United Nations ECE/TRANS/SC.3/WP.3/2022/4

Economic and Social Council

Distr.: General
2 February 2022

Original: English

Economic Commission for Europe

Inland Transport Committee

Working Party on Inland Water Transport

Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation

Sixtieth session
Geneva, 16–18 February 2022
Item 5 of the provisional agenda
Proposal for a new classification of European inland waterways

Standardization of Inland Waterways: Proposal for the Revision of the Classification Adopted by the European Conference of Ministers of Transport in 1992 (Resolution No. 30)

Transmitted by the World Association for Waterborne Transport Infrastructure*, **

I. Mandate

1. This document is submitted in line with the Proposed Programme Budget for 2022, part V, Regional cooperation for development, section 20, Economic Development in Europe. Programme 17, Economic Development in Europe (A/76/6 (Sect.20), para. 20.76).

2. At its sixty-fifth session, the Working Party on Inland Water Transport (SC.3) took note of a presentation by the Chair of the Working Group 179 (WG 179) of the Inland Navigation Commission (InCom) of the World Association for Waterborne Transport Infrastructure (PIANC) on the PIANC proposal for a new classification of European inland waterways, based on the classification adopted by the European Conference of Ministers of Transport (ECMT) and the Economic Commission for Europe (ECE) in 1992. SC.3 asked the secretariat to prepare a working document with the Chair of PIANC Working Group 179 for the sixtieth session of the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) (ECE/TRANS/SC.3/215, paragraph 44).

3. The present document reproduces the main conclusions, recommendations and the new classification proposal made by WG 179 as set out in the report of PIANC InCom WG No. 179–2020 “Standardization of Inland Waterways Proposal for the Revision of the ECMT 1992 Classification”, issued on 14 September 2020.

* The present document was submitted after the deadline in order to reflect the most recent information.

** The present document is being issued without formal editing.

II. Background

4. The existing classification of inland waterways was developed by the PIANC Working Group 9 (WG 9) as part of the work of the Permanent Technical Committee (PTC1). The report "Standardization of Inland Waterways' Dimensions" produced by WG 9 has been used by both ECMT and ECE for a new classification of inland waterways, issued in 1992 as ECMT resolution No. 92/2 (ECMT 1992 classification) and resolution No. 30 adopted by SC.3 on 12 November 1992 (ECE 1992 classification).

5. Since 1992, there have been several developments in the size and shapes of inland barges, as well as their manoeuvrability. Specifically, the larger (and often wider) motor vessels, as well as the coupled formations that now sail the (larger) waterways, are not taken into account in the ECMT 1992 classification. Examples of those are the Rhinemax vessel (135 m × 17.70 m), or a coupled formation which can consist of a common large Rhine vessel (110 m × 11.40 m) combined with a pushed barge in front. This pushed barge can be a regular Europe II type or a tailor-made barge, resulting in a total length of 170–190 m. Coupled formations occur in different sizes: they can reach the size of a four or six barge push-tow unit, but also can consist of 2 peniches attached. Another general trend seems to be the lengthening of existing vessels or new vessels that are built longer, dedicated to specific waterways that can accommodate such vessels due to the available lock chamber sizes.

6. Since 1992, the transport of containers on inland waterways has increased significantly. In particular, PIANC has found a growing demand for more free headroom because container heights have increased due to introduction of the so-called high-cube containers.

7. The ECMT 1992 classification has no provisions for these larger motor vessels nor for coupled formations, thus resulting in misunderstandings among different countries related to the classification of these vessels. This prompted Rijkswaterstaat[1] to make a research of these developments[2] with underlying reports made by the Maritime Research Institute Netherlands (MARIN).[3]

8. In 2015, PIANC WG 179 was set up with a mission to study, analyse and discuss the developments in the inland navigation fleet since 1992 and propose a new classification of inland waterways. In particular, WG 179 addressed the following issues:

- Different interpretations of the classification of larger motor vessels among the different European countries
- Different interpretations of the classification of coupled formations among the different European countries
- The free headroom under bridges over canals. The research made by Rijkswaterstaat taking measurements on the Rhine has shown that those container vessels not using additional ballasting will require a larger free headroom on connecting canals. The minimum free headroom as stated in the ECMT 1992 classification is often not sufficient for the corresponding number of layers of containers.

9. To ensure progress on these issues, WG 179 used the following approach:

- Conducted an inventory of existing inland waterway classifications and the divergences among them
- Made an inventory of the dimensions of the inland waterway fleet and investigated trends in its long-term evolution

[1] The executive agency of the Ministry of Infrastructure and Water Management of the Netherlands, dedicated to promote safety, mobility and the quality of life (www.rijkswaterstaat.nl).

[2] Rijkswaterstaat Adviesdienst Verkeer en Vervoer, "Classificatie en kenmerken van de Europese vloot en de actieve vloot in Nederland", Rotterdam, 2002.

[3] Maritime Research Institute Netherlands (MARIN): "Herziening inventarisatie Manoeuvreermiddelen", Wageningen, 2008; "Scheepskarakteristieken van nieuwe grote schepen", Wageningen, 2010.

- Conducted an inventory of the fairway infrastructure of European countries, including a map with lock dimensions.

10. On 16 July 2016, WG 179 sent a questionnaire to all PIANC National Sections to collect information about the applied classification for inland waterways in their countries and their suggestions for modernizing the ECMT 1992 and ECE 1992 classifications. The questionnaire was sent to 28 countries being members of PIANC with a National Section, both within and outside Europe, and to Czechia and Slovakia. Based on the results of the questionnaire, WG 179 concluded that in Europe the connected waterways share a common classification. However, inland navigation and the inland waterways fleet in other countries are rather different from those in Europe. WG 179 started an investigation into developments in the inland waterways fleet in Europe and, in particular, into developments in waterway channel dimensions since the publication of previous classifications based on the proposal presented by PIANC WG 9. The overall waterway network was studied, and the specific dimensions of existing locks and bridges were considered when drafting a new classification proposal.

11. The WG 179 report proposes a new, updated classification of inland waterways, adapted to the developments in the inland navigation fleet since 1992. This proposal concerns countries that provide an integrated waterway network on the European mainland, suitable for inland barges. Geographically, this waterway network is limited roughly by the North, Mediterranean, Baltic and Black Seas. The proposed classification and the main conclusions and recommendations of WP 179 are reproduced below.

III. Main Conclusions and Recommendations Made by WP 179

12. The classification proposed by WG 179 is based on research into the present fleet in Europe and the existing infrastructure as described in the Inventory of Main Standards and Parameters of the E Waterway Network (Blue Book), second revised edition. The conclusions and recommendations are given below.

A. Motor Vessels

13. Several databases were used for research on developments within the fleet that uses the interconnected European inland waterway network. Waterways outside the interconnected European inland waterway network were not included in this analysis and were not considered in developing this new classification proposal.

14. The research found that the horizontal dimensions of vessels are generally the same as during the preparatory work of WG 9 in 1990. However, WG 179 did find a significant number of vessels which have been lengthened or newly built to longer dimensions. For instance, instead of a vessel class Va with dimensions of 11.40 m × 110 m, there are vessels that are longer with the same beam, even up to a length of 135 m. This lengthening can be seen in vessels of classes IV and Va. However, given that most waterways of a specific class have locks that can accommodate lengthwise a vessel with a normative beam for that class, WG 179 decided not to enlarge the range of the length of the classes for this purpose. Vessel owners who have lengthened their ships will have done so taking into account a specific trade or to support their decision to lengthen their vessel and cannot only rely on the classification itself but need to ensure locks (and the entire waterways) will accommodate their length.

1. East and West Elbe: Distinction Deleted

15. Discussions by SC.3 in 1992 concluded that there was a need for a distinction between waterways east and west of the Elbe. These waterways were mainly within the former German Democratic Republic and Czechoslovakia. WG 179 investigated the demand for continuing this distinction in the proposed revised classification. Representatives of Germany and Czechia have stated that this distinction is no longer required and is therefore not part of this proposal.

2. Classes I–III: No Change

16. Analysis of the fleet did not find any new developments (except for the draught) for the "smaller" ECMT classes I, II and III. In the proposal, these classes are identical to the ECMT 1992 classification west of the Elbe.

3. Class IV and Va: No Change, Deletion of the Length Range in Class Va

17. The analysis found a significant number of vessels in these classes have been lengthened ("significant" in this context indicates that more than 1% of the total fleet have been lengthened). However, because most of those lengthened vessels will no longer fit in locks in those waterway classes, WG 179 did not propose to change the horizontal dimensions in these classes, but instead indicate their existence in the classification table. The length range of 95–110 m for class Va in the ECMT 1992 classification has been changed to only 110 m, because in the current fleet analysis almost no vessels were found with the dimension 11.40 m × 95 m.

4. Large Motor Vessels in Classes Vb and Above: Inclusion of Those Vessels into the New Classification

18. In 1990, when the previous PIANC classification proposal was under development, vessels larger than 11.40 m × 110 m were already foreseen but did not yet exist. At that time, the maximum dimensions listed in class VIb of 15.00 m × 140 m were predicted. Subsequently, larger vessels have been built which were found in the databases examined. A length of 135 m is especially dominant, but such vessels were found with a variety of beams. To accommodate these large vessels in the proposed classification, it was decided to use in class VIa the maximum dimension allowed on the Rhine from Bingen to Saint-Goar, which is at present 17.70 m × 135 m. It is unlikely that larger vessels will develop as these are not permitted on the Rhine.

5. Pushed Convoys: Length and Width Updated

19. Since 1990, longer pushed barges have entered the market. As the dimensions of class VIb and VIc waterways are limited by regulations of their fairway authorities, these longer pushed barges will mainly be found in class V. Therefore, the length of the convoys in this class is adapted in this proposal.

20. Following the guiding principle of the proposal that the vessel's beam is the most critical dimension in the classification, the existing class VIc has been split. WG 179 proposed to use a beam of 22.80 m for all class VI waterways and 34.20 m for class VII. Thus, the six-barge pushed convoy in a wide formation is proposed for the new class VIIa and the nine-barge pushed convoy is proposed for a new class VIIb.

B. Coupled Units: No Change

21. The number of coupled units has grown over the last decades. Coupled units have always used the inland waterway network, but the research has found more coupled units that navigate together as a rule instead of navigating together incidentally. In particular, it was found that coupled units that were designed as a coupled unit and navigate together, have in general a better manoeuvrability. However, since the proposed classification focusses on the dimensions of vessels, therefore coupled units can be accommodated according to their maximum dimensions within the existing or higher classes.

C. River-Sea Vessels: No Changes, but Recommendation for Authorities

22. In 1996, PIANC Working Group 16 (WG 16) made recommendations for inclusion of river-sea vessels into the ECMT classification. River-sea vessels would fit into classes Va and VIb. When considering their classification, the suggested dimension for class VIb for a vessel of 22.80 m × 135 m requires special attention, because the proposed classification limits the beam for inland motor vessels in this class to 17.70 m, based on the maximum

dimensions on the Rhine. This suggested that a beam for a river-sea vessel of 22.80 m could be adopted in class VIb.

23. WG 16 published their report in 1996. WG 179 did not find a more recent information on developments of the dimensions of river-sea vessels and suggests including river-sea vessels in the notes to the proposed classification. It is recommended that, when waterway authorities are planning to upgrade a large waterway, they consider the admittance of river-sea vessels with dimensions of 22.80 m × 135 m.

D. Container Transport: Modified Recommendation for a Free Headroom under Bridges

1. Maritime Containers

(a) Horizontal Dimensions

24. Transport of containers on inland waterways is constantly increasing. Since container movement is considered an important part of inland waterway transport, any development in container sizes should be taken into account in developing a classification. WG 179 found that the horizontal dimensions of vessels currently carrying containers fit in the existing classification.

(b) Height Under Bridges (Headroom)

25. The main issue for container vessels is the available height under bridges. The report contains new recommendations for the bridge clearance to facilitate container transport with two, three and four layers of containers. The type of waterway (free flowing or controlled) has to be taken into account as well. The bridge height on rivers is usually referenced to the highest navigable water level. Given that most of the time the highest navigable water level is not reached, there is usually a larger bridge clearance available. Therefore, most free flowing rivers provide more free headroom and enable the transport of more layers of containers. On canals, however, water levels are more or less fixed resulting in a much more stringent available bridge clearance.

(c) Container Dimensions

26. A new standard container, the so-called high cube container, has been developed and is in use for maritime shipping. This high cube container has a height of 2.89 m, which is 0.30 m higher than the standard ISO[4] container. The lifetime of a container is approximately 20 years. At present, all new containers are being built as high cube containers. This will result in use of only high cube containers in maritime transport and ultimately only those type of containers will be used in inland navigation as well.

27. Therefore, the recommendation for the bridge clearance taking into account the number of tiers of containers on a vessel must be updated, resulting in a lower number of tiers of containers. However, the growth of container transport on inland waterways depends to a large extent on the operational cost of inland navigation. For instance, if a class Va vessel which is able to carry four tiers could only carry three tiers, the cost per container will be 25% higher. For a vessel able to carry only two tiers instead of three, the cost will increase by 33% per container. Therefore, inland waterway container transport may lose competitiveness with other transport modes.

28. In light of the information contained in chapter 4 and the analysis in chapter 7 of the report, WG 179 decided to put a range of the required free headroom in the classification proposal. The lower values are those in the existing guidelines and the higher values are based on the study of the actual height of container vessels where WG 179 has chosen the 95% underrun value as the higher value.

29. As explained previously, the height of container vessels can be reduced by ballasting, which is already successfully used for vessels using specific waterways with clear restrictions

[4] International Organization for Standardization.

on free headroom. If a fairway authority wants to accommodate container transport without restrictions the 95 % data should be taken into account, which are:

- Two layers: 6.00 m
- Three layers: 8.65 m
- Four layers: 11.20 m.

30. In the report, the length of containers has not been considered. The majority of the lengths of containers is 20 and 40 feet. However, it should be noted that containers with a length of 45 feet have been introduced successfully. This may result in vessels that can accommodate eight 45 feet containers and can at the same time also load nine 40 feet containers. This situation was not incorporated into this proposed classification but is noted here to raise awareness.

2. Continental Containers/Continental Transport in Europe

31. Inland navigation is very well developed in transport connecting maritime ports to the hinterland. Continental transport (goods being carried from one location to the other inside Europe) is, in comparison, relatively underdeveloped. The stakeholder consultation has resulted in the finding that most continental transport carried out on roads and railways uses pallets as a standard unit for transport. A continental pallet does not fit economically into a standard container. Therefore, the so-called continental container has been developed which results in road trailers which are wider than maritime ISO containers. If continental containers are to fit into class V vessels, their beam is recommended to be enlarged to 12.00 m instead of 11.40 m which is the present class Va standard. This larger dimension is not included in this proposed classification, as these specific vessels have not been found in the databases.

32. However, it is recommended that the fairway authorities – especially when they are planning or designing new infrastructure with locks – consider whether the infrastructure should be designed to accommodate inland vessels carrying continental containers. This would require either following the existing technical regulations for ship design with a larger beam or designing alternative vessels (see Appendix N of the report), which will require adaptation of these technical regulations. For other classes the proposed lock chamber widths for this purpose are listed in paragraph 7.1.4 of the report.

E. Height Under Bridges

33. The bridge height was one of the issues for further research that led to the formation of WG 179 and is primarily a consideration in facilitating container transport on inland waterways. For more information, including recommendations, see paragraphs 4.3 and 5.2 of the report.

F. Draught: Maximum Draught is Changed

34. A general development in shipbuilding for inland navigation is that most vessels are built with a larger draught. For optimal performance of the inland navigation sector it is recommended to take those larger draughts into consideration when designing new infrastructure; therefore, new indications of maximum draught are given in this proposal.

IV. New Classification Proposal

35. The new classification proposal made by WP 179 is given in table 1 of the annex below.

36. Changes to the ECE 1992 classification proposed by WG 179 are indicated in table 2 of the annex in yellow (as proposed). The explanations are given below.

37. The differences between classes I–III to the west and to the east of the Elbe have been skipped. There are now only one class for each of classes I, II and III. This was done after

consultation with Germany and Czechia who, during the preparation of the ECE 1992 classification, were strongly in favour of this distinction.

38. Based on the analysis of the fleet:[5]

(a) The maximum length for motor vessel class III, the pushed convoys/coupled units in classes V and VIIa have been enlarged;

(b) The maximum draught for vessel classes I, III and vessel classes and pushed convoy classes IV and Va have been enlarged;

(c) These changes also result in an increased maximum tonnages of these classes.

39. The recommended values of the height under bridges have been given a wider range and are increased taking into account:[6]

(a) The development of container sizes (high cube containers);

(b) The experience with actual measured height of container vessels in operation.

40. A new large motor vessel is now included in classes Vb and VIa, which did not exist in the previous classification. Through examination of the fleet characteristics, it was apparent that there exist two different kinds of large motor vessels, one in class Vb according to its beam and the other in class VIa due to its larger beam.

41. A motor vessel's or convoy's beam is regarded at being the primary classification variable (see note 2 to the proposal (table I)). Following this principle, in the proposal the six barge pushed convoy sailing in a wide formation has been placed in a new class VIIa and the nine barge pushed convoy in a new class VIIb. Therefore, under the proposal all vessel types in class VI have a typical maximum beam of 22.80 m and all vessel types in class VII – a typical maximum beam of 34.20 m.

42. A new column has been added to indicate the number of containers that can be carried on board corresponding with the bridge height values.

[5] See chapter 4 of the report.

[6] See chapters 4.3 and 5.2 of the report.

Annex

New Classification of Inland Waterways Proposed by PIANC

Table 1
Proposal of Classification of European Inland Waterways, PIANC 2019 (WG 179)

Classes of navigable waterways	*Motor vessels (1)*					*Pushed convoys and coupled units*					*Recommended height under bridges*	*Containers transport capacity*
	Type of vessel: general characteristics					*Type of convoy: general characteristics*						
	Designation	*Maximum length (2)*	*Maximum beam*	*Draught (3)(4)*	*Tonnage(5)*	*Designation*	*Maximum Length*	*Maximum Beam*	*Draught (3)*	*Tonnage (5)*	*Height (3) (8) (12)*	*Containers number (TEU)[7] (5)(6)*
		L (m)	*B (m)*	*D (m)*	*T (t)*		*L (m)*	*B (m)*	*D (m)*	*T (t)*	*H (m)*	
I	Peniche	38.5	5.05	1.80–2.50	250–400						4.00	
II	Kempenaar	50–55	6.60	2.50	400–650						4.00–5.00	
III	Gustav Koenigs	67–85	8.20	2.50–2.70	650–1250						4.00–5.00	
IV *(7)*	Johann Welker	80–85	9.50	2.50–3.00	1,000–1,800	IV pc[8]	85 *(7)*	9.50	2.50–3.00	1,250–1,450	5.25–6.00 7.00–8.65	54 81
Va	Large Rhine Vessel	110	11.40	2.50–4.00	1,500–3,500	Va pc	95–110 *(9)*	11.40	2.50–4.50	1,600–3,000	5.25–6.00 7.00–8.65 9.10–11.20	104 156 208
Vb	Extended Large Rhine Vessel	135	11.40	2.50–4.00	2,300–4,400	Vb pc/cu	172–190 *(10)*	11.40	2.50–4.50	3,200–6,000	5.25–6.00 7.00–8.65 9.10–11.20	160 240 320
VIa	Rhinemax	135	17.70	2.50-4.50	4,500–7,500	VIa pc/cu	95–135	22.80	2.50–4.50	3,200–6,000	7.00–8.65 9.10–11.20	300 400

[7] Twenty-foot equivalent unit.
[8] *Note by the secretariat:* in tables 1 and 2, “pc” means pushed convoys and “cu” – coupled units.

Classes of navigable waterways	Motor vessels (1)					Pushed convoys and coupled units					Recommended height under bridges	Containers transport capacity
	Type of vessel: general characteristics					Type of convoy: general characteristics						
	Designation	Maximum length (2)	Maximum beam	Draught (3)(4)	Tonnage(5)	Designation	Maximum Length	Maximum Beam	Draught (3)	Tonnage (5)	Height (3) (8) (12)	Containers number (TEU)[7] (5)(6)
		L (m)	B (m)	D (m)	T (t)		L (m)	B (m)	D (m)	T (t)	H (m)	
VIb						VIb pc/cu	185–195	22.80	2.50–4.50	6,400–12,000	7.00–8.65 9.10–11.20	480 640
VIc						VIc pc	270–280	22.80	2.50–4.50	9,600–18,000	9.10–11.20	960
VIIa *(11)*						VIIa pc	185–200	33.00–34.20	2.50–4.50	9,600–18,000	9.10–11.20	960
VIIb						VIIb pc	285	33.00–34.20	2.50–4.50	14,500–27,000	9.10–11.20	1440

(1) *Note:* inland waterways are also used by so-called river-sea vessels.

(2) The primary classification variable is the vessel's beam. Particularly since the length of lock chambers can be larger on a specific waterway, the length of a specific class is a range in this proposal, rather than a maximum length. This also results in overlaps for the tonnage of a specific class.

(3) The first value relates to existing situations on inland waterways and the second value to future developments on inland waterways or, in some cases, also existing situations.

(4) East of the Elbe there may be exceptions for lower draught in class I.

(5) This table lists the typical carrying capacity of vessels or pushed convoys in the classes, expressed in tons and number of containers. The maximum (minimum) tonnage is obtained by the maximum (minimum) length, beam and draught of each type of vessels. For some classes, the maximum tonnage (container transport capacity) of coupled units can be higher than that of pushed convoys. The maximum tonnage (container transport capacity) of pushed convoys can be higher with extended barges, particularly in class VIa.

(6) It is recommended that the share of pallet wide containers in this transport be closely monitored.

(7) There is a significant group of longer motor vessels and coupled units in class IV with a beam of 9.50 m than are mentioned here: motor vessels with a length of 110 m, coupled units in the range of 170 m–185 m.

(8) Height for container transport: 5.25 m–6.00 m for vessels carrying two layers of containers; 7.00 m-8.65 m for vessels carrying three layers of containers; 9.10 m–11.20 m for vessels carrying four layers of containers. The first value is related to standard container and high cube container transport (with the use of ballasting) and the second value to standard container and high cube container transport without the use of ballasting.

(9) There is a significant group of pushed convoys with a length of 135 m.

(10) The length of 190 m takes into account the existing length of coupled units.

(11) In the PIANC WG 9 (1990) proposal, class VIc is for 6 barge push tows and class VII is for 9 barge push tows. However, when taking into consideration that the beam is used as the primary dimension for classification it makes sense to move the 6 barge push tow in a wide configuration to a new class VIIa and the 9 barge push tow into a new class VIIb. Thus, class VII has a maximum beam of 34.20 m and class VI 22.80 m.

(12) Takes into account a security clearance of 30 cm between the highest point of the vessel or its load and the height of the bridge.

Table 2

Overview of PIANC 2020 WG 179 proposal compared with ECMT/ECE 1992 classification[9, 10]

Classes of navigable waterways	*Motor vessels (1)*					*Pushed convoys and coupled units*						*Containers transport capacity*[11]
	Type of vessel: general characteristics					*Type of convoy: general characteristics*						
	Designation	*Maximum length (2)*	*Maximum beam*	*Draught (3)(4)*	*Tonnage(5)*	*Designation*	*Maximum Length*	*Maximum Beam*	*Draught (3)*	*Tonnage (5)*	*Height (3) (8) (12)*	*Containers number (TEU) (5)(6)*
		L (m)	*B (m)*	*D (m)*	*T (t)*		*L (m)*	*B (m)*	*D (m)*	*T (t)*	*H (m)*	
I[12]	Peniche	38.5	5.05	1.80–2.50[13]	250–400						4.00	
II	Kempenaar[14]	50–55	6.60	2.50	400–650						4.00–5.00	
III	Gustav Koenigs	67–85[15]	8.20	2.50–2.70[16]	650–1250[17]						4.00–5.00	
IV *(7)*	Johann Welker	80–85	9.50	2.50–3.00[18]	1,000–1,800[19]	IV pc/cu	85 *(7)*	9.50	2.50–3.00[20]	1,250–1,450	5.25–6.00 7.00–8.65[21]	54 81
Va	Large Rhine Vessel	110[22]	11.40	2.50–4.00[23]	1,500–3,500[24]	Va pc/cu	95–110 *(9)*	11.40	2.50–4.50	1,600–3,000	5.25–6.00 7.00–8.65 9.10–11.20[25]	104 156 208

[9] *Note by the secretariat:* notes to table II are identical to those in table I and are not reproduced.

[10] *Note by the secretariat:* resolution No. 30 is available at https://unece.org/DAM/trans/doc/finaldocs/sc3/TRANS-SC3-131e.pdf (pages 169–175).

[11] *Note by the secretariat:* a newly proposed column (see paragraph 42).

[12] *Note by the secretariat:* classes I–III east of the Elbe are deleted (see paragraphs 15, 16 and 37).

[13] *Note by the secretariat:* in resolution No. 30: 2.20 m.

[14] *Note by the secretariat:* in resolution No. 30: in the English text, the name “Kampine” is used.

[15] *Note by the secretariat:* in resolution No. 30: 80 m.

[16] *Note by the secretariat:* in resolution No. 30: 2.50 m.

[17] *Note by the secretariat:* in resolution No. 30: 650–1000 m.

[18] *Note by the secretariat:* in resolution No. 30: 2.50 m.

[19] *Note by the secretariat:* in resolution No. 30: 1000–1500 m.

[20] *Note by the secretariat:* in resolution No. 30: 2.50–2.80 m.

[21] *Note by the secretariat:* in resolution No. 30: 5.25/7.00 m.

[22] *Note by the secretariat:* in resolution No. 30: 95–110 m.

[23] *Note by the secretariat:* in resolution No. 30: 2.50–2.80 m.

[24] *Note by the secretariat:* in resolution No. 30: 1500–3000 m.

[25] *Note by the secretariat:* in resolution No. 30: 5.25/7.00/9.10 m.

Classes of navigable waterways	Motor vessels (1)					Pushed convoys and coupled units						Containers transport capacity[11]
	Type of vessel: general characteristics					Type of convoy: general characteristics						
	Designation	Maximum length (2)	Maximum beam	Draught (3)(4)	Tonnage(5)	Designation	Maximum Length	Maximum Beam	Draught (3)	Tonnage (5)	Height (3) (8) (12)	Containers number (TEU) (5)(6)
		L (m)	B (m)	D (m)	T (t)		L (m)	B (m)	D (m)	T (t)	H (m)	
Vb	Extended Large Rhine Vessel[26]	135	11.40	2.50–4.00	2,300–4,400	Vb pc/cu	172–190[27] *(10)*	11.40	2.50–4.50	3,200–6,000	5.25–6.00 7.00–8.65 9.10–11.20[25]	160 240 320
VIa	Rhinemax[26]	135	17.70	2.50-4.50	4,500–7,500	VIa pc/cu	95–135[28]	22.80	2.50–4.50	3,200–6,000	7.00–8.65 9.10–11.20[29]	300 400
VIb			[30]	[31]		VIb pc/cu	185–195	22.80	2.50–4.50	6,400–12,000[32]	7.00–8.65 9.10–11.20[29]	480 640
VIc						VIc pc	270–280	22.80	2.50–4.50	9,600–18,000[33]	9.10–11.20[34]	960
VIIa[35] *(11)*						VIIa pc	185–200	33.00–34.20	2.50–4.50	9,600–18,000	9.10–11.20	960
VIIb[36]						VIIb pc	285	33.00–34.20	2.50–4.50	14,500–27,000	9.10–11.20	1440

[26] *Note by the secretariat:* a newly added type of vessel.
[27] *Note by the secretariat:* in resolution No. 30: 172–185 m.
[28] *Note by the secretariat:* in resolution No. 30: 95–110 m.
[29] *Note by the secretariat:* in resolution No. 30: 7.00/9.10 m.
[30] *Note by the secretariat:* in resolution No. 30: 140.00 m.
[31] *Note by the secretariat:* in resolution No. 30: 15.00 m.
[32] *Note by the secretariat:* in the English version of TRANS/SC.3/131, the data *should read* 6,400–12,000.
[33] *Note by the secretariat:* in the English version of TRANS/SC.3/131, the data *should read* 9,600–18,000 (twice).
[34] *Note by the secretariat:* in resolution No. 30: 9.10 m.
[35] *Note by the secretariat:* a newly introduced class (see note 11 to table I and also paragraphs 20, 38 and 41).
[36] *Note by the secretariat:* a newly introduced class; the parameters correspond to class VII in resolution No. 30, except the recommended height under bridges which is 9.10 m (see note 11 to table I and also paragraphs 20 and 41).