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Working Party on Inland Water Transport

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Item 4 (b) of the provisional agenda

Follow-up to the UNECE White Paper on efficient and sustainable inland water transport in Europe:

Current situation and trends in inland water transport in terms of policy recommendations proposed by the White Paper on efficient and sustainable inland water transport in Europe

Overview of European inland navigation

Submitted by the Confederation of European Maritime Technology Societies (CEMT)

1. Introduction

Inland navigation, involving both freight and passenger transport, takes on great importance in many European countries, with prestigious waterways such as rivers Volga, Danube and Rhine.

Consequently, there are organizations dealing with the development of technical-administrative regulations, such as the Commissions of the European Union (in Brussels), of the Danube (in Budapest), of the Rhine (in Strasbourg), of UNECE (in Geneva).

Since a few years, the main aim of these assemblies is to harmonize the different regulations: the first step has been taken with the European directives for inland navigation ships, elaborated by joint working groups (JWG) of European Union – Rhine Commission.

Also Danube's and UNECE's Commissions have been involved in the effort put into the creation of a inland navigation's uniform pan-European system.

Passenger transport in inland waterways plays a significant role in some areas: the Rhine – Danube network, the Russian Federation, the Netherlands, Belgium and France.

In Italy there's also a great number of daily trip passengers, mainly concentrated in Northern Italian lakes and in the Venetian Lagoon.

The CEMT (The Confederation of European Maritime Technology Societies) has recently obtained the accreditation by UNECE and the Rhine Commission, charging then ATENA of representing the organization. This won't just be an occasion of cultural enrichment, but it will also allow to its associates, public and private operators, a continuous update about the regulations in force.

The harmonization will have to proceed along with a revision of the regulations, in order to make them flexible and adaptable to different kind of ships and navigation zones.

Finally, a reduction at a pan-European level of the different ruling and legislating Commissions, all with various titles and on numerous waterways is indeed desirable, as it is the structuring of them in order to render such Committees more efficient and simple.

2. Freight transport

2.1 Overview of freight inland transport in Europe

Table 1. Freight transport in the selected UNECE countries (2007) (million t-km)

	<i>Inland waterways freight</i>	<i>Road freight</i>	<i>Rail freight</i>	<i>Total inland freight</i>
Austria	2 597	18 648	21 371	49 842
Belarus	93	19 200	47 933	67 226
Belgium	9 006	42 085	8 148	60 733
Bulgaria	1 711	5 890	5 241	13 262
Croatia	109	10 502	3 574	15 966
Czech Republic	898	48 141	16 304	67 422
Finland	102	25 963	10 434	36 499
France	8 830	207 025	40 502	277 498
Germany	64 716	343 439	114 615	538 594
Hungary	2 212	13 174	10 137	31 246
Lithuania	11	20 278	14 373	35 694
Luxemburg	345	587	287	1 219
Netherlands	41 868	32 867	7 216	87 534
Poland	1 338	159 527	54 253	238 631
Romania	5 325	23 927	15 757	46 858
Russian Federation	86 027	205 849	2 090 337	3 523 108
Serbia	1 584	1 161	4 551	7 748
Slovakia	1 004	27 050	9 647	37 701
United Kingdom	140	175 851	21 300	207 520

Table 2. Freight transport by inland waterway (1970-2007) (1000 million t-km)

	<i>1970</i>	<i>1990</i>	<i>1995</i>	<i>2000</i>	<i>2005</i>	<i>2007</i>	<i>2007/1995 % change</i>
Belarus	1 224	1 805	133	26	90	93	-30
Belgium	6 734	5 448	5 807	7 313	8 719	9 006	55
Bulgaria	1 832	1 606	733	397	1 532	1 711	133
Croatia	253	527	33	63	119	109	230
Czech Republic			1 319	773	779	898	-32
Finland	0	70	77	118	75	102	32
France	12 728	7 581	7 649	9 110	8 905	8 830	15
Germany	48 813	54 803	63 982	66 466	64 096	64 716	1,15
Hungary	1 760	2 038	1 260	891	2 110	2 212	76
Italy	350	118	135	170	89	94	-30
Lithuania	120	164	18	1	1	11	-39
Luxemburg	300	336	331	373	337	345	4
Netherlands	30 741	35 662	35 098	41 271	42 225	41 868	19
Poland	2 295	1 034	876	1 173	1 277	1 338	53
Romania	1 346	2 090	3 107	2 634	5 146	5 325	71
Russian Federation	163 870	213 949	90 872	70 988	87 173	86 027	-5
Serbia	3 504	3 232	336	980	1 622	1 584	371
Slovakia			1 468	1 383	680	1 004	-32
Switzerland	139	196	160	124	124	128	-20
Ukraine		11 925	5 680	5 898	6 315	5 670	-0,2
United Kingdom	300	200	200	210	170	140	-30
Total	277 602	344 447	221 320	212 806	234 344	233 808	6

As documented in the 1996 White Paper, traffic levels in many Central and Eastern European countries showed a marked decline after their transition from centrally planned

economies to market economies. See the figures for the Czech Republic, Lithuania, Poland, Russian Federation, Serbia, Slovakia and Ukraine. This situation has turned around and increases are observed today in practically all of these countries. The decline observed in Italy, Switzerland and the United Kingdom of Great Britain and Northern Ireland does not reveal any significant trend, since the traffic concerned – and the distances covered – are relatively small.

The adoption of the 1996 UNECE White Paper on trends in and development of inland navigation and its infrastructure took place in parallel with the final steps in adopting the AGN, opened for signature at the Office of the United Nations in Geneva on 1 October 1996.

AGN entered into force on 26 July 1999. As of February 2011, it counted seventeen Contracting Parties: Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Italy, Lithuania, Luxembourg, Republic of Moldova, Netherlands, Romania, Russian Federation, Slovakia, Switzerland and Ukraine.

AGN establishes an international legal framework laying down a coordinated plan for developing a network of inland waterways and ports of international importance.

Fifteen years after the adoption of the AGN, it is here described the state in 2011 of the AGN network in the six main subnetworks:

Rhine-Danube network (14,362 km or 47.6 % of the total length of the AGN network (30,177 km));

Azov-Black-Caspian seas basin (9,339 km or 30.9 %);

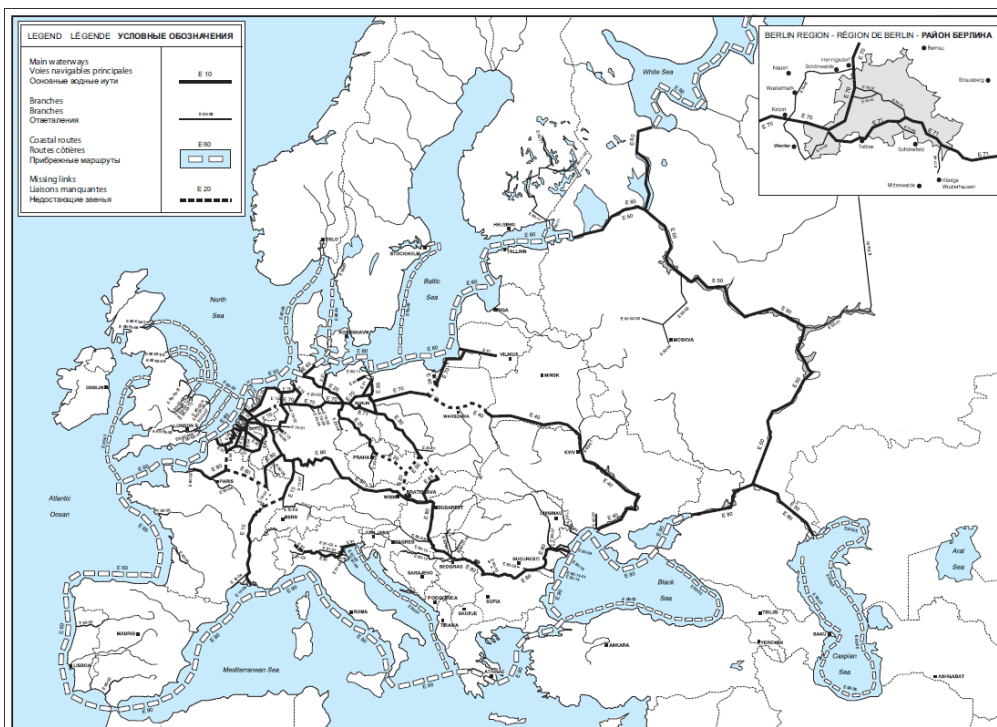
Baltic area (840 km or 2.8 %);

Czech-Slovak centered network (715 km or 2.4 %);

Rhône-Saône basin (679 km or 2.3 %);

Seine-Oise basin (632 km or 2.1 %); and

Costal routes and connected inland waterways (2,774 km or 9.2 %).



Source: UNECE secretariat, 2010.
Figure 1 Map of the AGN network

2.2 Western and Central European region

The transport volume of freight transported on inland waterways in the EU is around 526 million t (2012 figure). In Europe, far and away the largest volumes are accounted for by the Western European countries the Netherlands (332 mio. t), Germany (227 mio. t) and France (58 mio. t)

Inland navigation in Belgium has made considerable gains in recent years. 190 million t were transported in 2013. The growth in the major seaports' (Antwerp, Ghent) hinterland traffic plays an important role in this.

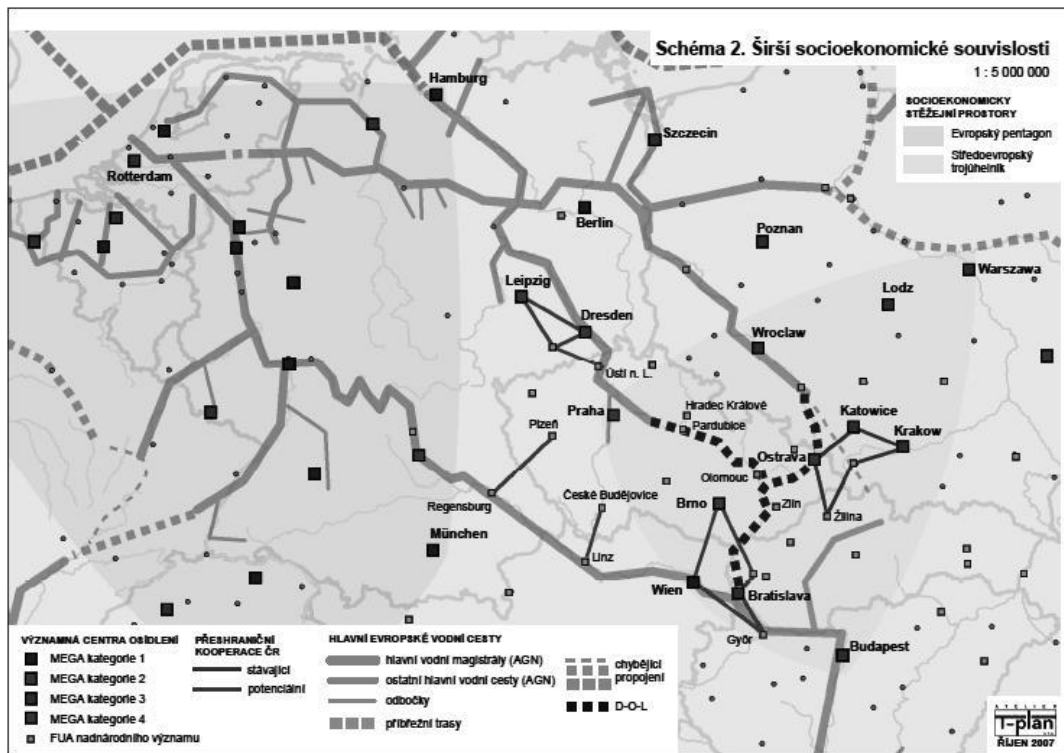


Figure 2. Western and Central Europe Waterways (2014)

Being an important commercial route for two centuries, the Elbe river has been connected with a system of navigable canals with rivers Rhine, Weser and Oder. The waterway itself is navigable with commercial boats within the European territory, even to Prague, whilst other systems of artificial canals link it to German's industrial areas and to Berlin. The Elbe-Lübeck canal connects the river to the Baltic sea, as the Kiel canal also does, the access to which is near Elbe's mouth.

Table 3. The actual fleet in the Netherlands and in Western Europe.

Type of craft	Operational fleet	
	NL	West European fleet
Cargo vessels	3993	6753
Barges	1135	3117
Motor tankers	1240	1992
Tank barges	51	155
Tug/push boats	479	813
Pushers	649	1221
Passenger vessels	No up to date information	

Approx. 48% of the cargo which passes through the Port of Rotterdam (440.5 million tons in 2013) is transported to the hinterland by inland waterway transport.

The main shipyards are located in Germany (Hamburg, Berlin, Hannover, Koln), Netherlands (Meppel, Millingen, Druten, Sas van Gent, Rotterdam), Belgium (Beez sur Meuse), Poland and France

Table 4. Number of craft in the Rhine Fleet by year of build and size

31/12/2008		Number of craft in the Rhine fleet, by year of build and size						
Year / Class	<400t	400 – 999 t	1 000 – 1 499 t	1 500 – 1 999 t	2 000 – 2 999 t	3 000 t & +	unknown	Total
<1930	249	325	189	67	19	2	6	857
1930–1949	137	209	150	18	6	2	8	530
1950–1969	876	1 251	899	185	78	21	35	3 345
1970–1979	160	289	237	196	282	38	7	1 209
1980–1989	108	535	114	159	347	104	16	1 383
1990–1999	75	125	52	63	260	47	4	626
2000–2008	37	39	45	77	239	164	23	624
unknown	6	4	3	2	5	1	79	100
Total	1 648	2 777	1 689	767	1 236	379	178	8 674
	19 %	32 %	19 %	9 %	14 %	4 %	2 %	100 %

Source: IVR.

2.3 Danube Region

Within the Danube region it is the countries of the lower Danube region (Romania, Bulgaria) that boast the highest transport volumes.

- Romania is in first place ahead of Bulgaria, but shows a modest decline since 2010, from an initial level of more than 30 mio. t to around 27 mio. t in 2012. The principal reason for this is the crisis in the steel industry.

- The central Danube region (Hungary, Slovakia, Croatia) exhibits relatively stable volumes of between 5 and 10 mio. t per year. Hungary and Croatia's agricultural wealth generates transport movements in this region that are frequently integrated with global logistics chains (e.g. the transportation of foodstuffs and fodder from the Danube in Hungary via the Rhine and ARA seaports bound for overseas).

- Transportation in the upper Danube region as well (Austria, Slovakia) is broadly constant over time and is around 10 mio. t.

Table 5. Evolution of the total capacity of the Danube fleet by country between 1962 and 2005

Years	Tugs		Pushers		Self-propelled craft			Towed barges		Pushed barges		Total		
	Number of units	Power in kw	Number of units	Power in kw	Number of units	Power in kw	Tonnes dwt	Number of units	Tonnes dwt	Number of units	Tonnes dwt	Number of units	Power in kw	Tonnes dwt
1962	504	187.263	82	43.364	39.827	2.556	1.767.692	3.142	230.627	1.807.519
1970	717	214.285	100	120.300	180	125.227	199.733	2.631	1.758.722	668	829.488	4.296	459.812	2.787.943
1980	687	194.300	194	218.166	318	260.481	441.450	2.195	1.469.513	1.281	1.788.177	4.675	672.947	3.699.140
1990	634	177.708	364	393.624	423	314.754	499.973	2.190	1.598.708	2.143	2.993.692	5.754	886.086	5.092.373
2000	552	154.848	398	512.281	263	218.300	348.750	1.699	1.463.342	1.617	2.573.895	4.529	885.429	4.385.987
2005	292	86.834	404	436.255	342	216.507	358.087	900	825.459	1.949	2.598.564	3.887	739.596	3.802.680

Abbreviation: dwt: deadweight tonnes.

Source: DC, "Ouvrage de référence statistique pour la période 1950–2005", Budapest, 2008.

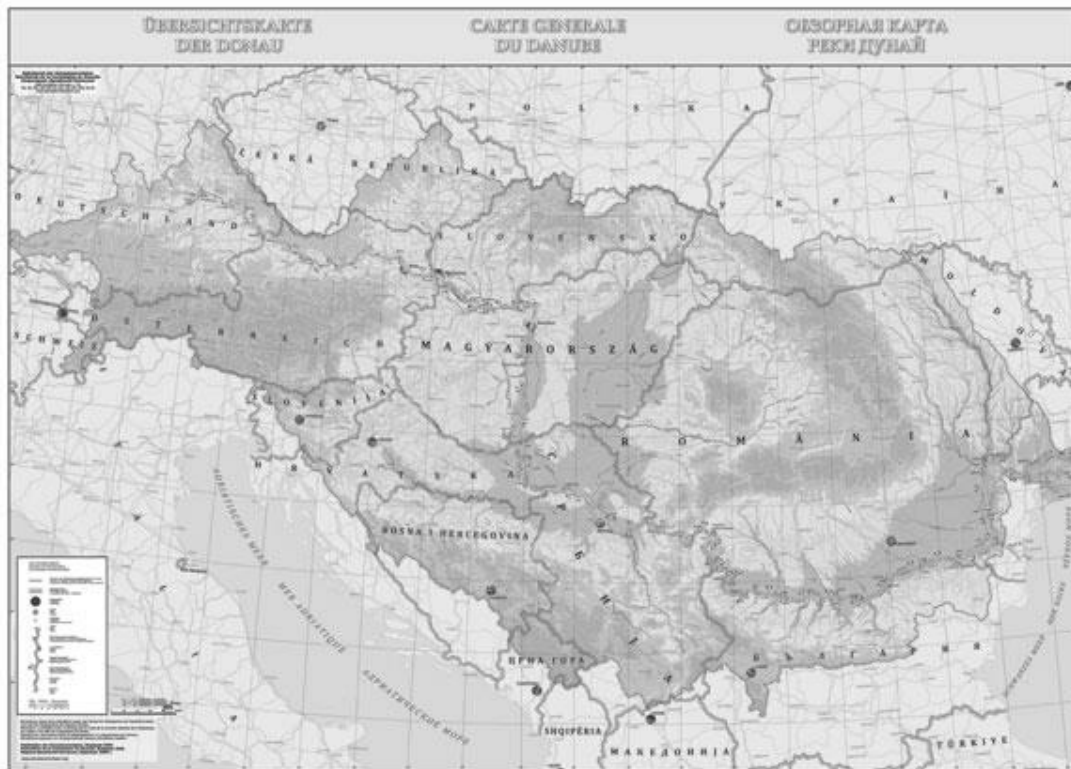


Figure 3. General map of the Danube, publication of the Danube Commission, Budapest 2009

The main shipyards are located in Linz/Austria, Bratislava/Slovakia, Komarno/Slovakia, Zaslavica (Serbia), Ruse/Bulgaria on 6 places in Romania, and in Kilia/Ukraine. Their main tasks today are modernization and repairs of the fleet.

Since 1992, year of construction of the Rhine-Mein-Danube canal, it is possible to ship from Rotterdam over the North Sea, to Sulina on the Black Sea, going through the centre of Europe.

The canal, located on the German territory and 171 km long (from Bamberg to Kelheim), links the Danube to the Mein, which then flows into in the Rhine. The waterway thus generated is overall long approximately 3500 km and goes through the Netherlands, Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Romania and Ukraine. It's well-travelled either by ships for freight transport or cruiser and pleasure boats.

2.4 Russian Federation

Russian's system of Inland Waterways is 102,000 km long of which 48,000 km has a guaranteed depth but also has, unfortunately, a guaranteed closing period in winter. In European Russia , 72,000 km of waterways connect the Baltic Sea, White Sea, Black Sea, Caspian Sea and the Sea of Azov. Some 9,000 km of this network is open to deep-draught river-sea shipping.

- Cargo transportation (2014) - 124.5 million tons

- Cargo turnover (2014) 74080.6 million t-km

The Russian River Register (RRR) had, as of the 1st of January 2013, 22,442 inland ships in class, including more than 1,000 river-sea navigation vessels.

This fleet may further be broken down into:

- 13,124 self-propelled vessels, including: 1,505 passenger and passenger/cargo ships, 1,044 dry cargo vessels, 6744 tankers and 5,159 tugs

- 9,318 non-propelled vessels, including : 4,528 dry cargo barges and 793 tank barges.

Most Russian inland ships are operated by large companies such as the approximately 400 river and sea-river ships (and a new building programme of some 50 vessels) operated by VF Tankers, North-Western Shipping Co and Volga Shipping, three companies belonging to the Universal Cargo Logistics (UCL), a holding company based in Amsterdam.

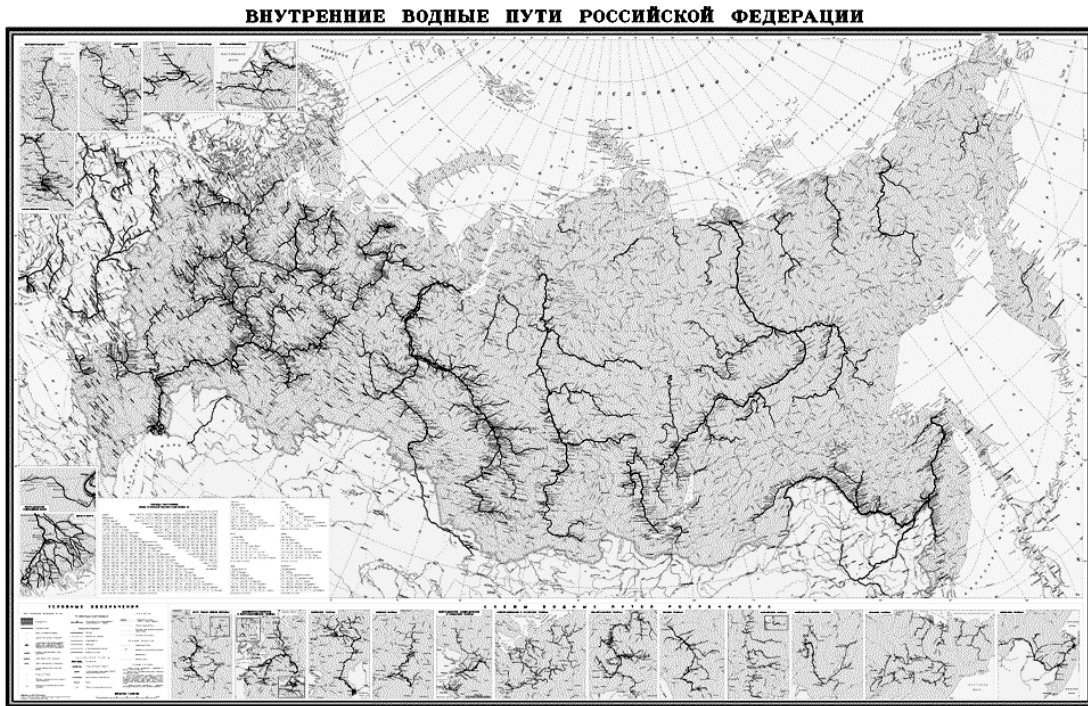


Figure 4. Map of Russian rivers

The shipyards involved in the building of inland and river-sea ships are mostly based along the rivers, particularly along the Volga, and in the St. Petersburg and Moscow area.

In 2012, 149 newbuildings were constructed under technical supervision of RRR branch offices, including 18 vessels built using elements of vessels having been in service (in 2011 - 154 newbuildings). They include:

Table 6. Newbuildings of inland and river-sea ships in the Russian Federation

Newbuildings:	Year	
	2011	2012
Total including:	154	149
self-propelled	116	107
non-self-propelled	38	42
river-sea vessels of class:		
O-PR	10	2
M-PR	4	4
M-SP	14	7

If inland navigation vessels were built after the Technical Regulations regarding the safety of inland water transport objects which had come into force (23.02.2012), in addition to RRR Rules they have to comply with the requirements of this document and be certified accordingly, including the design and the onboard equipment. Until now the number of ships whose design complies with the Technical regulations is 6, 1 self-propelled vessel and 5 barges.

439 vessels have undergone the renovation procedure during the period 2002 – 2013.

During 2000 – 2013 57 new oil tankers, in particular, 6 ships during 2011 – 2013.

2.5 Other European countries

Great Britain, Poland, the Czech Republic and Italy can be seen as another group of countries.

In Great Britain in 2012 there was around 3.7 mio. t of “pure inland navigation traffic” namely ship traffic occurring exclusively on inland waterways and which has not overstepped the boundary into maritime waters. In addition to this “internal inland waterway traffic” there is river-sea traffic extending into the Thames and Humber estuaries and the mouth of the Manchester Ship Canals. Transport movements bound for the Humber River principally originate from Duisburg, where trade with England has grown up over the past 50 years. The river-sea traffic exceeds the purely internal traffic volumes approximately eleven fold (40 mio. t in 2012). A multi-year time series for purely inland navigation traffic in Great Britain shows a small upward trend since 2004. Since 2011 this growth has clearly been driven by the Manchester Ship Canal, linking the sea port of Liverpool with Greater Manchester, and which is currently being developed to accommodate an increase in container traffic. In 2012, 1.6 mil. t of the above-mentioned 3.7 mio. t was transported on the Thames. (A further 16 mio. t of river-sea traffic were transported on this river). Poland possesses a large inland waterway network in the heart of Central Europe connected to its neighbor Germany and the Baltic ports of Szczecin and Gdansk via the Oder and Weichsel rivers. Unfortunately freight transport in recent years has suffered a significant decline. The most important reason is the substandard waterway infrastructure. Inadequate bridge heights, protracted periods of low water and non-operational locks which translate into poor profitability of this mode of transport.

A current report by the Polish government audit institute Supreme Audit Office dated April 2014 confirms these problems, citing the serious underfunding of the Polish waterway system as the reason. According to this report, around €3.4 billion would be required to maintain the waterways to the standard consistent with their international classification. The Czech Republic exhibits a consistent transport volume on a multi-year comparison of around 1 mil. t annually. This Central European country is located within the Elbe river area and thus in the hinterland of Europe’s third largest seaport, Hamburg. The Elbe, a hundred years ago Europe’s busiest river, affords adequately reliable conditions for inland waterway transport only on its middle and lower reaches, between Magdeburg and Hamburg. A consistent minimum fairway depth of 1.60 metres cannot, however, be guaranteed on enough days a year on the Elbe’s upper reaches. Even so, the Elbe offers major potential for freight transport from Hamburg to the Czech Republic. Improving the navigability of the Elbe is therefore one of the EU Commission’s priority TEN-T projects. Italy’s waterway network is located exclusively in the north of the country, and comprises the Po river and various canals located around the Po. The Po is navigable from Pavia in Lombardy, flowing 400 km eastward from that point before joining the Adriatic south of Venice in the form of a delta. Currently the bulk of what is transported on the Po is sand, soil & building materials dredged from the river. These transport movements are in pushed convoys. The annual volume is currently below 1 mil. t.

3. Passenger transport

3.1 Russian rivers and canals

- 12.7 million passengers transported in 2014.
- Passenger fleet: 1,505 ships

3.2 Rhine – Danube basin

- Short line cruises (Passau–Vienna–Bratislava–Budapest): 368.000 passengers (2013)
- Long line cruises (Passau – Danube Delta): 84.000 passengers (2013)
- Long line cruises (Amsterdam–Budapest): 840.000 passengers (2013)

- Daily trip:

1. Vienna, Budapest, Passau: 1.200.000 passengers (2013)
2. Other daily trip: no reliable data

The Rhine passenger fleet: no reliable data

The Danube passenger fleet consists (2014) of about 170 vessels with approximately 40.000 places for passengers.

3.3 Waterways of the Netherlands, Belgium and France

There is significant passenger traffic, overall being daily trips, but there's no availability of up to date information about fleet and number of passengers per year.

3.4 Italian waterways

Big congestion is created by daily passenger ships traffic on the lakes in the north of the country and in the Venetian Lagoon; average datas (2013):

- Northern and central Lakes:
 - Passengers: 10 mil
 - Fleet:
 - 500 small ships (from 20 to 150 passengers each)
 - 100 ships (from 150 to 1200 passengers each)
- Venetian lagoon:
 - Passengers: 18 mil
 - Fleet:
 - 800 ships (from 10 to 150 passengers each)
 - 200 ships (from 150 to 1200 passengers each)

4. Inland navigation governance - rules in force and recognized classification bodies

In the majority of the European countries, the rules, procedures and surveyors all depend on Organizations, both public or recognized by Governments, strictly separated from maritime ones.

Countries Members of European Union.

- Rules in force: 2006/87/EC Directive of the European Parliament and of the Council of 12 December 2006 laying down technical requirements for inland waterway vessels;

- Recognized Classification Bodies: Bureau Veritas, RINA, Germanischer Lloyd, Lloyd's Register of Shipping, Polski Rejestr Statków SA, Russian River Register.

Countries Members of CCNR - Central Commission for the Navigation of the Rhine (Germany, Belgium, France, the Netherlands and Switzerland)

- Rules in force: The Rhine Vessel Inspection Regulations (RVIR);

- Recognized Classification Bodies: Det Norske Veritas, Bureau Veritas, Germanischer Lloyd, Lloyd's Register of Shipping.

Countries Members of Danube Commission (Austria, Bulgaria, Hungary, Germany, Moldova, Russian Federation, Romania, Republik of Serbia, Slovak Republik, Ukraine, Republic of Croatia):

- Rules in force: Recommendations on Technical Requirements for Inland Navigation Vessels. of the Danube Commission;

- Recognized Classification Bodies: DC has no list of recognized Classification Bodies, as this topic lies under national responsibility of our member states.

Russian Federation:

- Rules in force: Rules of Russian River Register;

- Recognized Classification Bodies: RRR (Russian River Register), RINA.

Countries Members of UNECE (Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uzbekistan):

- Resolutions of the UNECE's Working Party on Inland Water Transport:

 - Resolution No. 24 –CEVNI: European Code for Inland Waterways;

 - Resolution No. 61 –Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels.

- Recognized Classification Bodies: UNECE has no list of recognized Classification Bodies as this topic lays under national responsibility of our Member States.

In 2006, an EC Directive laid down the technical requirements for inland waterway vessels (Directive 2006/87/EC of the European Parliament and of the Council of 12 December), and this introduced full harmonisation of the technical requirements for inland waterway vessels and Rhine regulatory provisions (with regard to category 3 of major waterways). On the basis of this equivalence, the CCNR has recognised the validity of Community certificates on the Rhine (Protocol 2007-II-21), while Rhine certificates have also been recognised on all EU waterways. In future, Rhine and EU regulations will evolve in tandem so as to remain identical.

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