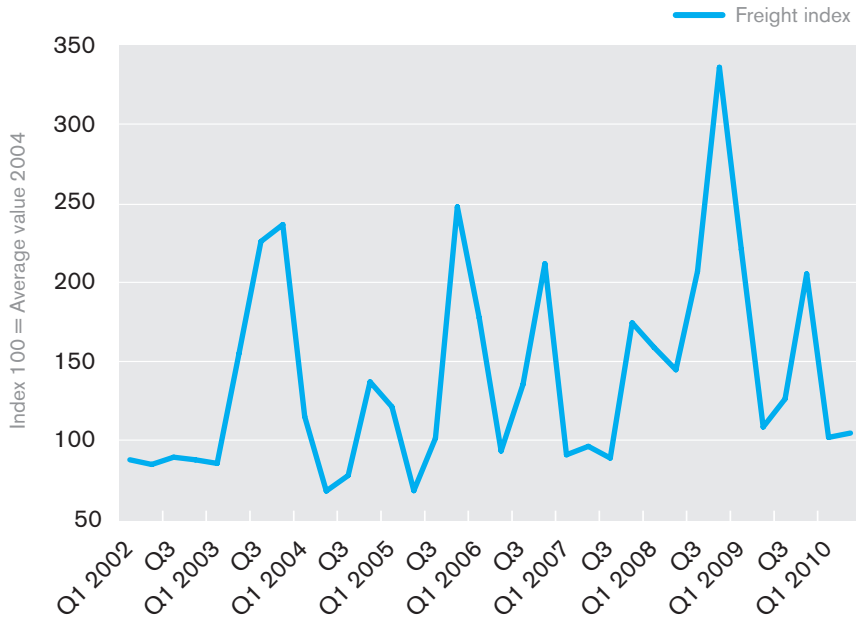
Declining structural demand is anticipated in the crude oil arena. The forecast growth in demand in the chemicals sector is not enough to compensate for the decline in the crude oil sector.

In parallel, due to the restructuring of the fleet to double hull tankers, approximately 450,000 tonnes of new capacity have been brought onto the market since 2008. That equates to an approximately 20% increase in capacity. If one goes back further you will note that the increase in capacity since 2002 has been around 60%.

Transport capacity is continuing to increase as a result of the addition of new double hull ships or the conversion of older ships so that there is ever more supply coming to the market. Even if it is technically possible to converse single hull ships into double hull ships, this possibility should not concern a large part of the existing single hull ships.

It should be added that double hull ships have potentially a higher productivity because they need to work more intensively than single hull ship. In this context, the question could be justified if the now existing double hull couldn't already be sufficient with regard to the rather negative trend of the transport demand.

The current situation is resulting in very low freight rates, except in seasonal purchase phases and in transitional periods on the futures markets (backwardation/contango).

**Figure 48: Freight rate index in tanker navigation**

Source: NEA / PJK International B.V.

For example, persistently low freight rates were to be observed in the first half of 2010 and even into the summer.

The evolution of the freight rates shows that the tanker shipping market is characterised by a high degree of volatility which results from a rather complicated relationship between demand (oil price effects, movements within the term structure of prices) and supply factors (water level, cost of inland shipping). In this context, an analysis of the relationship between supply and demand can only be realised on a middle to long run basis.

Therefore a critical situation can still be expected for the years 2013 – 2016, maybe until 2019, if the expected addition of capacity is not balanced at the same time by getting out of the market of old single hull ships.

## **Section 3**

# **The situation of inland navigation companies**

2009 and the first half of 2010

## INTRODUCTION

Whereas transport demand continues to grow, while freight rates remain low as a result of existing overcapacity, it appears important to analyse the situation of the inland navigation companies in terms of output and costs. The notion “economic activity” which is used corresponds to a combination of the freight rates with the transported volumes in each of the sectors (dry cargo / liquid cargo). Because 2004 can be considered as an average year, its values are taken as a reference.

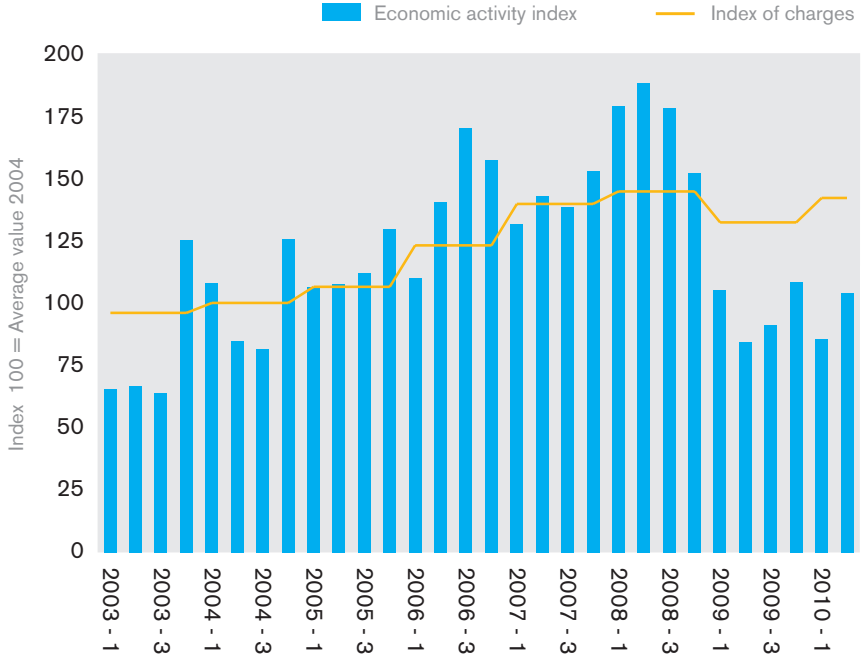
In the absence of reliable information on the situation in the Danube region, this analysis will concentrate on inland navigation in Western Europe.

## I. DEVELOPMENTS IN BUSINESS ACTIVITY

### 1. Dry goods shipping

After a very bad year 2009, the shipping activity was a bit better in the first half of 2010, but stayed therefore on a still insufficient level. The blame for this can mainly be put on the freight rates, which still remained too low. But also the transported volumes still remained a bit lower than before the crisis. So the capacity utilisation was still too low to cover the financing costs, especially for the largest vessels. In 2009, the costs decreased less than the activity.

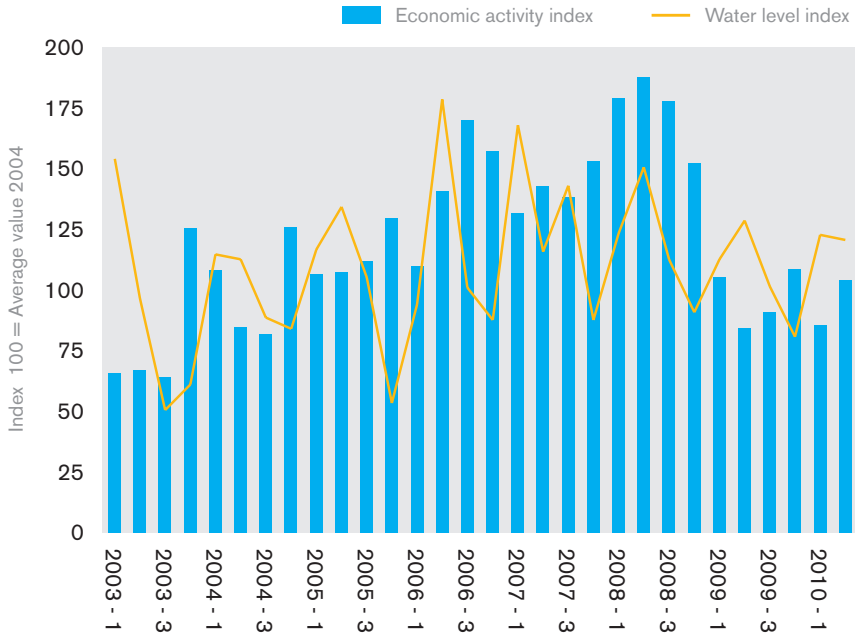
**Figure 49: Economic activity in the dry cargo sector compared to the evolution of costs**



Source: CCR Secretariat

A modest upturn was observed in the 4th quarter of 2009, the result of a modest recovery in demand coupled with low water conditions, which often didn't allow loading the ships at their full capacity.

**Figure 50: Economic activity in the dry cargo sector compared to the water conditions**



Source: CCR Secretariat

In the 2nd quarter of 2010, by contrast, the increase in output was attributable to the marked increase in transport volumes accompanied by water conditions that allowed ships in most cases to achieve their maximum loaded draft. The continuing increase in demand should also fuel improvements in output in the months ahead.

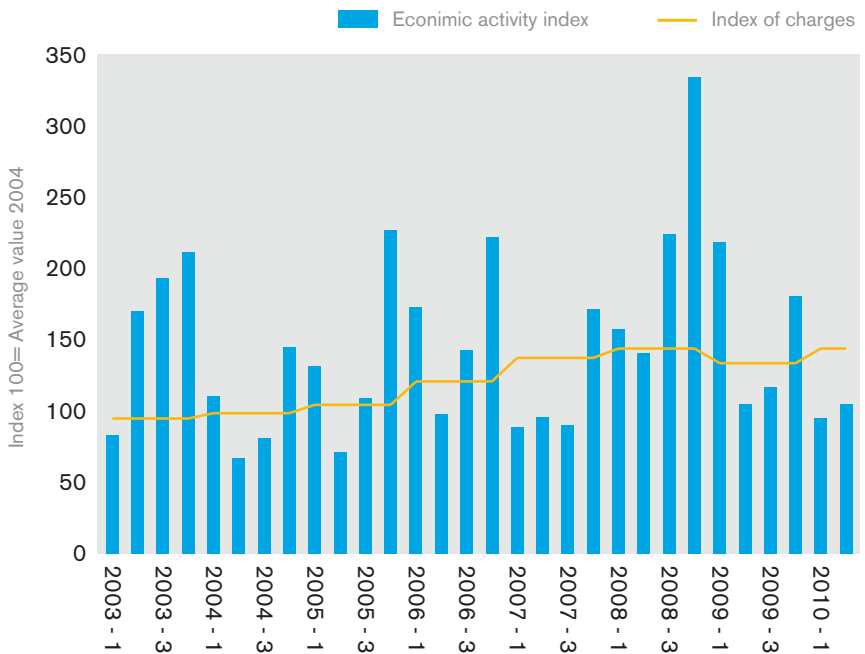


## 2. Tanker shipping

Apart from the 4th quarter, which managed to benefit from a seasonal recovery in the crude oil market, and the consequential increase in demand, output in the tanker navigation sector was low both in the spring and summer of 2009 as it was in the first two quarters of 2010.

This situation is becoming ever more difficult to bear for the shipping industry, especially for the new double hull ships that have to cope with higher operating costs than single hull ships that are often already fully depreciated. Globally, the costs didn't decrease as much as the activity.

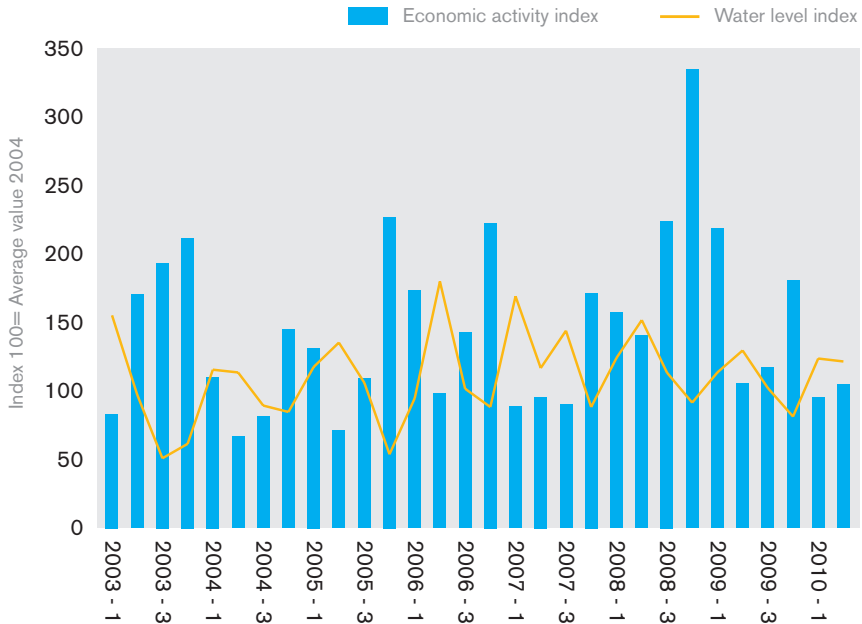
**Figure 51: Economic activity in the liquid cargo sector compared to the evolution of costs**



Source: CCR Secretariat

Due to their impact on the loading capacity, the water levels have an influence on the freight rates, and therefore also on the economic activity of the shipping industry. Furthermore, the demand has a (direct) influence on the economic activity.

**Figure 52: Economic activity in the liquid cargo sector compared to the water conditions**



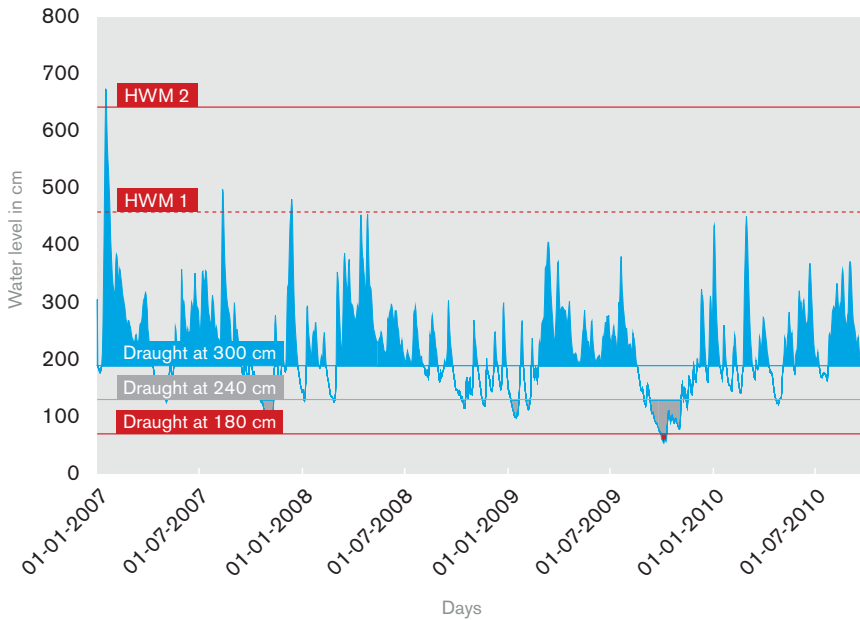
Source: CCR Secretariat

### 3. The influence of water conditions

In the autumn of 2009 and in the first two quarters of 2010, water conditions were sufficient to enable a maximum laden draft.

There was only one short period in the winter of 2009-2010 during which there was a water shortage.

**Figure 53: Water conditions at Kaub**



Source: BfG

## II. COST TRENDS

### 1. General costs trend

**Table 18: Comparative cost structure for newer motor vessels**

Reference year 2004		Owner operated motor ves- sels	Tankers operated by a ship- ping company
Fuel		20 %	18 %
Labour costs		40 %	42 %
Other costs	Interest	40 %	40 %
	Insurance		
	Maintenance		

Source: CCR Secretariat

The various items of expenditure sum to the following trend:

**Table 19: Cost index**

Index	2003	2004	2005	2006	2007	2008	2009	2010
Fuel	84	100	130	145	148	181	122	163
Labour costs	98	100	101	103	105	108	111	113
Other costs	100	100	100	132	170	163	161	163
Total costs index Dry goods shipping	96.0	100.0	106.4	123.0	139.6	144.6	132.2	142
Total cost index tanker navigation	94.3	98.0	103.8	120.1	136.6	143.1	132.9	143

(\*) estimated. Source: CCNR Secretariat

An approximately 7 % increase has been observed both in the dry good shipping sector and in tanker navigation. This increase results for the most part from the rise in fuel costs.

## 2. Fuel

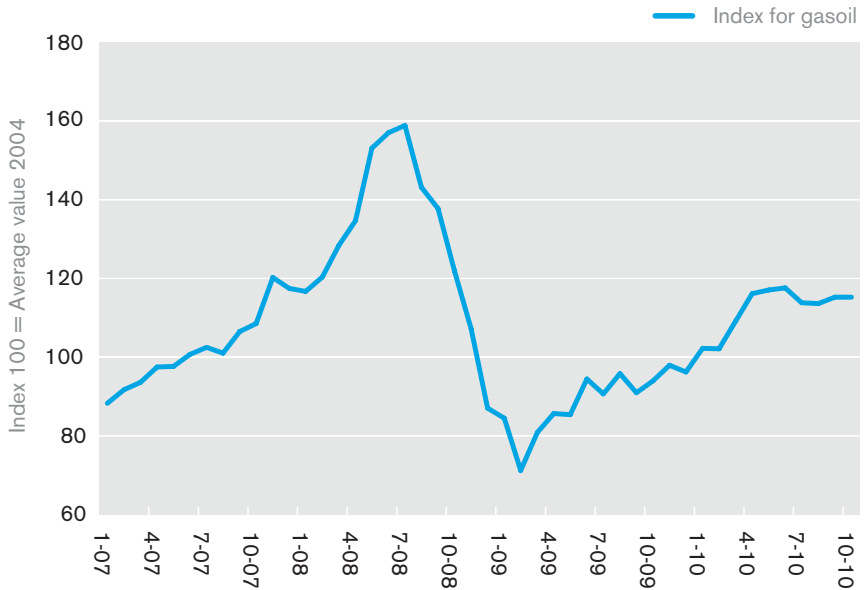
From their trough in the second quarter of 2009, fuel prices have recovered to a level corresponding to a point midway between the trough of 2009 and their peak in mid 2008.

Fuel prices have therefore risen approximately 62 % since the low point in the 2nd quarter of 2009. In many transport contracts, fuel increases are passed on in part to the shipper by so-called “gas oil clauses”. The effect of these clauses is therefore incorporated into the freight rates.

**Table 20: Average annual gas oil prices**

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Price of 100 l of diesel	28.50	30.07	35.88	46.67	52.12	53.16	67.94	46.30	58.41

**Figure 54: Fuel prices**



Source: CBRB - Secretariat

### 3. Labour costs

Labour costs rose moderately in 2009 and 2010. Contractual wage increases can be seen at all times:

- For example, a wage increase of 1.1% was applied in Germany with effect from 1.7.2010 (after + 3% on 1.1.2009).
- Wages in the Netherlands rose by approximately 0.75% in 2010.

Structural evolutions are taking place on the labour market. An increase of workers coming from non EU countries can be observed. These workers are employed on the basis of contracts and structures which make it difficult to check if these are met by the official labour market rules. This is especially so for the wages.

### 4. Maintenance costs

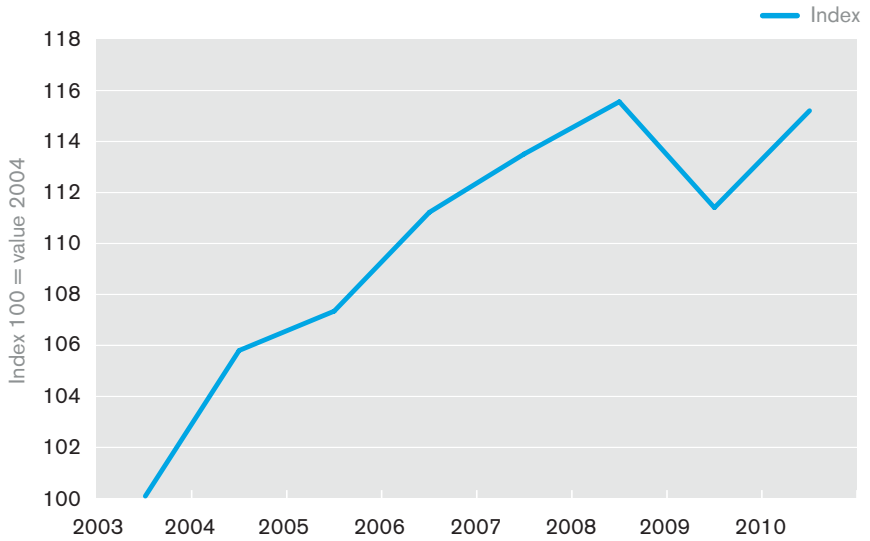
The increase in steel prices has pushed up maintenance costs. A further increase is not ruled out. In Belgium, for example, it is anticipated that maintenance costs will increase by approximately 3.4% compared with the low point in 2009.

In parallel however, it must be noted that two factors have significantly reduced shipyard utilisation.

On the one hand, hardly any more dry goods ships are being fitted out, which has restricted demand in the specialised yards. Even if a few ships were completed in the first half of 2010, no more new orders have been received.

On the other hand, owing to the difficult financial situation in which many shop owners find themselves, a lot of maintenance work has been postponed and only essential work is being carried out.

**Figure 55: Maintenance costs**



Source: ITB

## 5. Financing and financing costs

Generally speaking, interest rates have stabilised at a low level since mid 2009.

Owing to the relatively fragile profit situation and the uncertain future, for the time being banks are no longer investing in the dry goods shipping sector.

Investments are still being financed in the tanker navigation sector but only where there is a high proportion of equity.

## 6. Insurance

For the moment, there is a situation of overcapacity on the market. In the dry cargo sector, this is the consequence of the arrival of many new ships on the market, combined with the breaking down of the transport demand due to the financial crises. For the moment, the demand on the dry cargo market didn't recover totally.

This situation, combined with the difficulty to get a credit from banks leads to a quasi stop of transactions of big ships. Therefore, the evaluation of the economic value of the ships becomes very hazardous. This also leads to a reduction of the insurance value of the ships. For the tanker market, the prices of the new double hull units can be used as a reference for the ship values.

The decrease of the insurance value (especially of the older ships) tends to lower the insurance costs.

## CONCLUSION

The economic situation facing the dry goods shipping industry is currently characterised by a modest increase in operating costs. Output remains generally inadequate owing to freight rates being too low and transport volumes that are still too low, which does not permit optimal utilisation of existing capacity. As a result the economic situation facing many shipping companies remains very difficult, despite a marked increase in transport demand compared with the low point of the crisis.

In the tanker navigation sector, many double hull ship operators face a deteriorating situation owing to a lack of demand coupled with continuing growth in transport capacity. Operating costs have also risen slightly but with freight rates set to stagnate in the medium term despite a high degree of volatility.



## SUMMARY

Having bottomed in the spring of 2009, transport demand has continued to increase. Above all it reflects the recovery exhibited by the German economy - the most important country for waterborne transport. The critical segments here are the steel industry, the part of the energy sector based on hard coal, the chemical industry and the container segment. Especially in the steel industry this increase is partially explained by catching-up effects necessitated by the extremely drastic reduction in output when the crisis broke out. For this reason alone, this increase must not be extrapolated as a forecast for the coming months because it is far more likely that the growth rate will level off. Moreover this levelling off applies to the economy as a whole in this region. Ultimately however, despite that, the scenario of a continuing recovery of the economy in general and thus of the demand for transport services is one we should stick with.

There are a number of ancillary remarks to be made here. For example, container transport is closely correlated with global trade and spending in the various economies. The slowdown in international growth anticipated for 2011 will doubtless have repercussions on this type of transport. Accordingly, this segment will tend to manage only moderate growth, which could trigger a certain degree of volatility in transport demand. Moreover, we should not lose sight of the competitive relationship between inland navigation and rail traffic. If inland navigation was long held to be the undisputed price leader in the market common to both modes of transport, we can now see rail operators consolidating their positions on all fronts. This makes the development of inland navigation's market share with regard to this competing mode of transport an important issue that will have to be factored into anticipated growth.

Finally there is the particular situation regarding tanker navigation. Structural developments as regards the use of mineral oil products (substitution, reduction in consumption and longer term the relocation of production capacity as well) are responsible for the decline in transport demand. At the same time the fleet is expanding in terms of numbers and even more so in terms of productivity as a consequence of the switchover to the exclusive use of double hull ships with an eye to 2019. While the increase in scale at individual ship level has indeed made it pos-

sible to take full advantage of economies of scale, it has also significantly increased vulnerability in the event of low water. This development is a contributory factor in reinforcing yet further the volatility in this segment as a result of the effect of the water level on available capacity. Only time will tell whether this twofold volatility will make it possible to cover these ships' operating costs. For this reason we will have to pay very close attention to trends in tanker navigation in the years ahead.

In the short term, no significant increase in transport demand is expected as regards navigation of the Danube, primarily because of the more unfavourable economic and geographic situation in which those industries that depend on navigable waterways find themselves. No significant change is anticipated with container transport either, which is only developed to a limited degree on the Danube relative to the Rhine (very long transport distances, small number of densely populated residential and industrial centres, sub-optimal infrastructure).

Furthermore, the increased demand in dry goods shipping has resulted in slightly higher freight rates in autumn 2010. This was also probably helped by the fairly low water level but what is important to note is that we are again witnessing an upturn "in the market", which can be interpreted as an indication that as far as profits are concerned the worst is now behind us. As already pointed out earlier, tanker navigation is an exception.

Operating costs developed in the customary manner, posting an increase in line with the trend.

To sum up, there is a growing impression that it is not just the economy in general that has returned to growth with the transport market having hit bottom and started to recover but inland navigation too can feel firm ground underfoot once again. This will feed into an increasing confidence on the part of the business community, which inland navigation requires if its market position is to be strengthened.

# Appendices

## Appendix 1

### New constructions on the market at the first of October 2010

Type of vessel	2002			2003			2004		
	Number	Tonnage	kW	Number	Tonnage	kW	Number	Tonnage	kW
Self-propelled vessels	45	113114	56138	34	89676	41894	28	71326	34400
Ordinary barges	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>
Self-propelled tankers	22	65548	30547	45	131455	50332	54	139718	61236
Tanker barges	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>
Push tugs	2		1276	0		0	1		992
Push tugs	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>
Cruise boats	17		13251	10		7238	5		4021
Day-trip boats	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	Tonnage	kW	Number	Tonnage	kW	Number	Tonnage	kW
Self-propelled vessels	34	87645	27490	33	93985	26637	35	111655	31460
Ordinary barges	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>
Self-propelled tankers	46	130860	43736	28	77565	24637	23	50333	16534
Tanker barges	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>
Push tugs	0		0	0		0	1		0
Tugs	0		0	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>
Cruise boats	5		6280	4	1644	3186	2		1816
Day trip boats	5		2832	2	1959	2244	1		1570
<b>Total</b>	<b>10</b>		<b>9112</b>	<b>6</b>	<b>3603</b>	<b>5430</b>	<b>3</b>		<b>3386</b>

Type of vessel	2008			2009			2010 (10 Months)		
	Number	Tonnage	kW	Number	Tonnage	kW	Number	Tonnage	kW
<b>Self-propelled vessels</b>	68	226750	92944	72	237668	114002	19	53072	26072
<b>Ordinary barges</b>	38	70260		44	97461		9	18445	
<b>Total</b>	106	297010	92944	116	335129	114002	28	71517	26072
<b>Self-propelled tankers</b>	47	117500	31870	87	228020	72778	52	148127	55080
<b>Tanker barges</b>	0	0		0	0		0	0	
<b>Total</b>	47	117500	31870	87	228020	72778	52	148127	55080
<b>Push tugs</b>	3		1684	6		11188	1		558
<b>Tugs</b>	3		0	6		1697	0		0
<b>Total</b>	6		1684	12		12885	1		558
<b>Cruise boats</b>	3		5092	9			3		2871
<b>Day trip boats</b>	6		3092	1			1		2710
<b>Total</b>	9		8184	10		0	4		5581

Source: IVR and CCNR Secretariat

# GLOSSARY

**20-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.

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

**Demand of transport:** demand coming from the industry to the shipping industry for transportation of goods. Is calculated in Tons and TKM.

**Downstream navigation:** navigation downriver

**Downstream:** 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.

**Econometric ratio:** Estimated ratio between two or more values (e.g. production of steel, transport on inland waterways, imports of coal, etc.) on the basis of statistical data, using electronic calculation procedures. This estimate is used in making forecasts.

**Electric steel:** Electric steel is produced by melting down scrap metal using electric arc technology.

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

**Handling:** Trans-shipment 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.

**Loading depth of a ship:** Measure of the loading capacity of a ship as it can be used in accordance to the water depth.

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

**Oxygen steel:** Steel produced from iron ore and coal using blast-furnace technology, passing through a number of stages (injection of oxygen, etc).

**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.

**Upstream navigation:** Navigation travelling upstream.

**Upstream:** 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

DANUBE COMMISSION  
EUROSTAT  
EUROPEAN COMMISSION  
INTERNATIONAL TRANSPORT FORUM (ITF)  
INTERNATIONAL ENERGY AGENCY (IEA)  
MOSELLE COMMISSION  
OECD  
WORLD TRADE ORGANIZATION (WTO)

## National authorities

Arbeitsgemeinschaft Energiebilanzen (Germany)  
Bundesanstalt für Gewässerkunde (Germany)  
Bundesamt für Güterverkehr (Germany)  
Centraal Bureau voor de Statistiek (Netherlands)  
Destatis (Germany)  
DIHK (Germany)  
German-Hungarian Chamber of Commerce (Germany /Hungary)  
German Federal Labour Office (Germany)  
Germany Trade & Invest (Germany)  
Hungarian State Labour Administration (Hungary)  
Hungarian Ministry for National Development (Hungary)  
Hungarian Statistical Office (Hungary)  
INASTI / RSVZ (Belgium)  
Magdeburg Chamber of Commerce and Industry (Germany)  
ONSS / RSZ (Belgium)  
Romanian Ministry for Transport (Romania)  
Romanian Statistical Office (Romania)  
Slovakian Statistical Office (Slovakia)  
WSD Süd-West (Germany)  
WSD-OST (Germany)

## Private companies

Express Slovakia (Slovakia)  
Eurogate (Germany)  
Helologistics (Austria)  
Keyrail (Netherlands)  
Slovnaft (Slovakia)  
voestalpine Rohstoffbeschaffungs GmbH (Austria)

## Inland navigation organisations

Austrian Waterway and Navigation Society (ÖWSV)  
European Barge Union (EBU)  
European Skippers Organization (ESO)  
European Transport Workers' Federation (ETF)

German Inland Navigation Employers' Federation  
Hungarian National Shipping Federation  
Institut pour le Transport par Batellerie (ITB)  
CBRB  
IVR  
Kantoor Binnenvaart  
Maritime Danube Ports Administration  
Slovak Shipping and Ports JSC  
Voies Navigables de France (VNF)

## Research organisations

Enerdata  
Fraunhofer.Arbeitsgruppe für Supply Chain Services  
Institute for Employment Research (IAB)  
Institut für Seeverkehrswirtschaft und Logistik (ISL)  
Intraplan  
NEA Consulting

## Industrial organisations

Eurofer  
European Chemical Industry Council (CEFIC)  
Federation of German Wholesale, Foreign Trade and Services (BGA)  
German Association for Company Health Insurance (BKK)  
German Chemical Industry Federation (VCI)  
Verein der deutschen Kohleimporteure (VDKI)

## Ports

Amsterdam  
Antwerpen  
Basel  
Cologne  
Constanza  
Galati  
Giurgiuilesti  
Karlsruhe  
Ludwigshafen  
Mannheim  
Neuss-Düsseldorf  
Rotterdam  
Strasbourg



**Other sources**

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Main-Netz, 14th september 2010

Pester Lloyd – daily newspaper for Hungary and Eastern Europe, 6th february 2010

VDI-Nachrichten, 21th december 2007

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NL-2715 ZOETERMEER

**Design:**

Bitfactory

Willem Buytewechstraat 40

NL-3024 BN Rotterdam

**Printed in December 2010**

Published by the Secretariat of the Central Commission for Navigation on the Rhine

Secretariat: 2 Place de la République, 67082 STRASBOURG cedex [France] -

[www.ccr-zkr.org](http://www.ccr-zkr.org)

ISSN 2070-6715





CENTRAL COMMISSION FOR THE NAVIGATION ON THE RHINE



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT