UNECE Inventory of main standards and parameters of the E Waterway network final draft of the third revision



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BACKGROUND

ECE/TRANS/SC.3/144/Rev.2

ECE/TRANS/SC.3/144/Rev.2/Add.1

ECE/TRANS/SC.3/144/Rev.2/Add.2

ECE/TRANS/SC.3/2015/4

ECE/TRANS/SC.3/WP.3/2016/3

ECE/TRANS/SC.3/WP.3/96

ECE/TRANS/SC.3/WP.3/2016/12

Informal documents SC.3/WP.3

Nos. 3, 4 and 24 (2016)

ECE/TRANS/SC.3/2016/5

ECE/TRANS/SC.3/2016/15

ECE/TRANS/SC.3/2016/18

Further contributions of member States

Documents of River Commissions





INTRODUCTION

1. INLAND WATERWAYS OF INTERNATIONAL IMPORTANCE

The European Agreement on Main Inland Waterways of International Importance (AGN) in its annex I lays down the network of E waterways including a few portions that do not exist at present and are considered as missing links. In its annex III, the Agreement stipulates the requirements for the classification of E waterways. In total, 29,240 km of European inland waterways have been earmarked by Governments as E waterways. The above length excludes the double counting of sections on which two or more E waterways overlap.

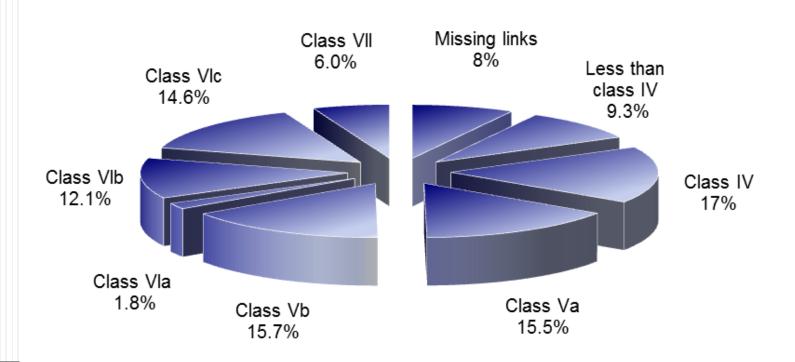
For the purpose of calculating in the "Blue Book" the total length and structure of the E waterway network the following portions of E waterways have been considered as overlapping: E 01/E 05 of 46 km, class Va; E 03/E 04 of 38 km, class VIb; E 04/E 05 of 16 km, class VIb; E 10/E 12 of 19 km, class VIc; E 10/E 80 of 96 km (24 km — class VIa, 40 km — class VIb and 32 km — class VIc); E 12/E 70 of 38 km, class Va; E 13/E 15 of 93 km (68 km — class VIb and 25 km — class IV); E 20/E 30 of 173 km, missing link; E 30/E 70 of 49 km, class IV; E 40/E 70 (41 km — class IV; 73 km — class VIa); E 41/E 70 (39.1 km — class IV); E 50/E 60 of 503 km, class Vb and E 50/E 90 of 453 km, class VIc.

The following portions of E waterways have been considered as missing links in accordance with the network laid down in the AGN Agreement and as listed in section 2 below: Canal Seine-Nord Europe E 05 of 106 km; Maldegem-Zeebrugge E 07 of 26 km; Saône-Rhine Link E 10 of 206 km; Saône-Moselle Link E 10-02 of 304 km; Danube-Oder-Elbe Connection E 20/E 30 of 479 km; Gdansk-Brest E 40 of 430 km, excluding its existing navigable sections; Twente-Mittellandkanal E 70 of 55 km; Seine-Moselle Link E 80 of 250 km; Olt E 80–03 of 135 km; Danube-Bucaresti Canal E 80–05 of 73 km; Danube-Sava Canal E 80–10 of 61 km; Vah–Oder Link E 81 of 80 km; Milano-Po Canal E 91 of 60 km, and Padova-Venezia Canal E 91–05 of 27 km excluding the completed sections.

INTRODUCTION

Structure of E waterways

	Missing links	Less than class IV	Class IV	Class Va	Class Vb	Class VIa	Class VIb	Class VIc	Class VII	Total
Length (km)	2 292	2 718	4 737	4 715	4 588	524	3 568	4 351	1 747	29 240
%	7.8	9.3	16.2	16.1	15.7	1.8	12.2	14.9	6.0	100



Belarus

Missing links: none.

Basic bottlenecks: none.

- Mukhovets (E 40) from Brest to Kobrin low maximum draught (1.70 m).
- Dneprovsko-Bugskiy Canal (E 40) from Kobrin to Pererub low maximum draught (1.70 m); upgrading of locks to class Va is envisaged*.
- Pina (E 40) from Pererub to Pinsk low maximum draught (1.70 m).
- Pripyat (E 40) from Stakhovo to Pkhov low maximum draught (1.40m).
- Pripyat (E 40) from Pkhov to Belarus/Ukrainian border low maximum draught (1.50 m).

Belgium

Basic bottlenecks:

- Bocholt Herentals Canal (E 01–01), Bocholt Dessel section.
- Zuid Willemsvaart (E 01–01), section Bocholt Belgium/Netherlands border.
- Gent Oostende Canal (E 02), Brugge Beernem section.
- Plassendale Nieuwpoort Canal (E 02–02–01).
- Charleroi-Bruxelles Canal (E 04), Lembeek Bruxelles section upgrading the height under bridges up to 7 m and improvement of the waterway is required. Project is under study.
- Bossuit Kortrijk Canal (E 05-01), Zwevegem Kortrijk section upgrading from class I to class Va. Project is under study.
- Dender (E 05-04), Aalst Dendermonde section upgrading from class II to class IV. Project is under study.
- Beneden-Nete (E 05–06) upgrading the height under bridges. Project is under way.

Belgium

- Condé-Pommeroeul Canal (E 01) re-opening of a section currently not in service.
- Nimy-Blaton Peronnes Canal (E 01) upgrading from class IV to class <u>Va</u> is envisaged.
- Canal du Centre (E 01), Obourg Lock construction of a new class <u>Va</u> lock is envisaged.
- Charleroi-Bruxelles Canal (E 01), Marchienne, Viesvilles and Gosselies Locks construction of new class <u>Va</u> locks is envisaged.
- Meuse (E 01) construction of class VIb locks is envisaged at Ivoz-Ramet and Ampsin-Neuville.
- Meuse (E 01) from Pont d'Ougrée to Liège upgrading from class Vb to class VIb is envisaged.
- Canal de Lanaye (E 01) construction of a class VIb lock is under way.
- Lys Mitoyenne Lys (Menin Deinze section) and Lys Derivation Canal up to Schipdonk (E 02) — upgrading from class IV to class Vb is envisaged within the Seine — Escaut link project. Project is under way.
- Roeselare-Leie Canal (E 02-04), Roeselare Ooigem section improvement of waterway for class Va. Project is under study.
- Sea Canal Bruxelles Schelde (E 04) improvement of section Wintam Willebroek to class Vb. Project is under way.
- Haut Escaut (E 05) on section Bléharies-Hérinnes Tournai passage upgrading to class Va.
- Boven-Schelde (E 05), Kerkhove Asper section renewal of weirs and upgrading lock capacity to class Vb. Project is under study.
- Boven-Zeeschelde (E 05) on section Gent circular canal Baasrode upgrading from class IV to class Va. Project is under study.
- Albertkanaal (E 05), Wijnegem passage and section Kanne Liège upgrading from class Vb to class VIb is envisaged.
- Charleroi-Bruxelles Canal (E 04), Lembeek Bruxelles section —upgrading the waterway and the locks to class Va. Project is under study.

France

Missing links:

- Seine Moselle Link (E 80).*
- Seine Nord Europe Link (E 05).**
- Saône Moselle Link (E 10-02)/Saône Rhine Link (E 10).***
- The secretariat was informed by the Government of France that the project concerning the Seine Moselle link has been abandoned.
- ** The secretariat was informed by the Government of France that the Seine-Schelde connection project had been modified.
- *** The secretariat was informed by the Government of France that the project concerning the Saône Moselle Link / Saône Rhine Link has been abandoned.

- Condé Pommeroeul Canal (E 01) increasing the water depth up to 3.50 m is under consideration in the framework of the project on reopening this Canal for navigation.
- Dunkerque Escaut link and Escaut (E 01) up to Condé lifting of bridges up to 5.25 m is completed, lifting up to 7.00 m is envisaged.
- Deûle and Deûle Canal (E 02) from Quesnoy/Deûle to Lille upgrading to class Va is under way, increasing the water depth up to 3.50 m is envisaged, from Lille to Bauvin lifting of bridges up to 5.25 m is completed, lifting up to 7.00 m is envisaged.
- Lys mitovenne (E 02) increasing the water depth to 4.50 m is considered.
- Network Nord Pas-de-Calais (E 02 and E 05) lifting of bridges and upgrading of links with Belgium to class Va. Lifting of bridges up to 5.25 m is being finalized (summer 2012), lifting up to 7.00 m is envisaged.
- Rhône Sète Canal (E 10-04) works on upgrading to class <u>Va</u> are under way.
- Oise (E 80) from Conflans to Creil low draught and height under bridges (3.40 m and 5.18 m, respectively) increasing the water depth up to 4.00 m is under way.
- Oise (E 80) from Creil to Compiègne low draught (3.00 m), increasing the water depth up to 4.00 m is considered.

Germany

Missing links: none.

Basic bottlenecks:

- Mittellandkanal (E 70) sections which have not yet been modernized are being upgraded to class Vb. The project is under way.
- Elbe Havel Kanal (E 70) upgrading from class IV to class Vb is under way.
- Untere Havel Wasserstraße (E 70) from Plauen to Spree upgrading from class IV to class Vb is under way.
- Berlin region waterways (connection to Westhafen Berlin) upgrading to classes IV and Vbis under way.
- Havel Oder Wasserstraße (E 70) upgrading from class IV to class \underline{Va} is under way.

Strategic bottlenecks:

- Rhine (E 10) low fairway depth during dry seasons: from St. Goar to Mainz (1.90 m) and low height under bridges at Kehl/Strasbourg.
- Rhine Heme Kanal (E 10-03) upgrading to class Vb is under way.
- Dortmund Ems Kanal (E 13) from 108.3 km to 21.5 km upgrading to class Vb is under way.
- Weser (E 14) from 360.7 km to Minden upgrade to Va under way.
- Elbe (E 20): middle Elbe from Lauenburg upstream to the border between Germany and the Czech Republic low fairway depth during dry seasons (1.20 m).
- Main (E 80) upstream from Würzburg low fairway depth (2.50 m); project is under way).
- Danube (E 80) from Straubing to Vilshofen low fairway depth (2,00 m at LNWL*).
- Danube (E 80) low height under bridges at Bogen (2,311.27 km) 5.00 m; at Passau (2,225.75 km) 5.15 m— upgrading to 7.00 m is necessary.
- Weser (E 14) upgrading of Minden and Dörverden Locks is under way.

Other bottlenecks, the elimination of which is anticipated to become economically viable only in the framework of a replacement programme supported by a particular investment scheme:

- Dortmund Ems Kanal (E 13) to the north of the Mittellandkanal.
- Datteln Hamm Kanal (E 10-01) to the east of the Hamm harbour.
- Neckar (E 10-07) adaptation of fairway width and lock dimensions.
- Canals branching off from the Mittellandkanal (E 70–02, 70–04 and 70–06) low fairway depth and height under bridges, insufficient dimensions of locks.

Hungary

- Danube (E 80), joint Slovak Hungarian section from Sap (1,810.0 km) to 1,708.2 km low maximum draught during dry seasons (1.50 m as registered in the course of years up to November 2011) and at a High Navigable Water Level (HNWL) low height under bridges: road bridge Medved'ov (1,806.35 km) 8.85 m between pillars* II III and 9,19 m between pillars I and II; railway bridge Komárno (1,770.4 km) 8.65 m between pillars IV V and 8.68 m between pillars III IV; road bridge Komárno (1,767.8 km) 9.08 m at centre point of the arches between pillars II III and III IV, respectively. Upgrading of the draught to 2.50 m and the height under bridges to 9.10 m is required.
- Danube (E 80), the section from 1,708.2 km to 1,433.0 km low maximum draught (1.50 m as registered in the course of years up to November 2011).
- Danube (E 80), at HNWL low height under the road/rail bridge at Dunaföldvár (1,560.55 km) 8.73 m between pillars II III and III IV, respectively. Upgrading to 9.10 m is required.
- Danube (E 80), at HNWL low height under the road/rail bridge at Baja (1,480.22 km) 8.09 m between pillars III IV and 8.40 m between pillars II III. Upgrading to 9.10 m is required.
- Danube (E 80), between 1,811.0-1,433.0 km the draught of 2.5 m is assured during 180-260 days a year depending on the water level. The project aimed at the elimination of bottlenecks is under way.

Italy

Missing links:

- Milano Po Canal (E 91) from Milano to Pizzighettone.
- Padova Venezia Canal (E 91-05) from Romea lock to Padova.

Basic bottlenecks:

 Piacenza — Casale Monferrato (E 91–02) — upgrading from class III to class IV is envisaged.

- Mantova Adriatic Sea Canal (E 91-03) from Ostiglia to Baricetta lock adaptation to class Va is envisaged.
- Veneta Lateral Waterway (E 91) from Marghera to Porto Nogaro upgrading from class IV to class Va is envisaged.
- Ferrara waterway (E 91–04) from Ferrara to Porto Garibaldi upgrading to class Va is under way.

Lithuania

Missing links: none.

<u>Basic bottlenecks</u>: Nemunas (E 41) from Kaunas to Jurbarkas and from Jurbarkas to Klaipeda — insufficient depth of the fairway (1.20 m and 1.50 m, respectively; the depth of 12.5 km fairway stretch in Kaunas is less than 1.20 m)*.

 Nemunas (E 41): insufficient depth of the fairway stretch along 100 km of Nemunas river stretch in the border area and on the territory of the Russian Federation

Netherlands

Missing links: none.

Basic bottlenecks: none.

- IJssel (E 70) from Arnhem to Zutphen upgrading to class Va is envisaged.
- Upgrading of the Zwartsluis at Meppel-Ramspol (E 12–02) is under way.
- Upgrading of the Lemmer-Delfzijl section (E 15) to class <u>Va</u> enabling 4-layer container transport is under way.
- Twente Canal (E 70) upgrading to class <u>Va</u> is under way and an increase of the capacity of the Eefde lock to be carried out.
- Lekkanaal (E 11-02) upgrading of the Beatrix lock.
- Maasroute (E 01) upgrading to class Vb enabling 4-layer container transport is under way.
- E 06 waterway increasing the capacity of the Kreekrak locks.
- E 03 waterway increasing the capacity of the Volkerak locks and Terneuzen locks is under study.
- IJsselmeer Meppel (E 12) insufficient fairway depth and/or width, the project is under study.
- Amsterdam Rijnkanaal (E 11) removing bottlenecks at the Zeeburg locks (upgrading to class Vlb).
- Zaan (E 11-01) adaptation to class <u>Va</u> with regard to fairway depth and/or width
 height under the bridges and lock capacity is required.
- Noordzeekanaal (E 11) upgrading of sea locks at IJmuiden to class VIc is being studied.

Romania

- Danube (E 80) from 845.5 to 175 km low fairway depth during dry seasons (below 2.50 m value recommended by the Danube Commission) at several critical sections, i.e.:
 - from 845.5 to 610 km, with fairway depth limited to 1.90-2.50 m for 12-46 days a
 year;
 - from 610 to 375 km, with fairway depth limited to 1.60-2.00 m for 20-40 days a year;
 - from 375 to 300 km, with fairway depth limited to 1.40-2.50 m for 61-126 days a
 year; navigation on the sector km 346 km 240 is diverted via Bala Borcea branch
 when the depths in Cemavodă are 1.50 m with decreasing tendency;
 - from 300 to 175 km, with fairway depth limited to 2-2.50 m for 5-32 days a year.
- Danube (E 80) from 170 km to the Black Sea low fairway depth during dry seasons (below 7.30 m value recommended by the Danube Commission) at several critical points, i.e. at 73, 57, 47, 41 and 37 nautical miles and at the Sulina bar at the mouth of the Sulina Canal where it meets the Black Sea, where the fairway depth is limited to 7.01 m for 2–16 days a year.

Slovakia

- Danube (E80) from Devín (1,880.26 km) to Bratislava(1,867.0 km) insufficient depth at low water level and insufficient height 8.90 m at locks of Gabčíkovo Hydro Electrical Complex (1,819.3 km). Upgrading is required to 9.10 m.
- Danube (E 80) from Sap (1,811.0 km) to the mouth of the Ipel' River (1,708.2 km)
 insufficient depth at low water level and insufficient height under the bridges.
- Váh (E 81), from Komárno (0.0 km) to Žilina (240.0 km) insufficient fairway depth. Canalization of the river and its upgrading to class VIa (Komarno-Hlohovec) and Va (Hlohovec-Žilina) in conjunction with the construction of new locks, and reconstruction of existing locks, are required.

EXPLANATIONS OF TABLES 1, 2 AND 3

The three tables reproduced below reflect data on existing and target parameters of inland waterways, locks and ports of international importance as of 15 December 2016.

Table 2

Parameters of locks of inland waterways of international importance

The table contains detailed data on some 630 locks or lock complexes, ship lifts and inclined planes situated on E waterways. This also includes data on locks which are under construction or planned.

Table 3

Technical characteristics of inland navigation ports of international importance

This table provides data on 440 European inland navigation ports of international importance, 17 of which are at the stage of planning. E ports are classified in the table in accordance with their annual cargo-handling capacity (0.5–3 million tons, 3–10 million tons and more than 10 million tons). The annual cargo-handling capacity should be interpreted as the potential of a particular port with regard to its existing equipment.

TABLE 1: NAVIGATIONAL CHARACTERISTICS OF MAIN EUROPEAN INLAND WATERWAYS OF INTERNATIONAL IMPORTANCE

Upper line – target value,
 Lower line – present value



- ** A Suitable for combined transport.
 - B Suitable, but restrictions apply.
 - C Not suitable for combined transport.
- *** Values applicable to single units/convoys.
- ***** In the middle of the bridge with due regard of the fairway and the shape of the bridge: it takes into account the security clearance of about 30 cm between the uppermost point of the vessel's structure or its load and a bridge.

Amendments were introduced to the following waterways:

E 01-03

E 02, E 02-02, E 02-02-01, E 02-04,

E 03

E 04

E 05, E 05-01, E 05-04, E 05-06

E 07

E 15

E 40

E 41

E 60-03-08

E 70, E 70-03

E 80, E 80-01

E 91, E 91-02, E 91-01, E 91-04, E 91-06, E 91-03, E 91-03-02, E 91-05, E

91-02, E 91-04

TABLE 1: NAVIGATIONAL CHARACTERISTICS OF MAIN EUROPEAN INLAND WATERWAYS OF INTERNATIONAL IMPORTANCE

E WATERWAY			MAXIMUM DIMENSIONS OF VESSELS AND PUSHED CONVOYS WHICH MAY BE ACCOMMODATED			MINIMUM HEIGHT CLASS UNDER		SUITABILITY FOR	COMMENTS
			LENGTH*** WIDTH*** (m) (m)		DRAUGHT (m)	BRIDGES**** (m)		COMBINED TRANSPORT**	
1	2	3	4	5	6	7	8	9	10
	DANUBE Sap – Klížska Nemá (Gonyü)82	20.0	/275.0 ⁸³ /225.0 ⁸⁴	22.80/34.20 ⁸³ /38.00 ⁸⁴	3.50 ⁸³ 2.50 ⁸⁴	9.10 ⁸³ 8.51 ⁸⁴	Vlc	A	When going downstream
	(1 811.0 km – 1 791.0 km)		/210.0 ⁸³ 160.0/210.0 ⁸⁴	22.80/22.80 ⁸³ 38.00/24.00 ⁸⁴	2.50 ⁸³ 1.80 ⁸⁴	8.85 ⁸³ 8.51 ⁸⁴	Vlb	Α	
			/275.0 ⁸³ /285.0 ⁸⁴	22.80/34.20 ⁸³ /24.00 ⁸⁴	3.50 ⁸³ 2.50 ⁸⁴	9.10 ⁸³ 9.18 ⁸⁴	Vlc	A	When going upstream
			/210.083 /220.0 ⁸⁴	22.80/22.80 ⁸³ /24.00 ⁸⁴	2.50 ⁸³ 1.80 ⁸⁴	9.10 ⁸³ 9.18 ⁸⁴	Vlb	Α	
	DANUBE Klížska Nemá (Gonyü) - Szob (Ipoly mouth)85	82.8	/275.0 ⁸³ /225.0 ⁸⁴	22.80/34.20 ⁸³ /38.00 ⁸⁴	3.50 ⁸³ 2.50 ⁸⁴	9.1083 8.5184 (Gonyü -	VIIa		When going downstream
E 80 (continued)	(1791.0 km –1 708.2 km)		/210.0 ⁸³ 160.0/210.0 ⁸⁴ (Gonyū - Bánkeszi ⁸⁶) /220.0 (Bánkeszi - Szob)	22.80/22.80 ⁸³ 24.00/38.00 ⁸⁴ (Gonyū - Bánkeszi) /38.00 (Bánkeszi – Szob)	2.00 ⁸³ 1.80 ⁸⁴ (Gonyü - Bánkeszi) 2.00 (Bánkeszi – Szob)	8.6583 8.5184 (Gonyū - Bānkeszi) 8.86 (Bānkeszi – Szob)	VIb	A	
			/275.0 ⁸³ /285.0 ⁸⁴	22.80/34.20 ⁸³ /24.00 ⁸⁴	3.50 ⁸³ 2.50 ⁸⁴	9.10 ⁸³ 9.18 ⁸⁴ (Gonyü - Bánkeszi) 8.83 (Bánkeszi – Szob)	Vlc	A	When going upstream
			/210.083 220.084 (Gonyü - Bánkeszi) 220.0/285.0 (Bánkeszi – Szob)	22.80/22.80 ⁸³ /24.00 ⁸⁴ (Gonyü - Bánkeszi) 38.00/24.00 (Bánkeszi - Szob)	2.0083 1.8084 (Gonyü - Bánkeszi) 2.00 (Bánkeszi – Szob)	8.6883 9.18 ⁸⁴ (Gonyū - Bánkeszi) 8.83 (Bánkeszi – Szob)	Vlb	A	

TABLE 2: : PARAMETERS OF LOCKS OF INLAND WATERWAYS OF INTERNATIONAL IMPORTANCE

E	SECTION OF E WATERWAY	DIME	NSION OF L	ocks	COMMENTS	
WATERWA Y		LENGTH (m)	WIDTH (m)	DEPTH AT SILLS (m)		
1	2	3	4	5	6	
E 01-03	MAXIMAKANAAL	115.0	12.60	2.40	Empel lock	
		115.0	12.60	2.75	Hinthamlock	
E 03	GENT CIRCULAR CANAL	230.0	25.00	5.00	Lock 1	
		136.0	16.00	3.80	Lock 2	
E 40	MUKHOVETS	120.0	12.90	2.40/2.70	Lock No. 10 Trishin	
	Brest - Kobrin	120.0	12.70	2.75/2.40	Lock No. 9 Novosady	
		120.0	12.90	2.50/2.70	Lock No. 8 Zaluzje	
	DNEPROVSKO – BUGSKIY KANAL	120.0	12.70	2.70/2.55	Kobrin lock	
	Kobrin - Pererub	79.80	11.10 ¹²	4.10/2.17	Lock No. 5 Lyakhovichi	
		79.85	11.10 ¹²	3.80/2.00	Lock No. 4 Ovzichi	
		79.85	11.10	3.85/1.95	Lock No. 3 Ragodosch	
		80.0	11.30 ¹²	3.90/1.76	Lock No. 2 Pererub	
	PINA					
	Pererub – Pinsk	120.0	12.70	2.45/2.60	Lock No. 1 Duboy	
	PRIPYAT	110.0	11.90	4.40/2.20	Lock No. 11 Kachanovichi	
	Pinsk – Stakhovo	110.0	12.00	5.20/2.20	Lock No. 12 Stakhovo	
E 80	DANUBE	310.0	34.00	4.50	Iron Gates I locks, 943 km	
	1 075.0 km – 0.0 km	310.0	34.00	4.50		
		310.0	34.00	4.50	Iron Gates II locks, 863.00 km	
		310.0	34.00	4.50		
		140.0	17.00	2.50	Iron Gates II reserve lock	
E 80-05	DANUBE - BUCHAREST CANAL	130.0	12.50	5.00	Four double locks under planning	
E 80-14	DANUBE - BLACK SEA CANAL	310.0	25.00	7.50	Cernavodă (60.0 km)	
		310.0	25.00	7.50	Agigea (1.3 km)	
E 80-14-01	POARTA ALBA – MIDIA NAVODARI	145.0	12.50	6.50	Năvodari (60.0 km)	
	CANAL	145.0	12.50	6.50	Agigea (1.3 km)	

TABLE 3: TECHNICAL CHARACTERISTICS OF INLAND NAVIGATION PORTS OF INTERNATIONAL IMPORTANCE

New ports:

P 05-01-01 Bossuit Kortrijk (Bossuit – Kortrijk Canal, 7.6 km)

P 41-05 Kaunas winter port (Nemunas, 210.0 km)



NEXT STEPS

- ✓ By 15 November: to be disseminated in three languages for final comments, if any
- ✓ By 15 December: deadline for final comments
- 22 February 2017: submission for the seventieth session of ITC
- ❖ First half 2017: preparation for publication
- Updating of the Blue Book database



