



Economic Commission for Europe**Inland Transport Committee****Working Party on Inland Water Transport****Sixty-third session**

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Item 3 (a) of the provisional agenda

Current situation and trends in inland water transport: Revision of the White Paper on efficient and sustainable inland water transport in Europe**Inland water transport in Europe: addressing the 2030 Agenda for Sustainable Development, next steps and recommendations****Note by the secretariat****Mandate**

1. This document is submitted in line with cluster 5: Inland Waterway Transport, paragraph 5.1 of the programme of work 2018-2019 (ECE/TRANS/2018/21/Add.1) adopted by the Inland Transport Committee at its eightieth session (20-23 February 2018) (ECE/TRANS/274, para. 123).
2. At its fifty-fifth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) was informed about the ongoing revision of the White Paper on Efficient and Sustainable Inland Water Transport in Europe and asked the secretariat to send the draft, when it is finalized, to member States, river commissions and other stakeholders for comments, and submit the updated document to the sixty-third session of the Working Party on Inland Water Transport (SC.3) for consideration and adoption (ECE/TRANS/SC.3/WP.3/110, paras. 77–78).
3. The annex to this document provides an overview of the current activities in the sector related to the implementation of the Sustainable Development Goals, and the revised Policy Recommendations and proposed actions of the Economic Commission for Europe (ECE) to 2030.¹

¹ Details and clarifications on the consolidated version of the White Paper can be found in Informal document SC.3 No. 4 (2019).

Annex

I. Inland Water Transport and the United Nations Sustainable Development Goals

Sustainable transport is safe, high-quality, and accessible to all, ecologically sound, economically viable, and a positive contributor to local, national and international sustainable development. Economic, social and environmental sustainability can only be achieved through an integrated inland transport system, which comprises water, road and rail transport. This issue has been addressed in the joint publication “Transport for Sustainable Development. The case of Inland Transport” prepared under the leadership of the United Nations Economic Commission for Europe (UNECE).²

On 25 September 2015, the General Assembly of the United Nations adopted resolution A/RES/70/1 “Transforming our World: the 2030 Agenda for Sustainable Development”. Paragraph 54 of the resolution sets 169 targets in 17 interconnected Sustainable Development Goals,³ which address the major challenges lying ahead. Each of these Sustainable Development Goals contains several indicators that are designed to measure the headway towards the specific goal to its set end date in 2030.

The Inland Transport Committee (ITC), supported by the UNECE Sustainable Transport Division, carries out a number of activities which have a direct impact on the achievement of the Sustainable Development Goals, as indicated on the figure below.⁴



Continued and strengthened international cooperation with other transport modes at the pan-European and global level is therefore important to secure a future transport sector that strongly contributes to achieving the sustainable development goals. The overview given in this chapter relates mainly to the inland water transport (IWT) sector, but should be considered in conjunction with other transport modes and, in the framework of UNECE, other relevant working parties under the ITC purview.

² www.unece.org/fileadmin/DAM/trans/publications/Transport_for_Sustainable_Development_UNECE_2015.pdf.

³ www.un.org/sustainabledevelopment/sustainable-development-goals.

⁴ www.unece.org/trans/transport-and-the-sustainable-development-goals.html.

A. Sustainable Development Goal 6: Ensure availability and sustainable management of water and sanitation for all

Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Target 6.3

By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally



Target 14.1

By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

UNECE develops mechanisms addressing the identification of chemicals hazardous to the aquatic environment as well as the conditions to ensure their safe transport and handling. These are: the Model Regulations for the Transport of Dangerous Goods, GHS and the European Agreements concerning the International Carriage of Dangerous Goods by Road (ADR) and by Inland Waterways (ADN). Their implementation contributes to minimize the risks of release into the environment thus preventing water contamination.

Conventions and resolutions relevant to maintained by ITC:

- The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)
- CEVNI, chapter 10 “Prevention of pollution of water and disposal of waste generated on board vessels”
- Annex to resolution No. 61 “Recommendations on harmonized Europe-wide technical requirements for inland navigation vessels”, revision 2, Chapter 8B “Prevention of water pollution and abatement of noise produced by vessels” and annexes 8 and 9
- Resolution No. 21, “Prevention of pollution of inland waterways by vessels”, revision 2.

The following conventions and documents address the prevention of water pollution from inland vessels on European inland waterways:

- The Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI) ⁵ that entered into force on 1 November 2009. The electronic payment system for oily and greasy waste produced during operation of vessels came into force on 1 January 2011. It is supported by the software SPE-CDNI which, since the end of 2018, enables payments of a disposal charge by vessel operators during the bunkering of gasoil using ECO-accounts with the associated ECO-cards.
- The European Standard laying down technical requirements for Inland Navigation vessels (ES-TRIN) by the European committee for drawing up standards in the field of inland navigation (CESNI), Chapter 18 “On-board sewage treatment plants” and annex 7.

⁵ www.cdni-iwt.org/wp-content/uploads/2015/06/cdni_2014_EN.pdf.

- The Basic Rules of Navigation on the Danube (DFND), revision 5, chapter 10 “Prevention of water pollution and disposal of waste resulted from vessels”, which is harmonized with the European Code for Inland Waterways (CEVNI), revision 5, and the Recommendation on waste management from vessels navigating on the Danube, which will come into force by the end of 2019.
- The Protocol on the Prevention of the Water Pollution Caused by Navigation to the Framework Agreement on the Sava River Basin,⁶ which is in force since December 2017.
- The Navigation Rules on the Sava River Basin, which apply on the Sava River and its tributaries and are fully in line with CEVNI revision 5.

It can be seen that there is no legal instrument to manage waste generated on board inland vessels at the pan-European level and, in particular, for the Danube region. The creation of a legal regime regulating this issue on the Danube has been investigated in the following projects:

- WANDA⁷ (Waste management for inland Navigation on the DANube) (2009–2012) aimed at concerted development and implementation of preventive measures to ensure a sustainable, environmentally sound and transnationally coordinated approach in ship waste management along the Danube;
- CO-WANDA⁸ (2012–2014) focused on initial work for an international ship waste convention for ship waste management along the Danube which will allow a financing system using vignettes for vessels to pay to use the waste services;
- CODENAV⁹ (System for ship-generated waste collection and processing in the maritime Danube ports) (2010–2014) aimed to increase the quality of the ship generated waste collection and processing services and the response in cases of pollution.

The joint meeting of the contracting parties to CDNI and the Danube Commission, held on 31 October 2018 in Vienna,¹⁰ focused on CDNI and possible modernization of the Danube recommendations towards developing a binding regulatory framework to ensure better waste management and disposal and contribute to environmental protection. To be able to carry on cross-border inland navigation in Europe, both sides advocated the greatest possible harmonization of provisions and discussed possible collaboration.

B. Sustainable Development Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts



Target 7.A



Target 13.1

⁶ www.savacommission.org/dms/docs/dokumenti/sastanci_strana/2._sastanak_strana_fasrb/protocol_on_prevention_of_water_pollution_caused_by_navigation_signed.pdf.

⁷ www.danube-navigation.eu/projects/wanda-waste-management-for-inland-navigation-on-the-danube-project-example-in-eusdr-action-plan.

⁸ www.danube-navigation.eu/projects/co-wanda-convention-for-waste-management-for-inlandnavigation-on-the-danube.

⁹ [https://www.danube-navigation.eu/uploads/files/PA1A064_CODENAV\(3\).pdf](https://www.danube-navigation.eu/uploads/files/PA1A064_CODENAV(3).pdf).

¹⁰ www.cdni-iwt.org/wp-content/uploads/2018/08/cpcp18_01en.pdf.

By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Sustainable Development Goals 7 and 13 are aimed at reducing energy consumption and emissions as well as understanding their role in climate change. This has a major impact on transport industry as a large consumer of fossil fuel-based energy and it will affect the IWT sector which is highly dependent on diesel fuel.

Climate change, its impact on the sector and energy efficiency have been widely discussed by the industry in the past years. Recent reports have emphasized the need to improve the environmental performance of IWT.¹¹ In the European Union, new European regulations for Non-Road Mobile Machinery (NRMM) are in force, which introduce non-road mobile emissions stage V requirements in Regulation (EU) 2016/1628 and its supplementary regulations, applicable to engines in inland navigation these provisions have been introduced in ES-TRIN.¹² EUROMOT and CESNI have developed the guidance on understanding and interpreting the applicable requirements to engines.¹³

This issue was addressed at the International Ministerial Conference “Connecting by Inland Navigation”, held in Wroclaw (Poland) on 18 and 19 April 2018. Ministers acknowledged that “a modern inland water fleet is of major importance for the navigation safety, efficiency and environmental protection. (...) Ministers call upon the sector to create, where necessary, new types of vessels and the introduction of innovations and modern technologies to ensure safety, reducing the risk of accidents minimizing environmental impact and combatting climate change”.¹⁴

The Mannheim Declaration “150 years of the Mannheim Act – the driving force behind dynamic Rhine and inland navigation” tasked CCNR “to develop a roadmap in order to reduce greenhouse gas emissions by 35% compared with 2015 by 2035, reduce pollutant emissions by at least 35% compared with 2015 by 2035, and largely eliminate greenhouse gases and other pollutants by 2050”.¹⁵ For this purpose, CCNR has launched a study on financing energy transition for a zero emissions European inland navigation sector. This is supported by the ongoing work by CESNI on the requirements for fuel cells, lithium-ion batteries, collection of data on pilot projects on alternative fuels and automation.

The workshop “Encouraging the realization of a modern fleet, enhancing navigation safety and fostering innovations”, held on 19 June 2019 at the fifty-fifth session of the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3),¹⁶ addressed also engine aftertreatment systems, cold ironing and the ongoing projects on the Danube such as GRENDEL,¹⁷ PROMINENT¹⁸ and GREEN DANUBE¹⁹ in

¹¹ Example: www.welt.de/wirtschaft/article188614625/Stickoxid-Debatte-Alt-und-kaum-nachruestbar-So-dreckig-sind-Binnenschiffe.html.

¹² Commission Delegated Regulation (EU) 2017/654 of 19 December 2016; Commission Delegated Regulation (EU) 2018/236 of 20 December 2017; Commission Delegated Regulation (EU) 2017/655 of 19 December 2016; Commission Implementing Regulation (EU) 2017/656 of 19 December 2016; Commission Delegated Regulation (EU) 2018/987 of 27 April 2018; Commission Implementing Regulation (EU) 2018/988 of 27 April 2018 and Commission Delegated Regulation (EU) 2018/989 of 18 May 2018.

¹³ www.euromot.eu/publication-and-events/publications.

¹⁴ www.unece.org/fileadmin/DAM/trans/doc/2018/sc3/Ministerial-declaration_e.pdf.

¹⁵ www.ccr-zkr.org/files/documents/dmannheim/Mannheimer_Erklaerung_en.pdf.

¹⁶ ECE/TRANS/SC.3/110, paras. 8–39.

¹⁷ www.interreg-danube.eu/approved-projects/grendel.

¹⁸ www.prominent-iwt.eu.

¹⁹ www.interreg-danube.eu/approved-projects/green-danube.

terms of alternative fuels, reducing air pollutant emissions and the energy consumption, and new concepts of cargo flows, logistics and vessels.

This trend is also facilitated by a number of restrictions aiming at emission standards imposed by harbours and municipalities that ban vessels with older and more polluting propulsion systems. The port of Rotterdam, for instance, will not allow vessels that do not comply with the new standard entering the port from the year 2025 and onwards and is planning on being a zero-emission port by 2050.²⁰

The recommendations for potential adaptation measures to climate change impacts for inland transport, including IWT, have been proposed by the UNECE Group of Experts on Climate change impacts and adaptation for international transport networks in the final report “The report of Climate Change Impacts and Adaptation for International Transport Networks” (2014).²¹

C. Sustainable Development Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Target 8.5

By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Target 8.9

By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

ILO Working paper No. 297 “Living and working conditions in inland navigation in Europe” (2014)²² presented a detailed overview of the inland navigation sector in Europe, existing regimes, minimum requirements for crews, conditions of work, safety, health and well-being and social security. The overall conclusion was that the regulatory gaps across international, regional and national borders “are narrowing. As long as international and regional plans of actions keep up their momentum, national plans of actions will soon be forced to follow suit.”

As it was mentioned in the WMU study “Transport 2040: Automation, Technology, Employment – the Future of Work”,⁴ and the report of ILO Sectoral Meeting on the Recruitment and Retention of Seafarers and the Promotion of Opportunities for Women Seafarers,²³ innovations offered possibilities for the improvement of working and living conditions of crews, both technical and regulatory. Currently, no official specific safety management regimes exist in the sector, however, this is subject to change; an example is Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation, which demands mandatory safety training for all IWT staff, and the European Standard for Qualification in Inland Navigation (ES-QIN) adopted by CESNI in 2018.²⁴

Working as a skipper or a deckhand in IWT in Europe still requires a considerable extent of manual labour. However, the work of skippers tends to become more and more digitalized

²⁰ www.ccr-zkr.org/files/documents/workshops/wrshp240413/09_WvanderLans_nl.pdf.

²¹ http://www.unece.org/fileadmin/DAM/trans/main/wp5/publications/climate_change_2014.pdf.

²² https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_234892.pdf.

²³ www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_712749.pdf.

²⁴ www.cesni.eu.

and automated. Modern equipment and systems like AIS, Inland ECDIS, RIS, radar installations and the ongoing modernization of wheelhouses make the work of a skipper more efficient and safer, however, no significant changes have been reached in the recent years. Manual labour is still a major reason for accidents in the sector, however, the development of automated systems such as automated mooring equipment, telescopic mooring poles which are already applied in newly built vessels, can improve the current situation.

The new challenges arising in the sector due to digitalization and automation, including safety and liability, and the role of education have been emphasized in the position paper “Making the future together – Automation in European IWT” of the European Transport Workers’ Federation²⁵ and in the final report of the project TASCs “Promoting social partnership in employee training” (June 2018) by social partners.²⁶

This goal also addresses the promotion of sustainable tourism. UNECE activities related to recreational navigation, in accordance with the strategy of the Working Party on Inland Water Transport (SC.3) till 2021, include this issue in the agenda. This is realized through resolutions No. 13 “International Certificate (international card) for Pleasure Craft”, No. 14 “International Certificate (international card) concerning the Competence of Pleasure-Craft Operators”, and No. 40, “International Certificate for Operator of Pleasure Craft (ICC)”, which is now applied by 23 countries both within and outside the ECE region. Resolution No. 40 is supported by:

- the Guidelines on the application of resolution No. 40
- resolution No. 52 “European Recreational Inland Navigation Network”
- the online database of the ICC specimens issued by countries
- the road map for the implementation of resolution No. 40.

In 2017, SC.3 established the Informal Working Group on Recreational Navigation, tasked to promote the issue and recognition of ICC. As resolution No. 40 has a recommendatory status, further steps for promoting recreational navigation should be its evolution in an international mandatory instrument.

D. Sustainable Development Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



Target 9.1

Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

Sustainable and resilient infrastructure is of crucial importance for the IWT sector, as it is more susceptible to weather and climate conditions as compared to other inland transport modes, and there are still missing links, bottlenecks and legislative obstacles²⁷ for inland navigation across the European waterway system that need to be removed in order to fully capture the sector’s potential as a viable alternative mode of transport. Well-maintained and functioning waterways and waterway infrastructure are key to safe and efficient shipping.

The key issue in implementing this goal is the realization of the European Agreement on Main Inland Waterways of International Importance (AGN) for the whole E Waterway

²⁵ https://www.etf-europe.org/wp-content/uploads/2018/12/ETF-IWT-Position-on-Automation_EN.pdf

²⁶ http://erc-online.eu/wp-content/uploads/2018/06/Employee-training_Final-report.pdf.

²⁷ Resolution No. 49, revision 2; 2011 White Paper, para. 176.

network and joint efforts of contracting parties in eliminating the bottlenecks identified in the Blue Book and resolution No. 49. AGN is in line with the core trans-European transport network set out by Regulation (EU) No. 1315/2013 of the European Parliament and of the Council of 11 December 2013. Therefore, the activities of European Union member States and the ongoing projects by the European Commission are a significant contribution to the implementation of this goal.

Other international conventions relevant to IWT are also significant contributions to this goal.

The significance of building up a solid regulatory framework aimed at increasing the efficiency of inland water transport, ensuring the appropriate balance among all transport modes, streamlining cargo flows and promoting the multimodality was emphasized in the Wroclaw declaration.²⁸ Ministers suggested “to countries lacking a sufficient regulatory framework for inland water transport to use and consider acceding to the United Nations international conventions relevant to inland water transport”, as well as pointed out “the importance of bilateral and multilateral treaties and agreements for the development of international transport and cross-border systems”. The recommendations on monitoring the implementation of the Wroclaw declaration by member States were adopted by SC.3 in November 2019.

UNECE resolutions aimed at ensuring navigation safety on European inland waterways are:

- CEVNI
- The European Code for Signs and Signals on Inland Waterways (resolution No. 90)
- Resolution No. 61, revision 2
- Resolutions on RIS : Nos. 48, 57, 58, 63, 79 and 80.

In order to assist member States in monitoring indicators across many goals, the UNECE Working Party on Transport Statistics (WP.6) has published a series of articles on how our existing transport statistics can be used to directly monitor transport-related progress of the implementation of the Sustainable Development Goals, and how these data can also feed in to provide insights into progress on many other goals. The paper focused on tonne-kilometre statistics brings together data on road, railway and inland waterway transport from the UNECE’s transport statistics database, Freight volumes by mode are required for tracking in particular indicator 9.1.2 on passenger and freight volumes. These numbers can also be the basis for calculating indicators on energy efficiency, infrastructure usage, environmental impact or safety levels of different modes of transport.²⁹

Furthermore, collecting and visualizing internationally comparable data on main international traffic lines are of major and increasing importance in Europe, given the growing volume of international and transit traffic. The E-Road and E-Rail censuses carried out under the auspices of UNECE, provide comparable data on traffic flows on main European roads and railways on a pan-European basis. In 2018, the secretariat proposed to consider collecting an E-Inland Waterway census as a useful analytical tool for policymakers in member States.

E. Sustainable Development Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development



The overall issue of strengthening the means of implementation and revitalizing the global partnership for sustainable development is addressed by ITC through its work on

²⁸ www.unece.org/fileadmin/DAM/trans/doc/2018/sc3/Ministerial-declaration_e.pdf.

²⁹ www.unece.org/fileadmin/DAM/trans/main/wp6/pdfdocs/SDG_TKM_paper.pdf.

harmonizing and simplifying the rules and regulations, managing and updating international legal instruments, by supporting industry and transport policy makers.

In the Wroclaw declaration, ministers encouraged “countries, including governmental executive bodies, the private sector, associations and academia, associations and academia, to maintain policy dialogue on good practices and measures relevant to the implementation of the objectives under the patronage of the Inland Transport Committee of the United Nations Economic Commission for Europe with the aim of ensuring that the development of Inland Water Transport is pursued in an internationally harmonized manner” and invited “regional integration organizations, United Nations Regional Commissions, River Commissions, international and public organizations, international financial institutions, and academia to contribute to the dialogue”.³⁰

F. Sustainable Development Goal 3: Achieve gender equality and empower all women and girls

This goal has been addressed by UNECE,^{31,32} ILO and International Transport Workers’ Federation (ITF), however, in the last decade the focus was primarily on gender issues in the maritime sector outside the scope of ECE activities:

- The Women Seafarers’ Health and Welfare survey report³³ conducted in 2014–2015 jointly by the International Maritime Health Association, the International Seafarers’ Welfare and Assistance Network, the International Transport Workers’ Federation (ITF) and the Seafarers Hospital Society estimated that only 1–2% of the world’s seafarers were women, mostly in the cruise sector.
- The study “Transport 2040: Automation, Technology, Employment — the Future of Work”³⁴ published by World Maritime University (WMU) in January 2019 estimated the share of female workers in the gender composition of the whole transport sector as 20 %.³⁴
- In the European Union, this share counts for 22 %, and for waterborne transport 20 % of workers are women.³⁵ The European Union project “Women in Transport – European Union Platform for change”, launched on 27 November 2017, aims to strengthen women’s employment and equal opportunities for women and men in the transport sector.³⁶ For this purpose, the Declaration on equal opportunities for women and men in the transport sector has been developed³⁷ and the study has been conducted, and the final report “Business case to increase female employment in transport” was published by the European Commission in January 2019,³⁸ which provided recommendations on how to support further actions in improving female employment in the transport sector.
- The ILO Sectoral Meeting on the Recruitment and Retention of Seafarers and the Promotion of Opportunities for Women Seafarers (Geneva, 25 February–1 March 2019)³⁹ stressed that women represented only a very small percentage of the total number of seafarers: while some were doing well, others faced challenges, including scepticism over their strengths and capabilities, unequal treatment and sexual harassment. The meeting addressed issues identified by women seafarers as problems

³⁰ www.unece.org/fileadmin/DAM/trans/doc/2018/sc3/Ministerial-declaration_e.pdf.

³¹ www.unece.org/fileadmin/DAM/trans/doc/2009/itc/ECE-TRANS-2009-08e.pdf.

³² www.unece.org/fileadmin/DAM/trans/doc/2009/itc/ECE-TRANS-2009-07e.pdf.

³³ www.itfglobal.org/en/reports-publications/women-seafarers-health-and-welfare-survey.

³⁴ https://commons.wmu.se/cgi/viewcontent.cgi?article=1071&context=lib_reports.

³⁵ <https://ec.europa.eu/transport/sites/transport/files/images/women-in-transport-infographic.jpg>.

³⁶ https://ec.europa.eu/transport/themes/social/women-transport-eu-platform-change_en.

³⁷ https://ec.europa.eu/transport/sites/transport/files/2017-declaration-equal_opportunities_en.pdf.

³⁸ <https://publications.europa.eu/en/publication-detail/-/publication/6f833428-54f9-11e9-a8ed-01aa75ed71a1/language-en/format-PDF/source-93300850>.

³⁹ www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_712749.pdf.

in their seafaring careers and provided recommendations for future action by ILO, governments, shipowners' and seafarers' organizations and other key players.

Based on recent initiatives, studies and conclusions, it can be seen that there is a gap in the data on gender issues for inland navigation, and efforts should be made to extend them to the sector in order to provide recommendations and propose actions for improvement.

II. Next steps and recommendations

The broad geographical scope of the United Nations Economic Commission for Europe creates an excellent framework for closer cooperation of IWT stakeholders and political decision-makers throughout Europe. The Wroclaw declaration may serve as a blueprint and starting point for this, and it would be highly desirable to create a framework of dedicated international cooperation.

The 2011 White Paper pointed out seven areas in which policies and actions were of particular importance at that time. Policy recommendations and proposals for action on each of the recommendations were attached to these policy fields:

- (a) Infrastructure development;
- (b) Modernization of the fleet;
- (c) The use of RIS;
- (d) Changing market requirements;
- (e) Labour market challenges;
- (f) Climate change, and
- (g) The enhancement of the institutional and regulatory regime.

In 2015, SC.3 prepared an overview of the implementation of the policy recommendations of the 2011 White Paper.⁴⁰ Since then, the recommendations have been included in the SC.3 strategy till 2021 and were the basis for the Wroclaw declaration. The main achievements of the 2011 White paper include:

- (a) increase in the number of contracting parties to AGN; the adoption of the third revised edition of the Blue Book and the second revision of resolution No. 49, the development of the online Blue Book database;
- (b) support of ongoing projects such as the restoration of the E 40 waterway and EMMA;
- (c) continued work on technical prescriptions for inland navigation vessels and the adoption of the second revision of resolution No. 61;
- (d) continued work on updating CEVNI in cooperation with River Commissions and the adoption of the European Code for Signs and Signals on Inland waterways (SIGNI);
- (e) maintaining and updating resolutions on RIS,
- (f) cooperation with the European Commission, CESNI and River Commissions on automation, digitalization and other issues newly included in the agenda of SC.3, and
- (g) workshops and activities seeking to further implement the conclusions and recommendations of the 2011 White Paper.

A milestone in this work was the Wroclaw conference organized in accordance with Policy Recommendation No. 4 of the 2011 White Paper. Based on its outcome, the recommendations have been revised to align them with the 2030 Agenda for Sustainable Development and the current situation and challenges in the sector and recent changes in the institutional and regulatory framework, and the relevant UNECE actions have been proposed.

⁴⁰ www.unece.org/fileadmin/DAM/trans/doc/2015/sc3wp3/ECE-TRANS-SC3-2015-01e.pdf.

Furthermore, the recommendations are brought in line with the ITC strategy to 2030, adopted at its eighty-first session in February 2019.⁴¹

Based on this, and on the areas identified in documents ECE/TRANS/SC.3/2019/1 and 2, Policy Recommendations going forward can be divided into seven priority areas:

- (a) Increased coordination in the development of modern, sustainable and resilient E waterway network;
- (b) Renewed focus in building up a solid regulatory framework aimed at increasing the efficiency and safety of inland water transport;
- (c) Identifying and assisting member States in applying measures to increase the modal share of IWT, and improve its integration in multimodal transport and the logistics chains through the promotion of multimodality;
- (d) Encouraging the modernization and greening of the fleet and infrastructure to better tackle environmental challenges;
- (e) Promote the development and pan-European application of River Information Services (RIS) and other information technologies (IT);
- (f) Promote the development of automation, digitalization and other innovations in the IWT sector;
- (g) Address labour market challenges at the pan-European level, make the sector more attractive and increase the mobility of workers.

Policy Recommendation No. 1

Increased coordination in the development of modern, sustainable and resilient E waterway network

AGN provides a strategic tool and coordinated international plan for the development and construction of a network of inland waterways of international importance (E waterway network). Contracting States intend to undertake the development and construction of inland waterways and coastal routes used by sea-river vessels as part of national programmes and plans. Therefore, efforts should be made to promote the agreement and increase the number of contracting parties.

IWT relies on a fully functioning and effective infrastructure. In recent years, the focus on the impact of climate change has had an impact on inland navigation, the performance of IWT and the whole logistics chains. The further development of the E-waterway network has to address this issue to ensure the resiliency of the waterway network.

Proposed UNECE actions:

- (a) Continue promoting and facilitate accession to AGN based on the road map for ratification, acceptance, approval and accession;⁴² continue consultations with member States on possible concerns on its implications or ratification;
- (b) Further strengthen the monitoring mechanism to review and update the development of the AGN network, in particular, by maintaining the Inventory of Main Standards and Parameters of the E Waterway Network (“Blue Book”), the Inventory of most important bottlenecks and missing links in the E Waterway Network (resolution No. 49) and the online Blue Book database by coordinating this work with the European Commission and other relevant stakeholders;
- (c) Encourage ongoing initiatives on waterway construction, maintenance and rehabilitation plans of international waterways and invite other countries to consider these initiatives when maintaining their waterways;

⁴¹ ECE/TRANS/288/Add.2, available at www.unece.org/fileadmin/DAM/trans/doc/2019/itc/ECE-TRANS-288add2e.pdf.

⁴² ECE/TRANS/SC.3/2019/7.

(d) Facilitate actions to ensure the resilience of the sector to climate changes. In particular, promote the implementation of the recommendations of the UNECE Group of Experts on Climate change impacts and adaptation for international transport networks by member States;

(e) Continue monitoring and support of the ongoing infrastructure projects of European waterways of international importance.

Policy Recommendation No. 2:

Renewed focus in building up a solid regulatory framework aimed at increasing the efficiency and safety of inland water transport

As described in documents ECE/TRANS/SC.3/2019/1 and 2, the regulatory framework in European IWT continues to be diverse and complex. International conventions and agreements relevant to IWT are the tools which ensure that the development of the sector is pursued in an internationally harmonized manner. Therefore, efforts should be made to increase the efficiency of mandatory instruments and the number of contracting parties to them, as well as updating them in accordance with the ITC strategy till 2030.

Proposed UNECE actions:

(a) Continue promoting the international conventions under the purview of ITC which are relevant to inland navigation and invite countries lacking a sufficient regulatory framework for inland water transport to use and consider acceding to these conventions;

(b) Suggest to countries lacking a sufficient regulatory framework for inland water transport to use and consider acceding to the United Nations international conventions relevant to inland water transport;

(c) Continue monitoring and support the process of implementation of international conventions under the ITC purview which are relevant to inland navigation and continue efforts how to make them more efficient and attractive to other UNECE member States as well as United Nations Member States;

(d) In close cooperation with River Commissions, continue promoting CEVNI and promote SIGNI as the basis for transparent and standard rules for inland water navigation at the pan-European level and develop appropriate mechanisms that ensure streamlined and effective maintenance and monitoring of its provisions;

(e) Support all efforts to establish a pan-European legal framework for private law aspects of inland navigation, such as the implementation of the international conventions existing in this area;

(f) Assess potential new legal instruments to further facilitate the growth and use of inland waterways, pleasure navigation and tourism and increase the sustainability of transport;

(g) Support the UNDA project on the implementation of transport related Sustainable Development Goals in selected landlocked and transit/ bridging countries and contribute to the implementation of its outcome.

Policy Recommendation No. 3:

Identifying and assisting member States in applying measures to increase the modal share of IWT, and improve its integration in multimodal transport and the logistics chains through the promotion of multimodality

Intermodal transport becomes more and more important for the European IWT industry. IWT is very competitive in terms of safety, efficiency and reliability and can be a substitute for road transport for large quantities of cargo over longer distances, but IWT has still untapped potential in the integrated logistics chain. The increased volume of transported containers by waterway over the past decades is considerable, but the use of inland vessels in a fragmented transport chain is not its traditional domain and logistics decision makers are therefore often unaware of the potentials of this mode of transport. The advantages of transport make it ideal for certain flows within a multimodal transport chain.

The task set out in the Wroclaw declaration is therefore encouraging investment in the sector aimed at building and modernizing the inland waterway infrastructure, the fleet and ports as well as fostering innovation and using alternative fuels and increasing the market share of inland water transport.

Proposed UNECE actions:

(a) Continue raising awareness of the competitive and complementary advantages of IWT at high-level policy events, such as the annual sessions of the ECE Inland Transport Committee or major international transport events, such as an international conference on IWT currently planned for 2023;

(b) Encourage measures to ensure the appropriate balance among all transport modes. Undertake and coordinate measures to facilitate integration of inland water transport in multimodal transport and logistics chains in order to facilitate access to financial resources of international financial institutions for their development;

(c) Continue cooperation with the rail and road sectors through joint meetings and other activities of UNECE bodies dealing with inland water, road, rail, intermodal transport and logistics in order to facilitate the integration of inland water transport in the multimodal transport and logistics chain;

(d) Encourage multimodality in IWT operations by promoting the relevant international agreements, such the Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), with a view to facilitate integration of inland water transport in multimodal transport and logistics chains;

(e) Use UNECE instruments, such as jointly organized high-level conferences, dedicated working parties, workshops and capacity-building events, to promote the favourable impact of the use of IWT in the logistics chain on the environment as well as the economic advantages for transport of larger quantities of cargo shift via inland waterways over long distances.

Policy Recommendation No. 4:

Encouraging the modernization and greening of the fleet and infrastructure to better tackle environmental challenges

This recommendation aims to support the ongoing activities on the fleet modernization and greening and the prevention of environmental pollution from vessels. While the 2011 White Paper focused mainly on CO₂ reduction, the current discussions and resulting vessel concepts tackle also other emissions, such as sulphur oxides and nitrogen oxides. Recent initiatives include new types of low-emission vessels and zero emission vessels that use electric energy from hydrogen fuel cells or batteries and therefore do not emit any combustion-related pollutants.

The main fields of action include the harmonization of rules and promotion of the implementation of innovations such as new propulsion systems and fuels, but also a deeper cooperation in the field of ongoing digitalization of the sector.

The management and proper disposal of IWT related wastes, is an important factor for the enhancement of the environmental impact of IWT.

Proposed UNECE actions:

(a) Continue exchanging best practices and support programmes and pilot projects aimed at modernization and greening of the fleet, new and enhanced vessel types, low and zero emission propulsion systems and monitor their implementation;

(b) Continue to support European regulations on the management of IWT-related waste, such as the Convention on the collection, deposit and reception of waste produced during navigation on the Rhine and other Inland Waterways (CDNI) and support the development of the International Danube Ship Waste Convention;

(c) Continue work on developing and harmonizing the pan-Europeans prescriptions for inland vessels and river-sea vessels;

(d) Support and encourage research studies and activities, aimed at maintaining and further increasing the IWT competitive edge in environmental performance, including research on the measures to reduce the emissions by inland vessels and on alternative fuels for inland vessels;

(e) Support the initiative to reduce greenhouse gas emissions by 35% compared with 2015 by 2035, reduce pollutant emissions by at least 35% compared with 2015 by 2035, and largely eliminate greenhouse gases and other pollutants by 2050 set out in the Mannheim declaration. Encourage other member States to do so;

(f) Promote the role of water transport using alternative fuels or electromotion in an urban environment. Support the development of clean and sustainable, enhanced or alternative propulsion systems for inland navigation vessels and other environment-related issues.

Policy Recommendation No. 5:

Promote the development and pan-European application of River Information Services (RIS) and other information technologies (IT)

RIS corridor management enables them to be used not only as a safety management tool, but as an integrated system, that serves as a facilitator in the whole logistics chain, by making relevant RIS data available to logistics planners and ship operators in order to ease the planning and monitoring of waterborne freight flows. This will be the next step in the deployment of RIS supporting inland navigation as an important transport mode in the international multimodal logistic chain.

The acceptance and widespread use of Information Technologies in IWT and the necessary exchange of sensitive data is highly dependent on a high and reliable level of data protection.

The ongoing work of the European Commission on the assessment of Directive 2005/44/EC on harmonized RIS on inland waterways in the Community, updating international RIS standards and the creation of the CESNI Expert Group on Information Technology in 2019 provide an updated background for the future work in this field.

Proposed UNECE actions:

(a) Further support a pan-European dialogue on the implementation and further development of RIS and RIS corridor management;

(b) Cooperate with the European Commission and the CESNI Expert Group on Information Technology and regularly update RIS related resolutions maintained by SC.3, as well as other relevant instruments: CEVNI and SIGNI;

(c) Cooperate with the European Commission to ensure that the interests of member States outside the European Union are duly noted in the European Hull Database maintained by the European Commission;

(d) Encourage other uses of IT to facilitate IWT operations and inspections of inland vessels and elaborate and promote the harmonized rules and criteria in this area.

Policy Recommendation No. 6:

Promote the development of automation, digitalization and other innovations in the IWT sector

In recent years, such innovations as automation, smart shipping and digitalization have already become a part of inland shipping. It is therefore essential to promptly address the new challenges. Digitalization for the sector can improve administrative procedures and processes, facilitate the movement of goods, increase the efficiency of logistics and management of cargo flows and facilitate integration with other transport modes and promoting multimodality. However, potential risks and challenges include cyber security; creation of new qualifications, education programmes and assessment procedures, social impacts and liability issues as well as additional costs.

In this respect, experience from other transport modes could be used by the sector to develop a common information and exchange system, single window and reporting formalities in ports, electronic consignment notes and other relevant achievements.

Proposed UNECE actions:

(a) Promote the development of automation in inland navigation as a part of the activity of ITC on Intelligent Transport Systems, the development of the international regulatory framework and encourage measures aimed at reducing possible negative impacts on the sector;

(b) Support the developments in the digitalization of transport documents and measures aimed at improving administrative procedures for inland water transport, simplified reporting procedures by means of digital tools, RIS electronic reporting related services and other activities;

(c) Continue the cooperation with the European Commission on issues related to digitalization in IWT;

(d) Improve cooperation with the UNECE Trade Division and working parties under the purview of ITC on exchanging best practices on recent developments in automation and digitalization in other transport sectors;

(e) Encourage and support the development of a harmonized international legal framework for the digitalization of transport documents and consider a possible impact on the existing legal instruments, in particular, the Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI);

(f) Encourage and support the measures to be undertaken in order to ensure cybersecurity and other relevant aspects.

Policy Recommendation No. 7:

Address labour market challenges at the pan-European level, make the sector more attractive and increase the mobility of workers

The IWT labour market currently suffers from the lack of qualified staff in the sector, with general or with special qualifications, the increased average age of workers, low wages and differences in crew member wages in different parts of Europe. The reasons given are more severe working conditions compared to other sectors, the image of the inland water transport sector, insufficient social protection and social security and the lack of harmonization of job profiles, occupations and qualifications.

The situation could be improved by increasing the efficiency and competitiveness of inland water transport, the visibility of the sector and the prestige of jobs, as well as through computerization by introducing modern technologies.

Proposed UNECE actions:

(a) Support and contribute to the ongoing work of the European Union, CESNI and River Commissions to address labour market challenges with particular emphasis on social, economic, safety and liability implications of the current labour practices, automation and digitalization

(b) Support and encourage activities aimed at ensuring the equal rights and opportunities for women in inland navigation, make the sector attractive for younger workers and increase the attractiveness of the sector;

(c) Continue harmonizing the approaches for issuing certificates for boat masters and crew members and the recognition of certificates, in particular, resolution No. 31 with Directive (EU) 2017/2397 and the ES-QIN standard, exchanging best practices and facilitating mobility of workers between the European Union and non-European Union countries;

(d) Harmonize training and education principles at a pan-European level, support the development of RIS technologies and standardization in educational and training programmes for students;

(e) Continue monitoring and supporting the process of opening up national inland waterways to vessels flying foreign flags and supporting the activities of member States to promote and implement Pan-European rules for inland navigation and signs and signals on inland waterways on their territory.

Appendix I

Inland waterway networks outside Europe

I. The Congo River Basin

Navigation

The three main navigable rivers in the Congo river basin are the river Congo from Kisangani in the east of the Democratic Republic of Congo (DRC) to the twin cities of Kinshasa and Brazzaville, about one hundred kilometres to the east of the mouth of the Congo river. The second navigable river in the basin, and a main tributary to the Congo river is the Oubangui river, which is navigable from the town of Bangui in the Northwest of the DRC to its confluence with the main river west of the town of Mbandaka. The last main tributary of the Congo river is the Kasai river, which is navigable from the town of Ilebo to its confluence with the Congo river northeast of Kinshasa/Brazzaville. The overall length of the network of navigable rivers in the Congo river basin is about 17,000 kilometres but only a rather small portion of this network is able to handle larger vessels, able to carry more than 500 tonnes of cargo.⁴³

Fleet

The operational fleet on the Congo river and its tributaries is estimated at roughly 2,450 self-propelled vessels, 2,500 dumb barges, 300 pontoons and 518 push boats,⁴⁴ of which the last three are commonly combined to cargo convoys - the majority of the goods on the river are transported on these convoys consisting of a push boat and several barges (with a capacity of 500 to 2,000 tonnes). There is, furthermore, a fleet of smaller boats and crafts propelled by outboard motors or even paddles, which transport a wide variety of cargo, from foodstuffs to household goods up and down the vast river system.

Challenges

The Congo river is somewhat unusual compared to other major rivers in the world. It is not possible for vessels to navigate the river from Kinshasa/Brazzaville westwards to the sea, since massive rapids, the Livingston Falls, make navigation impossible.

The composition and draught of the larger convoys that navigate the Congo river and its main tributaries vary according to the seasons in the region. There are years, where navigation is impossible altogether due to long-lasting low water periods.

II. Mekong river system

Navigation

The Mekong river system is over 4.350 kilometres in length. It is the 7th largest river in Asia, and an important trade link between its riparian states of China, Laos, Thailand, Cambodia and Vietnam. While in the upper, navigable stretches of the river, between China and Cambodia, only smaller vessels of less than 250 tonnes can operate, the middle stretches from Thailand via Laos to Cambodia can accommodate larger vessels carrying more than 300 tonnes. The river is suitable for larger, also seagoing vessels, with a capacity of 5.000 tonnes up to the Cambodian capital of Phnom Penh. However much of the traffic is dedicated to domestic movements and cross border transport to Vietnam by smaller inland vessels. The lower part of the River basin and the estuary area, the Mekong Delta, is characterized by a very wide riverbed and numerous estuaries. The Mekong Delta can accommodate larger vessels in greater numbers, a total of 78 percent of the annual cargo volume, and 89 percent

⁴³ www.cicos.int/navigation-interieure/voies-navigables.

⁴⁴ www.cicos.int/navigation-interieure/flotte/.

of the passenger traffic on the Mekong is handled in the delta region, whereas Thailand on the upper Mekong only accounts for six percent of the transport volume.

Fleet

The fleet on the river is rather diverse. The upper stretches of the navigable Mekong river system mainly accommodate smaller cargo vessels with loading capacities of up to 100 metric tonnes and smaller passenger vessels or speedboats of less than 100 passengers. On the middle stretches of the Mekong, the national fleet of Thailand is rather small with 183 vessels, while the fleet of Laos is somewhat larger in quantity (2,961 vessels), but also consists of smaller craft with a loading capacity of less than 100 metric tonnes. The lower stretches of the river in Cambodia and the delta region in Vietnam are considerably larger in capacity and size.⁴⁵ Almost all the Mekong IWT fleet (about 98 percent) is registered in Vietnam and therefore in the Delta region. In 2012, a large number of 190,190 dry cargo vessels with an average loading capacity of 64 tonnes were registered in the Delta region. In addition, 39,872 passenger vessels with an average capacity of 13 passengers and 3,459 tanker vessels were registered in the region.

Challenges

The upper and the middle part of the Mekong have unpredictable fairway conditions, especially in the dry season, which makes the navigation on the river even more demanding. There are very few larger riverports available on the upper stretch of the river and most of the transshipment is done directly via the natural riverbank. Navigation safety is a considerable issue and there is no RIS system available throughout the entire stretch of the river. In addition to this, sand mining and the erosion of the riverbed due to the reduced sediment load, that comes along with the dredging operation is an issue.

The creation of a safe navigation channel, that can accommodate larger vessels throughout the entire year, as well as reliable and safe port infrastructure must be one of the top priorities for the development of the Mekong as a transport route for cargo and passengers.

⁴⁵ Mekong River Commission, Council Study: Report for Navigation Thematic Area, 2017, p. 15: www.mrcmekong.org/assets/Publications/Council-Study/Council-study-Reports-Thematic/Report-for-Navigation-Thematic-Area-Dec-2017.pdf.

Appendix II

Greening the fleet: trends and developments

While liquefied natural gas (LNG) was a very widely discussed topic over the past years and it was already presented as the future fuel for inland navigation vessels, this euphoria has somewhat cooled down, since the LNG installation and the necessary tanks are very spacious and expensive. The lack of a reliable and widely available LNG bunkering infrastructure also hampers a widespread introduction. It can be expected that hydrogen may see similar challenges, but there are currently no real-life pilot projects aiming at the use of hydrogen as a fuel for combustion engines.

Fuel produced according to Gas-To-Liquid (GTL) technology is an available fuel that closely resembles diesel fuel, but it is distilled out of natural gas instead of mineral oil. It is non-toxic, odourless and colourless and can be used in existing engines and can be handled and stored just like diesel fuel.

LNG and GTL are available, but they are still fossil fuels, that will produce NO_x and CO₂ when combusted.

Electrical powertrains are also becoming more and more available in IWT. Several vessels already operate with hybrid propulsion systems, where the propeller is driven by an electrical engine. However, the electrical energy is produced mainly by diesel generators. There are, as of now, pilots and projects for battery powered vessels and for vessels that are using hydrogen in fuel cells in order to produce the electrical energy for propulsion.

The cleaning of the exhaust gases by scrubbers, as it is already practiced in the maritime world, or by catalysts, is as of now, not commonly in use in the IWT sector.

Scrubbers are devices, that remove particles from the exhaust gasses by washing them out. This process works mainly for sulphur oxide (SO_x), but also carbon dioxide (CO₂) and nitrogen oxide (NO_x).

There are, in general, two types of scrubbers:

- Open type scrubbers, which wash out particles using sea water. The resulting mixture of sea water and particles is then treated in order to neutralize the chemical components washed out of the exhaust gas. The cleaned water will be pumped overboard after the process.
- Close type scrubbers use fresh water and an alkaline agent in order to remove particles. The water solution is re-usable and there is no discharge into the waterway, which makes this type of scrubber more suitable for the IWT sector. Since IWT vessels are, per definition, commonly navigating in fresh water, the simpler and less costly open type scrubber is no option for inland vessels.

Moreover, sulphur dioxide is far less of a problem in European IWT, since the vessels mainly use low sulphur diesel fuel instead of high sulphur diesel fuel, which has been the industry standard until recently, or even heavy fuel oil (HFO), which has a high sulphur content and is still the most commonly used marine fuel, but did not find use on inland vessels.

But: the average engine used in IWT is far from environmentally friendly. New and greener propulsion systems are a constant, and increasingly important subject for the sector. As of now, almost the entire fleet uses diesel engines. Hybrid propulsion, LNG, hydrogen fuel cells and battery powered propulsions are currently developed, tested and implemented. The success of these systems in the future will be highly dependent on their reliability, their availability, their durability and probably very importantly, their price. Ultimately, there might be no single substitute for the diesel engine arise from the current battle of the systems, it is highly likely, that we will see a combination of different systems existing alongside each other, each fit for a designated purpose. Even the diesel engine might still be around for quite some time.