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## 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

###### Fiftieth session

Geneva, 15-17 February 2017

Item 5 (d) of the provisional agenda

###### Standardization of technical and safety requirements in inland navigation: Renovation of inland navigation vessels

## Renovation of inland and river-sea vessels in the Russian Federation

### Note by the secretariat

#### I. Mandate

1. This document is submitted in line with Cluster 5: Inland Waterway Transport, paragraph 5.1 of the programme of work 2016-2017 (ECE/TRANS/2016/28/Add.1) adopted by the Inland Transport Committee at its seventy-eighth session on 26 February 2016.
2. The ageing of fleets is a challenge facing States parties to ECE, requiring support and the coordination of measures for both the modernization of existing vessels and the construction of a new fleet. Policy recommendation No. 2 of the white paper on efficient and sustainable inland water transport in Europe (ECE/TRANS/SC.3/189, paras. 206-208) calls for the coordination and support of measures to modernize the inland fleet at the pan-European level. Coordination and support measures to modernize inland navigation vessels are also covered in the terms of reference of the Working Party on Inland Water Transport, adopted by the Working Party on 4 November 2016 (ECE/TRANS/SC.3/203, para. 32).
3. This document provides a brief overview of approaches and legal instruments establishing the procedures for the modernization of inland navigation vessels and combined (river-sea) vessels used in the Russian Federation. The Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3)

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may wish to take note of this information. SC.3/WP.3 may also wish to continue its discussions on the topic and to invite States parties to ECE to share information on approaches, methods and technical standards used by them to modernize vessels and their effectiveness.

## **II. Approaches to the renovation of vessels and relevant instruments**

### **A. Procedure for the renovation of vessels**

4. The first experience with developing measures to restore and modernize vessels in the Russian Federation was gained in the 1920s. Restoration work on vessels began in 1925. Engineering designs and drawings for the restoration of the vessels were produced for that purpose. Boats were lifted ashore, worn-out parts of the hull and superstructure were replaced, including the replacement or addition of bulkheads to ensure resistance to flooding, and steam boilers and deck machinery underwent a complete overhaul. As a result, by late 1927, 107 self-propelled vessels, 71 dumb vessels and 48 other vessels were restored.

5. The construction of new vessels and modernization of existing transport vessels in the Russian Federation were provided for within the framework of the special federal programme to revive the country's merchant fleet for the period 1993-2000. However, during that period, of the planned 1,810 vessels, a mere 186 vessels were constructed and 200 modernized.

6. Because the pace of shipbuilding has slowed, the average age of vessels was increasing by almost one year each year. Between 2000 and 2002, the average age of the entire inland transport fleet was 24 years and the average age of river-sea vessels of class M-SP was 21 years, class M-PR 20 years and class O-PR 25 years. Many vessels were decommissioned and cold stacked. To improve the situation, a decision was taken to systematically mitigate the negative factors that were contributing to the ageing of a fleet in the face of insufficient funding for ship repairs while maintaining existing vessel safety standards by means of institutional and technical measures. Analysis of the technical condition of vessels has demonstrated the need to develop ways of renovating vessels for the next 8 to 10 years before large-scale construction of new inland and combined river-sea vessels begins.

7. The renovation of vessels entails a programme of technical work to ensure that the technical condition of the hull, machinery and equipment allow the vessel to operate safely during a period set by the shipowner and thus extend the ship's lifetime beyond its design lifetime. The renovation of vessels involves simultaneously renovating all the elements mentioned above. Renovation programmes are drawn up by engineering organizations, negotiated with the Russian River Register and carried out by the shipowner. From 1998 to 2002 alone, 248 vessels were either renovated or modernized, including 51 that were converted from dry cargo vessels to oil tankers. Among them were Volga-Fleet type tankers converted from Volga dry cargo motor vessels.

8. The regulations governing the procedure for renovating a vessel establish the procedures for finalizing and processing documentation and the amount of work to be done during the renovation of the hulls, machinery and electrical equipment of the vessel. They include the following guidance manuals:

- Renovation of Inland Navigation Vessels and Combined (River-Sea) Navigation Vessels (R.002-2002, later replaced with guidance manual R.002-2010)

- Renovation of Dredging Vessels (P.016-2006)
9. There are two levels of renovation, as follows:
- Level 1, whereby the technical condition of the renovated vessel is the same as it was after five years of use from the date of construction. The period of validity of the certificate attesting to the renovation issued for the vessel is 20 years
  - Level 2, whereby the technical condition of the renovated vessel is the same as it was after 10 years of use from the date of construction. The period of validity of the certificate attesting to the renovation issued for the vessel is 15 years
10. The vessel renovation project is set up with due attention given to the requirements of the rules for construction in force at the time of the renovation process and the requirements of the fleet administration for the installation of radio navigation equipment, life-saving systems and equipment for the prevention of pollution from ships. Moreover, the project must, as far as possible, be aimed at improving the hull's structural components, built-in fire protection system, machinery and electrical and radio navigation equipment, automation systems and alarm and safety systems to a modern standard.
11. The scope of the renovation work on the hull involves, among other things, restoring the overall strength of the hull and local strength of the shell plating, decks and frames to the required level. Renovation work on the machinery and equipment may include the total or partial replacement of equipment, a complete overhaul, repairs in a specialized workshop and inspection and repair in situ. After the end of the work, the vessel undergoes dock and sea trials.
12. According to 2004 data, the average cost of renovating a tanker with a load capacity of 5,000 t, which extends the life of the vessel by 10 to 15 years, was about 24-28% of the cost of new construction. The number of vessels that were renovated between 2002 and 2013 is 439.

## **B. Renovation of vessels using the components of second-hand vessels**

13. The next step to support the modernization of vessels was to develop a framework for renovating vessels with the use of components of previously operated vessels. This approach reduces construction costs of vessels through the use of components of previously operated vessels.
14. The regulations that take such an approach are set out in the following guidance manuals:
- Construction of Inland Navigation Vessels and Combined (River-Sea) Vessels with the Use of Components of Used Vessels (P.003-2003)
  - Renovation of Inland Navigation Vessels and Combined (River-Sea) Vessels with the Use of Components of Used Vessels (P.041-2014)
15. The renovation of vessels with the use of components of previously operated vessels is to be done within the vessel's estimated lifetime. That period is determined by the shipowner.
16. Light hull parts, fittings and deck machinery may be used for the vessel's renovation after they are inspected and their technical condition is determined and, if necessary, restored. For determining which elements may be used, there are rigid general conditions in place, for example prohibiting the reuse of hull parts that are subject to high hull bending loads (coamings, sheer strakes and deck stringer plates amidships, outer shell plating and bilge strakes amidships).

17. Guidance Manual P.003-2003, Construction of Inland Navigation Vessels and Combined (River-Sea) Vessels with the Use of Components of Used Vessels, has made it possible to establish a new date of construction.

18. The number of vessels that have been built between 2003 and 2012 in accordance with P.003-2003, Construction of Inland Navigation Vessels and Combined (River-Sea) Vessels with the Use of Components of Used Vessels, stood at 89. In 2012, further construction of vessels with the use of components of used vessels was ceased because of the entry into force of the Technical Regulations on the Safety of Inland Waterway Transport Facilities in the Russian Federation.

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