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**WORK OF THE WORKING PARTY ON THE STANDARDIZATION
OF TECHNICAL AND SAFETY REQUIREMENTS IN INLAND
NAVIGATION**

**Updating of the Recommendations on Harmonized
Europe-wide Technical Requirements for Inland
Navigation Vessels (annex to resolution No. 61)**

Transmitted by the Government of the Russian Federation

Note: At its forty-ninth session, the Working Party considered assigning to the SC.3/WP.3 Working Party the task of considering the possibility of drawing up, with the help of its group of volunteers, specific technical requirements for sea-river vessels, with due regard to the constraints that they might face in terms of the navigational season, distance from the coast and from harbours, as well as the height of the waves envisaged. It was thought that, at some stage, that work could be carried out jointly with the International Maritime Organization (IMO). Given the close involvement of the Russian River Register in a similar project recently undertaken within OTNK, the Russian authority for the technical supervision and classification of vessels, the delegation of the Russian Federation was invited to transmit a basic document on ways in which technical requirements for sea-river vessels could be elaborated within ECE (TRANS/SC.3/168, paras. 30 (iii) and 31).

The basic document received from the Russian Federation on this subject is reproduced below.

Drafting of ECE technical requirements for sea-river vessels

I. CURRENT SITUATION

1. In many European countries, a lack of sea transport infrastructure has hampered foreign trade. The opportunities for redirecting such trade to rail transport are limited for a number of reasons, above all the need to use third-party transport facilities. In such circumstances, combined sea-river vessels play an increasingly important role in providing transport for foreign trade.

2. A number of factors have contributed to this, including the following:

(a) The existence in European countries of large-scale networks covering several basins that bring deep-water navigation channels together in a single system and that make it possible to provide effective service to vast areas not only in Western Europe, but also in the Russian Federation, Ukraine, Kazakhstan, Turkmenistan, Azerbaijan and other countries with developed processing industries, large and diverse supplies of raw materials and diversified agriculture. There is thus high growth potential for foreign trade;

(b) The avoidance of transfers at river-mouth ports and the ability in many cases to provide door-to-door service, which reduces transport times and ensures that the goods carried are kept in better condition;

(c) The existence of a specific and strong market for such vessels, owing to the growing need for break-bulk consignments, their ability to serve shallow-water ports and their exceptional performance in the coastal navigation so rapidly developing in the Mediterranean, the Black Sea, the Baltic and the North Sea.

II. APPROACHES TO THE ESTABLISHMENT OF TECHNICAL REQUIREMENTS

3. With those advantages, mixed-navigation vessels now account for a significant portion of the world trading fleet. The main types of vessels of this class have a dead-weight tonnage of between 2,000-3,000 and 5,000-6,000 tonnes, and are used to carry goods between river, river-mouth and sea ports along the coasts of Europe and North Africa, with an autonomy of 15-20 days. Such vessels generally have constraints related to range and seasons of use, allowable distance from harbours and the wave and wind conditions in which they may operate. Accordingly, they are classified as vessels of limited navigation area.

4. Because of these limitations, the construction costs for mixed-navigation vessels can be significantly reduced, as there are lesser requirements for the vessels' overall and local hull strength, their sea-going qualities, the types and specifications of equipment and supplies and their main engine power. This also makes it possible to increase the vessels' cargo capacity without changing their draught, as the unladen weight is reduced and the block coefficient is increased.

5. Two approaches have been adopted in the construction of such vessels.
6. The first is based on the construction of sea vessels with a limited navigation range in rough seas with a 3% wave height frequency for waves of 6.0 metres and a range from harbour of:
 - In open seas, no more than 50 miles, and with an allowable distance between harbours of no more than 100 miles;
 - In closed seas, no more than 100 miles, and with an allowable distance between harbours of no more than 200 miles.
7. The vessels had a draught limited to between 4 and 4.5 metres and, when not fully laden, had the ability to go upriver.
8. The use of such vessels has shown that sea-river vessels have low economic performance, as their draughts must be reduced for travel upriver while at the same time their seaworthiness and strength must be ensured for sea navigation.
9. The best possible combination had to be found of operational constraints and economic advantages, providing for the necessary reliability and safety, while also ensuring economic performance.
10. The second approach to the construction of sea-river mixed navigation vessels was based more closely on the construction principles for inland navigation vessels, but with seaworthiness, stability, unsinkability and hull strength allowing for safe sea operation in wave heights of over 3.5 metres with a 3% wave-height frequency and taking into consideration the specific local constraints and navigation conditions resulting from the basins' wind and wave patterns. It allowed for a distance from harbour of up to 50 miles.
11. Figure 1 shows the areas of sea navigation of such mixed (sea-river) vessels.
12. The Russian delegation believes that the areas of sea navigation, the seasonal limitations and the wind and wave restrictions of this class of vessel are such that it fully corresponds to the needs of the businesses, economies and markets of the European countries.
13. Mixed navigation sea-river vessels can carry out:
 - (a) International runs between river and sea ports of the various countries, including those located in basins that are distant from one another;
 - (b) International runs between the ports of two countries that have concluded agreements accepting exemptions to certain requirements of international conventions;

(c) Coastal runs between river and sea ports of the same country. Their navigation area may be restricted, and in basins with milder wave and wind conditions they may be used to provide permanent service on specific routes.



Figure 2

14. It is therefore advisable, in the framework of the ECE regulations, to differentiate between the specific requirements for vessels on the basis of the wave and wind patterns of the basins where the vessels are to be used. It is proposed to categorize the basins according to their wind and wave patterns, as in table 1 below.

Table 1

Basin designation	Wave height	Wave height frequency, %	Overall frequency, %
“L”	2.0	3	5 and below
“S”	3.0	3	5 and below
“SM”	3.5	3	5 and below

III. SCOPE OF TECHNICAL REQUIREMENTS

15. The various types of mixed (sea-river) freight transport systems in use in the world are shown in figure 2.

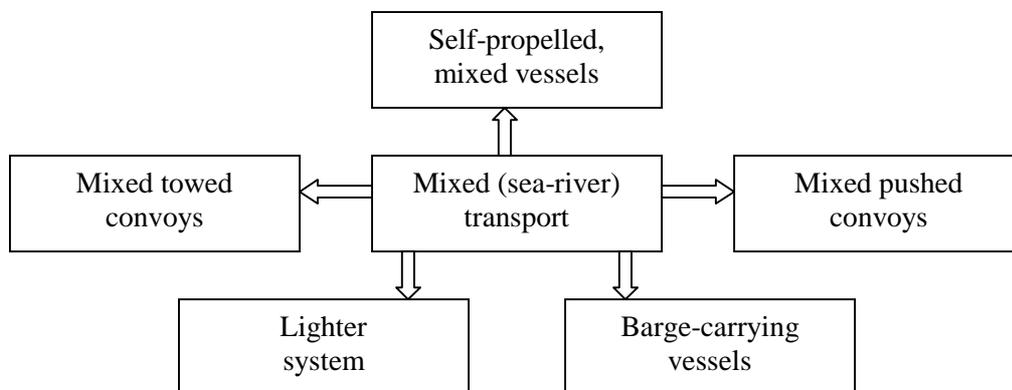


Figure 2: Various types of mixed (sea-river) freight transport systems

16. Clearly, each of these systems has its advantages and drawbacks and can be more effective in specific operating conditions. However, numerous feasibility studies carried out in many countries have favoured self-propelled vessels and pushed or pulled convoys.

17. Accordingly, in the light of past experience, the scope of technical regulations may be extended to encompass self-propelled mixed-navigation vessels of various classes and designations (steel construction dry-cargo and tanker vessels of 60-140 metres' length, water-displacing passenger craft of 25-140 metres' length and certain kinds of vessels of less than 25 or 50 metres' length), along with non-self-propelled vessels (barges), tugs and pusher tugs of pushed convoys.

IV. TASKS FOR THOSE DRAWING UP THE REQUIREMENTS

18. The operation of vessels of any type or designation involves a high level of risks and hazards for the life and health of people, for property, the environment, the life and health of animals and water resources.

19. For that reason, the provisions of the ECE technical requirements, taking into account worldwide practice and past experience and in keeping with the provisions of similar international instruments, must be aimed at ensuring safe conditions of navigation, at preserving the lives of passengers and crews and the integrity of the cargoes carried, and at preventing pollution.

20. In this connection, those who draw up the requirements must tackle the following tasks:

(a) Avoidance, through international recommendations, of mechanical, chemical, thermal, fire, biological, environmental and other types of safety hazards for vessels;

(b) Regulation of the strength and watertightness of the hull and superstructure, and of the stability and unsinkability, the operating characteristics and the manoeuvrability of vessels, to ensure that they can operate safely both in inland navigation and in sea areas, in accordance with their categories;

(c) Avoidance of limitations on technical progress and innovation in both the design and construction of such vessels.

V. SOURCE MATERIAL FOR THE DRAFTING OF TECHNICAL REQUIREMENTS

21. The following may be used as source material for the drafting of technical requirements:

(a) Resolution No. 61 adopted by the ECE Working Party on Inland Water Transport on 16 March 2006, which includes an annex concerning technical requirements for inland navigation vessels;

(b) International conventions: the International Convention for the Safety of Life at Sea, the International Convention for the Prevention of Pollution from Ships, the International Convention on Load Lines, the Convention on the Measurement of Inland Navigation Vessels, the Convention on the International Regulations for Preventing Collisions at Sea and others;

(c) European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN), as revised in 2005;

(d) Regulations for the Inspection of Rhine Vessels (RVBR), of 1995;

(e) European Code for Inland Waterways (CEVNI), of 2005;

(f) Regulations for the classification and construction of vessels engaged in mixed (sea-river) navigation, River Register of the Russian Federation, of 2002;

(g) Regulations for the classification and construction of vessels engaged in mixed navigation, OTNK, 2006;

(h) Rules and regulations for the construction and classification of inland navigation vessels, River Register of the Russian Federation, 2002;

(i) Regulations for the environmental safety of vessels, River Register of the Russian Federation, 2002.

VI. PRINCIPLES FOR STRUCTURING THE TECHNICAL REQUIREMENTS

22. The technical requirements should be structured in accordance with the following basic principles:

(a) The document must contain recommendations for technical requirements applicable to mixed (sea-river) navigation vessels;

(b) The recommendations should apply to new vessels designed for navigation on inland waterways and sea basins with admissible wave heights ranging from 2 to 3.5 metres at a 3% frequency;

(c) The recommendations should be designed for mixed (sea-river) navigation vessels carrying out runs of types 1 and 2 (see section II, paragraphs 13 (a) and (b), respectively, of the present document). For vessels carrying out runs of the second type, exemptions from some of the technical requirements and international conventions shall be allowed by bilateral agreement between the parties;

(d) There should be no duplication of the technical requirements introduced under resolution No. 61. The recommendations for mixed navigation vessels must generally be supplementary to the requirements for inland navigation vessels. Accordingly, the corresponding sections of the recommendations may simply refer to the articles of the annex to resolution No. 61.

(e) For purposes of discussion, table 2 below presents possible examples of the recommendations.

Table 2

Provisional title of the set of requirements	Subjects covered
1. General provisions	Aim and field of application, definitions
2. Hull	Hull and closure strength and construction Structural fireproofing Stability and compartmentation Freeboard Special requirements for various types of vessels
3. Power installation and systems	Machinery space, installation and layout of equipment Engines, other technical equipment Boilers and pressure vessels Automation Vessel systems Fire-fighting systems and equipment
4. Vessel equipment	Steering gear and associated equipment. Wheelhouse layout and equipment Anchor equipment Mooring equipment Towing equipment and coupling devices Life-saving equipment Fire-fighting equipment Mast equipment Lifting equipment and hoisting gear Deck-mounted hydraulic transmissions

Table 2 (continued)

Provisional title of the set of requirements	Subjects covered
5. Electrical equipment	Electrical power sources Electricity distribution Electrical equipment and switches Earthing devices Cables and circuits Lighting and signal lights Alarm systems Radio communications equipment Navigation equipment
6. Living and operating conditions	Service areas Living quarters Sanitary installations Heating, ventilation and air conditioning Galley and refrigeration equipment Work areas
7. Environmental safety	Collection and treatment equipment for oil-containing water Collection and treatment equipment for waste water Collection and treatment equipment for dry refuse Air pollution control equipment

VII. METHODS FOR DRAWING UP THE TECHNICAL REQUIREMENTS

23. At the request of the Working Party, the first draft of the various sections of the future requirements can be prepared by experts from the Russian Federation and other countries, on the basis of the source materials in chapter V of this paper.

24. In the light of the positive outcome of work by the group of volunteer experts to prepare the technical requirements for inland navigation vessels, which led to the adoption of resolution No. 61, that experience should also be applied to the drafting of technical requirements for mixed (sea-river) navigation vessels.
