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Working Party on Inland Water Transport

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

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Item 10 of the provisional agenda
Inland waterways infrastructure development and the environment

UNECE activities regarding the environmental challenges relevant to inland water transport and its resilience to climate change impact

Note of the secretariat

This paper gives a short overview of UNECE activities regarding the environmental challenges and inland transport resilience to climate change impact that could be relevant to the activities of the Working Party on Inland Water Transport and the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3).

The Working Party may wish to recall that environmental challenges relevant to inland water transport (IWT) and its resilience to climate change impacts are foreseen in its agenda by the following strategic documents:

(a) the White Paper on Efficient and Sustainable Inland Water Transport in Europe, Policy Recommendation No. 6 "Tackle environmental challenges and the carbon footprint";

(b) the 2030 Agenda on Sustainable Development.

A. UNECE Group of Experts on Climate Change Impacts and Adaptation for International Transport Networks

The main conclusions and recommendations made by the Group of Experts in the UNECE publication "Climate Change Impacts and Adaptation for International Transport Networks" (2013) are as follows.

While some research relating to climate change impacts on transport and related adaptation requirements has been undertaken and although a number of adaptation responses and plans have been implemented or are currently planned by public authorities and industry operators in various countries, much work is, nevertheless, still needed to improve understanding of key issues at the interface of transport and the climate change

challenge. It appears that there has been little effort to date to address the issue of climate resilience of international transport networks at a regional and global level.

As relatively small changes are projected for the mean water levels of inland waterways until 2050, climate change impacts are not expected to be significant until then. However, the foreseen greater temporal and spatial variability in water levels can certainly create problems, particularly after 2050 that require integrated waterway planning, investments, maintenance and management. Main impacts include restrictions and cost increases due to very low and high water levels, land infrastructure inundation, and sedimentation issues in navigation channels as well as building new water reservoirs.

Given that, there appears to be a sufficient time window to assess adaptation options in ports design, fleet design, integrated waterway planning and management and logistics. The following activities appear to be beneficial:

(a) Improvement and integration of the future waterway infrastructure development.

(b) Definition of integrated planning principles that involves experts from different disciplines (e.g. navigation, hydrology, engineering, freshwater ecology and economics).

(c) Development of concrete guidelines for activities that can assist in the implementation of integrated planning principles with regard to inland waterway infrastructure projects.

(d) Information on existing (and on-going) practices and innovations concerning vessel design and waterway engineering.

Regarding adaptation strategies:

(a) Adaptation actions should take place within integrated natural hazard management frameworks; such frameworks should be able not only to pro-actively address the present weather- related challenges and disruptions, but also to design and build mid- to long-term climate change adaptation measures. Building upon current management systems that already deal with the present weather related impacts is likely to create a working adaptation framework.

(b) Well-structured nationally as well as internationally integrated databases of digitized network data, disruption hotspots and incidents, management and maintenance plans and asset management practices could form the core of an efficient natural hazard management system for the transport sector. Such databases should be maintained and updated and supplied with necessary and innovative (software) tools that can project future risks in order to form an integrated tool to assist climate change adaptation in the transport sector.

(c) Possible climate change impacts should be considered at the early stages of planning and included in risk and vulnerability assessments; future projects should integrate climate change considerations into their asset design and maintenance planning.

It is important to foster cooperation between the UNECE and other relevant International Organizations and Agencies, in particular with United Nations Framework Convention on Climate Change (UNFCCC), and the Global Framework for Climate Services (GFCS) of the World Meteorological Organization, in order to institute a process for better communication among transport professionals, climate scientists, and other relevant scientific experts, and establish, if possible, a clearing house for transport-climate change relevant information. Bearing in mind the global nature and implications of the climate change on transport sector as well as the importance to take into account climate change challenges when international transport norms and standards are discussed in the

ITC and in its subsidiary bodies, UNECE is to take the initiative and contact the Partners Advisory Committee of the GFCS. Sharing of best practices for addressing potential impacts of climate variability and change in the transportation sector is also warranted.

B. Global network of basins working on climate change adaptation

The work on water and adaptation to climate change under the ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) started in 2007. One of its first products was the Guidance document on water and adaptation to climate change outlining practical tools, which were later applied in pilot transboundary basins. This led to the development of some of the first transboundary adaptation strategies worldwide, e.g. in the Neman and Dniester basins. The implementation of the pilot projects demonstrated that transboundary cooperation in adaptation is crucial to increase the overall effectiveness of adaptation measures. A recent publication on Water and Climate Change Adaptation in Transboundary basins: lessons learned and good practices provides a number of lessons and case studies from around the world, including those which cover navigational aspects of the Rhine and Congo River basins and the Great Lakes. The platform of pilot projects has recently been upgraded to the Global network of basins working on water and climate, which currently counts 14 member basins all over the world, including Senegal, Congo, Niger, Sahara and Sahel Observatory, Mekong, Danube, etc.

Some of the conclusions relevant for IWT from the work on water and adaption to climate change under the Water Convention include:

(a) Water is central to many different sectors hence the impacts of climate change are expected to have far-reaching effects on society. Economic sectors which are projected to be most affected are agriculture, energy, recreation, fisheries and navigation.

(b) As major navigational rivers in Europe are transboundary, strong cooperation between the riparian countries demands attention at all levels and across all sectors and institutions and necessitates the involvement of many stakeholders with conflicting and competing needs across multiple physical, political and jurisdictional boundaries.

(c) Developing a common understanding of the vulnerability in a basin is necessary as reducing vulnerability in one part of the basin can affect vulnerability elsewhere in the basin. This should be accompanied by the development of common models and scenarios, based on commonly agreed information and methodologies.

(d) Basin-wide adaptation strategies should prioritize adaptation measures, including those related to navigation, beneficial from the basin perspective and avoid measures that transfer vulnerability within the basin to another location. As much as possible and politically feasible, adaptation measures should be located at the “optimal” location in the basin. That may involve payments for measures located in other riparian countries.

In some assessments of climate change impact on transboundary basins transport infrastructure and, in particular, inland water transport were also addressed. Possible implications for the working conditions and quality of the infrastructure and water level fluctuations were analysed and general recommendations on how to enhance the resilience of transport infrastructure were made.

C. Working Party on Inland Water Transport

At its fifty-second session, SC.3 took note of the Joint Statement on Guiding Principles on the Development of Inland Navigation and Environmental Protection in the Danube River Basin (ECE/TRANS/SC.3/2008/17) prepared by the International Commission for the Protection of the Danube River (ICPDR), Danube Commission and the International Sava River Basin Commission. Earlier SC.3/WP.3 had discussed the possibility to adopt a resolution on an integrated planned approach, planning principles and criteria for river engineering. A preliminary draft of such a resolution was prepared by the secretariat (ECE/TRANS/SC.3/2008/17/Add.1). SC.3 requested the secretariat to prepare an updated and more comprehensive proposal, based on the results of the ICPDR's work. Since then no progress in this work was done.

SC.3/WP.3 may wish to continue discussion on this issue as well as to address the recommendations given by other UNECE bodies in its future work.