Decent and sustainable work in the inland waterways sector

Report for the Technical Meeting on Decent and Sustainable Work in the Inland Waterways Sector
(Geneva, 20–24 November 2023)

Sectoral Policies Department
Geneva, 2023
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## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
</tr>
<tr>
<td>CCNR</td>
<td>Central Commission for the Navigation of the Rhine</td>
</tr>
<tr>
<td>CICOS</td>
<td>International Commission for the Congo-Oubangui-Sangha Basin</td>
</tr>
<tr>
<td>DC</td>
<td>Danube Commission</td>
</tr>
<tr>
<td>EBU</td>
<td>European Barge Union</td>
</tr>
<tr>
<td>ECE</td>
<td>Economic Commission for Europe</td>
</tr>
<tr>
<td>ESO</td>
<td>European Skippers’ Organisation</td>
</tr>
<tr>
<td>ES-QIN</td>
<td>European Standard for Qualification in Inland Navigation</td>
</tr>
<tr>
<td>ES–TRIN</td>
<td>European Standard laying down technical requirements for Inland Navigation vessels</td>
</tr>
<tr>
<td>ETF</td>
<td>European Transport Workers’ Federation</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gas</td>
</tr>
<tr>
<td>HPP</td>
<td>Paraguay-Paraná Waterway</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>ISRBC</td>
<td>International Sava River Basin Commission</td>
</tr>
<tr>
<td>ITC</td>
<td>Inland Transport Committee</td>
</tr>
<tr>
<td>ITF</td>
<td>International Transport Workers’ Federation</td>
</tr>
<tr>
<td>IWT</td>
<td>inland water transport</td>
</tr>
<tr>
<td>IWW</td>
<td>inland waterways</td>
</tr>
<tr>
<td>MRC</td>
<td>Mekong River Commission</td>
</tr>
<tr>
<td>MSME</td>
<td>micro, small and medium enterprise</td>
</tr>
<tr>
<td>OSH</td>
<td>occupational safety and health</td>
</tr>
<tr>
<td>PPE</td>
<td>personal protective equipment</td>
</tr>
</tbody>
</table>
Background

1. At its 341st Session (March 2021), the Governing Body of the International Labour Organization (ILO) decided to convene a technical meeting on decent and sustainable work in the inland waterways (IWW) sector in the 2022–23 biennium. At its 346th Session, it decided that the meeting should take place in Geneva from 20 to 24 November 2023 to discuss opportunities and challenges for decent and sustainable work in the IWW sector, with the aim of adopting conclusions, including recommendations for future action.

2. This report has been prepared by the International Labour Office as a basis for discussions at the meeting. Chapter 1 contains an overview of the IWW sector in terms of its role and structure, employment, and other parameters. Chapter 2 sets out the trends and developments shaping the sector, with a focus on environmental sustainability and technological advances. Chapter 3 describes the challenges and opportunities for decent and sustainable work in inland water transport (IWT) in relation to governance, social dialogue, sustainable enterprises, sustainability of employment, fundamental principles and rights at work, minimum requirements for work on board, conditions of service, safety, health and well-being, social protection, and enforcement.

3. Much of the information in the report is drawn from the following regional studies focusing on labour conditions on international IWW:
   


4. There is no established definition of IWT, which may be seen to be the movement of goods and/or passengers using either vessels solely or mainly navigating on IWW (IWW vessels), or also coastal shipping vessels and ships navigating both at sea and on IWW (river–sea vessels). Given that seagoing ships come within the remit of the Maritime Labour Convention, 2006, as amended (MLC, 2006), and fishing vessels fall under the scope of the Work in Fishing Convention, 2007 (No. 188), this report is circumscribed to IWW vessels neither covered by the MLC, 2006, nor by Convention No. 188.

5. Statistical data on IWT is scarce. Estimates are based on relatively small samples, and figures stemming from secondary sources are indicative, as they are difficult to verify or compare. Data collection for the IWW sector would generally deserve to be improved.

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2 Article II(1)(i) defines “ship” as “a ship other than one which navigates exclusively in inland waters or waters within, or closely adjacent to, sheltered waters or areas where port regulations apply”.

3 Under Article 1(a), “commercial fishing means all fishing operations, including fishing operations on rivers, lakes or canals, with the exception of subsistence fishing and recreational fishing”. Under Article 1(g), “fishing vessel or vessel means any ship or boat (...) used or intended to be used for the purpose of commercial fishing”.

Chapter 1: Overview of the inland waterways sector

1. Role, performance and types of inland water transport

6. Inland navigation plays a crucial role in transportation, especially in landlocked countries and places where it is the only available means of transport, both for persons and goods (for example, Latin America, Africa, South-East Asia). It may be vital for remote and rural communities and serve essential social purposes on lakes.

7. IWT is a comparatively sustainable mode of transport, with lower energy consumption (three to six times lower than road transport and up to two times lower than rail) and lower exhaust and noise emissions (a standard 110-metre-long vessel that transports 3,000 tons of cargo is equivalent to more than 100 journeys undertaken by a 40-ton truck).

8. From an economic standpoint, IWT is cost-effective, as it generally operates on natural communications routes without requiring extensive infrastructure investment. It offers lower operating costs compared to land transport and competes primarily with road and rail modes. It typically represents a small share of total passenger transport, including in regions where it is widely used, and plays a more significant role in freight (for example, in Viet Nam, only 4 per cent of passenger trips are via IWW compared to 19 per cent for freight transport).

9. IWT offers several advantages for the carriage of goods. It is usually safer (low accident rate), more reliable, and cheaper due to economies of scale. It excels in carrying large quantities of bulk cargo over long distances. Its comparative weaknesses lie in high transhipment costs within logistics chains, and its slow pace, so IWT declined in performance at the turn of the twentieth century. As road and rail transport took over, “[m]any of the world’s rivers that used to anchor national freight and associated economic activities no longer do so (for example, the Amazon, the Nile, the Ganges, and the Volga).”

10. IWT is predominantly used to carry low-value and non-perishable goods, such as building materials, coal, ores, steel, mineral oil products, chemicals, and agricultural products. Many of them are classified as dangerous goods, for which IWT offers a safer environment than rail or road.

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4 Amazon–Orinoco Basin; and the Paraguay-Paraná Waterway (HPP) as the main waterway for Paraguayan and Bolivian exports of goods.
5 Democratic Republic of the Congo, Mali, Niger.
6 Lao People’s Democratic Republic, Thailand.
7 Bernard Aritua et al., Blue Routes for a New Era: Developing Inland Waterways Transportation in China, World Bank, 2020, 10.
9 Aritua, 1–2.
Table 1.1. Type of bulk cargo carried by IWT (percentage of total cargo volumes, preceded by rank in importance)

<table>
<thead>
<tr>
<th>Types of goods</th>
<th>Building material</th>
<th>Coal</th>
<th>Ores and metal</th>
<th>Mineral oil products</th>
<th>Chemicals</th>
<th>Agribulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWW</td>
<td></td>
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<td></td>
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<tr>
<td>China</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>(1) 35</td>
<td>(2) 20</td>
<td>(3) 15</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Upper Mekong</td>
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<td></td>
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<td></td>
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<tr>
<td>Viet Nam</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(1) 70</td>
<td>(2) 15</td>
<td></td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Rhine</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>(3) 15</td>
<td></td>
<td>13</td>
<td>(1) 18</td>
<td>(2) 16</td>
<td>12</td>
</tr>
<tr>
<td>Danube</td>
<td></td>
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<td></td>
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<tr>
<td>Mississippi</td>
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<tr>
<td></td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>(2) 30</td>
<td>(3) 8</td>
<td>(1) 35</td>
</tr>
<tr>
<td>HPP</td>
<td></td>
<td></td>
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<td></td>
<td>(2) 19</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
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<td></td>
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</tr>
</tbody>
</table>


11. IWT is most efficient from and to locations that are close to waterways, as it limits transhipment costs. The busiest IWW are accessible to maritime shipping downstream or connect important seaports to the hinterland. When providing a trade route to global markets, IWT can thus greatly contribute to the economic development of a country, especially when landlocked.

12. However, future IWT performance faces challenges, as coal and mineral oil products, the largest volumes carried, will be phased out. The volume of agribulk carried could also decrease if consumer habits evolve towards a preference for local products. Nonetheless, IWT is increasingly being used for container shipping for manufactured products, particularly in Brazil, China, Vietnam, and Europe. Container shipping on suitable IWW can serve highly populated urban centres in need of large quantities of manufactured goods. Albeit challenging to offset the decline in demand caused by the phasing out of coal and mineral oil products, container shipping,
combined with rapidly changing technology, presents opportunities for more diversified intermodal corridors.20

13. In terms of potential development of IWT, the sector is considered to be under-exploited in all regions and with a potential that should be harnessed.21 The promotion of decent and sustainable work on IWW will contribute towards achieving United Nations Sustainable Development Goal 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”, and Goal 11 “Make cities and human settlements inclusive, safe, resilient and sustainable”, in particular target 11.2 “... provide access to safe, affordable, accessible and sustainable transport systems for all ...”.

Table 1.2. Performance of IWT cargo transport

<table>
<thead>
<tr>
<th>Waterway or country/region</th>
<th>Bulk cargo (million tons)</th>
<th>Cargo in containers (million tons)</th>
<th>Number of containers (million TEU)</th>
<th>Modal split of IWT (% of cargo transported by IWW compared to all inland transport modes – road, rail, pipeline)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Europe ¹</td>
<td>500 (2021)</td>
<td>62 (2021)</td>
<td>7 (2021)</td>
<td>6% Stable</td>
<td></td>
</tr>
<tr>
<td>Mekong</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Mekong basin ³</td>
<td>40 (2020, forecast)</td>
<td>-</td>
<td>-</td>
<td>5% increase per year (forecast)</td>
<td></td>
</tr>
<tr>
<td>Viet Nam (total)⁴</td>
<td>215 (2016)</td>
<td>n/a</td>
<td>19% (2016)</td>
<td>47% increase (2010–16)</td>
<td></td>
</tr>
<tr>
<td>Mississippi IWW network, United States ⁵</td>
<td>500 (2019)</td>
<td>-</td>
<td>-</td>
<td>Stable</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td></td>
<td></td>
<td>5–7% ⁸</td>
<td></td>
</tr>
<tr>
<td>Brazil ⁶</td>
<td>35</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Amazon</td>
<td>10 ⁶</td>
<td>-</td>
<td>85% ⁷</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>HPP</td>
<td>22 (2015)</td>
<td>-</td>
<td>-</td>
<td>40% increase (2010–15)</td>
<td></td>
</tr>
</tbody>
</table>

Note: A TEU (twenty-foot equivalent unit) is a measure of volume in units of twenty-foot long containers.


20 The term “intermodal” describes the movement of goods or people from A to B using several different methods of transportation.

2. Mapping of major inland waterways

14. IWW are unevenly distributed around the world and their significance for IWT varies. The mapping of their significance for IWT is based on the following considerations and indicators.

(i) Economic significance:
   - rank of IWT among IWW uses;
   - volume(s) of goods; number of persons carried; modal share;
   - impact on general economy;

(ii) International significance
   - IWW network crosses/borders several countries;
   - IWW classified as international;
   - international governance mechanism;
   - open to foreign flags.

(iii) Navigability
   - vessels operating on IWW are chiefly IWW vessels covered by this report;
   - obstacles to navigation (natural or human-made);
   - navigation infrastructure and aids to navigation;
   - regulatory framework to ensure safety and monitoring mechanism;
   - low accident rate.

(iv) Social significance (especially in regions where geography hinders development of terrestrial infrastructure)
   - human commuting (to access other communities or social facilities (schools or health services));
   - local trade of essential and traditional goods;
   - employment (number of persons working in, and depending on, the sector).

(v) Prospects for growth
   - investment in infrastructure;
   - impact of climate change;
   - links with other transport modes and corridors;
   - regulatory framework ensuring both safety and a level playing field;
   - predictable economic, political and legal context.


23 There is no worldwide classification of waterways, but regional classifications exist in Europe and Asia. Work is ongoing in Latin America, see ECLAC, *FAL Bulletin No. 2*, 2018.
### Table 1.3. Mapping of inland waterways

<table>
<thead>
<tr>
<th>Navigation systems</th>
<th>Economic significance (+/-)</th>
<th>National/International significance (N/I)</th>
<th>Navigability (+/-)</th>
<th>Social significance (+/-)</th>
<th>Prospects for growth (+/-)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nile</td>
<td>-</td>
<td>N</td>
<td>-</td>
<td>NA</td>
<td>-</td>
</tr>
<tr>
<td>Senegal</td>
<td>-</td>
<td>I</td>
<td>-</td>
<td>NA</td>
<td>-</td>
</tr>
<tr>
<td>Congo</td>
<td>+/-</td>
<td>I</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Niger</td>
<td>-</td>
<td>N</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Orange</td>
<td>-</td>
<td>n/a</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Zambezi river system</td>
<td>-</td>
<td>N</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Americas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mississippi–Missouri system and tributaries</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>Stable</td>
</tr>
<tr>
<td>Saint Lawrence Seaway and Great Lakes waterway</td>
<td>+</td>
<td>I</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Columbia–Snake river system</td>
<td>+</td>
<td>I</td>
<td>NA</td>
<td>NA</td>
<td>Stable</td>
</tr>
<tr>
<td><strong>Latin America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPP</td>
<td>+</td>
<td>I</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Amazon–Orinoco</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Arab States</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Shatt el-Arab (Tigris–Euphrates)</td>
<td>+</td>
<td>I</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Ganges–Brahmaputra–Meghna river system</td>
<td>+</td>
<td>I</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Mekong</td>
<td>+</td>
<td>I</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>China (Yangtze, Yellow river, Lancang)</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murray–Darling rivers</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unified Deep Water system of European Russia (UDWS)</td>
<td>-</td>
<td>N</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dnipro, Ukraine</td>
<td>-</td>
<td>N</td>
<td>+</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Rhine</td>
<td>+</td>
<td>I</td>
<td>+</td>
<td>+</td>
<td>Stable</td>
</tr>
<tr>
<td>Danube</td>
<td>+</td>
<td>I</td>
<td>+</td>
<td>+</td>
<td>Stable</td>
</tr>
</tbody>
</table>

Note: - = nil or negligible. + = significant. n/a = not applicable. NA = not available.
15. Based on this mapping, the most significant waterways for IWT are:

<table>
<thead>
<tr>
<th>Waterway</th>
<th>Economic/social Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>Social significance</td>
</tr>
<tr>
<td>Chinese IWW network</td>
<td>Economic significance (highest volume, by far, carried by IWW in the world), promising prospects for growth, good conditions of navigability (through ambitious infrastructure investments)</td>
</tr>
<tr>
<td>Congo</td>
<td>Social significance, prospects for growth</td>
</tr>
<tr>
<td>Danube</td>
<td>Economic significance</td>
</tr>
<tr>
<td>HPP</td>
<td>Economic significance, prospects for growth</td>
</tr>
<tr>
<td>Mekong</td>
<td>Economic significance, promising prospects for growth and social significance</td>
</tr>
<tr>
<td>Rhine</td>
<td>Economic significance, good conditions of navigability</td>
</tr>
<tr>
<td>US IWW network</td>
<td>Economic significance, good conditions of navigability</td>
</tr>
</tbody>
</table>

3. Composition and structure of the sector

Workforce

16. No reliable statistics are available on global employment in the IWT sector.

17. The COVID-19 crisis has severely affected productivity, workers, enterprises and employment worldwide, including in the IWW sector (see Chapter 2, section 3).

18. In Europe, the total number of IWT workers (including self-employed, helping family members and employees) amounted to approximately 44,193 in 2020, of whom around 52 per cent were in freight transport (23,170) and 48 per cent in passenger transport (21,023). The low employment numbers stand in stark contrast to the financial turnover of the sector, which was over €6 billion in freight (no data for passenger transport). For the Rhine countries alone, turnover was around €5.5 billion in freight and €1.3 billion in passenger transport.27

19. As to the Americas, no statistical information is available on the workforce on the HPP. In the United States of America, there were 16,400 persons employed in IWT in 2021.28 Again, the economic importance of the sector exceeds by far the relatively small workforce, with an estimated inland navigation benefit to the US economy of US$13.36 billion in 2020.29

20. In Asia, the IWT workforce on the Lower Mekong was estimated at 780,000 people in 2014, with approximate employment growth of 5 per cent per year to 975,000 people in 2020, due to planned investments in the IWW sector.30 By the end of 2020, China had a total of 908,683 registered inland river vessel crew, up 3.9 per cent compared to 2019.31

21. In 2020, lower-middle-income countries accounted for 48 per cent of total employment in IWT, followed by upper-middle-income countries (29 per cent), high-income countries (13 per cent), and low-income countries (10 per cent). Regionally, the Asia and the Pacific region accounted for

24 Yangtze, Pearl River, Grand Canal and Lancang.
25 Arutua, 74.
26 Mississippi–Missouri river system and Columbia–Snake river system.
29 US Army Corps of Engineers Institute for Water Resources website.
30 MRC, The Study, 76-78.
the largest share of people working in IWT (63 per cent), followed by Africa (14 per cent), the Americas (11 per cent), Europe and Central Asia (10 per cent) and the Arab States (2 per cent):

Figure 1.1. IWT employment by region and income level


22. There is no data on the share of migrant workers in the IWW sector globally. Migrant workers are present in IWT in particular in Europe, Asia and Latin America (see Chapter 2, section 4.3).

23. Employment in IWT can be classified according to the International Classification of Status in Employment (ICSE-93) as follows:

(i) “Paid employment jobs” are held by employees who hold explicit or implicit employment contracts providing a basic remuneration, and who work under the supervision of, or directions set by the owner(s) of the premises or their representatives. In IWT, they are workers employed by an enterprise that operates transport services for passengers or goods via IWW.

(ii) “Self-employment jobs” are held by workers working on their own account or with one or more partners. This category includes: employers (who on a continuous basis have engaged one or more persons to work for them in their business as employees); own-account workers (who have not engaged any employees to work for them on a continuous basis); and contributing family workers (who work in a market-oriented establishment operated by a related person living in the same household and who cannot be regarded as partners – they are generally unpaid and hold informal jobs).

24. In practice, the sector is dominated by employees and own-account workers, with most of the workers in the sector performing work informally (see Chapter 3, section 3.2). For example, in Bangladesh, 67 per cent of IWT workers are own-account workers and 26 per cent employees; whereas in the Philippines, 82 per cent of the IWT workforce are employees and 17 per cent own-account workers.
25. Owner-operators were found to display some characteristics of self-employment (autonomy/dependence/control criteria) and some characteristics of paid-employment (in respect of economic risk/remuneration). Accordingly, the revised International Classification of Status in Employment ICSE-18 classifies owner-operators as “independent workers” when looking at the type of authority that the worker is able to exercise in relation to the work performed, and as “workers in employment for pay” when looking at the type of economic risk to which the worker is exposed. According to the International Transport Workers’ Federation (ITF), a rise in owner-operators has been triggered by globalization and the entry of large enterprises into the sector, with boatmasters running their own vessels on behalf of these companies and employing crew members directly, which leads to heightened competition and declining prices, and eventually to deteriorating working conditions and safety standards. In the tug and towage sector in particular, the market power of the major containership lines has pushed down the market rates charged for tugboat services in ports, which has negatively affected the conditions of employment and operational environment of tugboat workers.

26. As a sub-sector of the broader transport sector, the IWT accounted for a mere 0.39 per cent of total employment in the broader transport, storage and communication sector in 2020, with the male and female workforce accounting for 0.43 per cent and 0.20 per cent respectively (figure 1.3).

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33 ITF, 2022. Stopping the race to the bottom – Tug and towage position paper.
**Figure 1.3. Contribution of IWT to total employment in the transport, storage and communication sector, by sex**


27. In certain countries, such as Bangladesh, Myanmar and Viet Nam, the share of IWT employment within the transport, storage and communication sector is higher than the aforementioned average of 0.39 per cent (figure 1.4).
Figure 1.4. Contribution of IWT to total employment in the transport, storage and communication sector (percentage)


Vessels

28. There is no common classification of IWW vessels with standardized dimensions and features,\textsuperscript{34} and vessels are not systematically registered in all regions of the world. Furthermore, IWW vessels are not always clearly differentiated from maritime, coastal, or river-sea vessels. The type, size, and major design attributes of IWW vessels largely depend on the transport task and the characteristics of the IWW, in particular their dimensions, and on economic aspects.

\textsuperscript{34} For example, it is absent in Africa and Latin America.
### Table 1.4. Information on the IWT fleet worldwide

<table>
<thead>
<tr>
<th>Region/waterway</th>
<th>Total number of vessels</th>
<th>Vessel types and capacity</th>
<th>Average age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cargo</td>
<td>16,000 ^1</td>
<td>11,500 dry cargo vessels</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Rhine: 11,000</td>
<td>1,700 tank vessels</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,700 pushers and tugs</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,500 dwt/vessel average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Danube: 2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other: 2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>3,400</td>
<td>3,000 day-trip vessels</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 cabin vessels</td>
<td></td>
</tr>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congo ^6</td>
<td></td>
<td>2,500 motorized vessels</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 pushers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,500 barges</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>11,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,000 smaller crafts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum capacity of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pushed convoys:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,000t (wet season),</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>600t (low-water season)</td>
<td></td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China ^7</td>
<td></td>
<td>100,000 motor vessels</td>
<td>11</td>
</tr>
<tr>
<td>Cargo</td>
<td>125,000</td>
<td>130,000,000 dwt total</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>cargo capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,000 dwt on average per</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vessel</td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>20,000</td>
<td>715,000 seats</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Mekong basin ^8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lao People's Democratic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Republic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Cargo 110</td>
<td>17,000,000 dwt total</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Passenger 70</td>
<td>cargo capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Czech Republic</td>
<td>100 dwt/vessel average</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Cargo 170,000 ^9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Passenger 40,000 ^8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region/waterway</td>
<td>Total number of vessels</td>
<td>Vessel types and capacity</td>
<td>Average age (years)</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------</td>
<td>---------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Americas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPP</td>
<td>4,500</td>
<td>300 pushers and tugs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,500 barges (2016)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 million dwt total cargo</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>capacity</td>
<td></td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cargo</td>
<td>30,000</td>
<td>3,500 motorized vessels</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18,600 dump barges</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,000 tank barges</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum cargo capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>pushed convoy on</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mississippi:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>55,000 dwt</td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>1,500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: NA = not available; dwt = deadweight tonnage.

Sources:
1. CCNR, Annual Report 2022, 88.
2. CCNR, Annual Report 2017, 94.
5. CCNR, Annual Report 2022, 118.
7. Aritua, 27.
9. World Bank, para. 2.3.
10. Based on the fleet of Paraguay, representing 74 per cent of the overall fleet operating on the HPP; Jaimurzina and Wilmsmeier, 30.
12. Leah A. Dundon et al., Decarbonization of the inland waterway sector in the United States, Vanderbilt University report for the American Bureau of Shipping (ABS), 2021, S, 11 and 17.

29. While there is no reliable data for all countries with significant IWT, the number of IWW vessels worldwide can be roughly estimated at 500,000, extrapolating from the fleet size data in table 1.4.

30. In IWW freight transport, goods are transported mostly by individual motor vessels or pushed convoys, consisting of a pusher and barges. Motor vessels are faster and more flexible than pushed convoys. They require lower investment and generate lower operational costs. Pushed convoys, on the other hand, can carry much larger loads, allowing for very efficient transport, especially for bulk goods. The number of barges in a convoy is generally limited by the IWW dimensions, but can reach up to 40, like on the lower Mississippi. In modern IWT, towed convoys, consisting of a tug and one or more towed vessels, are of limited relevance for the transport of goods, but they are regularly used to move floating equipment.

31. For passenger transport, two different segments can be distinguished: (i) tourism (river cruises and day trips); and (ii) short-distance commuting, in particular when alternatives to IWT are not available (for instance, no bridge in the vicinity). Different types of passenger vessels are used: cabin vessels and day-trip vessels for touristic use, and ferries or other short-distance vessels for local commuting.
Growing river cruise sector

There are currently about 900 river cruise vessels worldwide (704 in 2004). Prior to 2000, the largest fleets were in Africa (mainly on the Nile) and the Russian Federation.

The sector then boomed in Europe, which now hosts the largest river cruise fleet (40 per cent of the world fleet), with 405 vessels in 2021 (50 in 1995 and 164 in 2004), 31 per cent of which were built between 2011 and 2015. This extreme expansion came to an end in 2016, but the sector kept on growing at a slower pace up until the COVID-19 pandemic. In 2018, the sector grew by 15 per cent compared to 2017. In 2019, 19 new river cruise vessels entered the market and about 2 million river cruise trips were made, corresponding to a 60 per cent increase since 2014. Passenger numbers in river cruising in the European Union (EU) more than doubled between 2012 and 2019. At the same time, the number of persons employed in the passenger transport sector has continuously increased since 2011, while it decreased in freight transport. The Association of the leading European River Cruise Companies (IG RiverCruise), representing 240 river cruise ships, estimated that, in 2019, 12,000 people were working in hospitality-related activities on European river cruise vessels, compared to 2,500 persons in the nautical field. Due to the pandemic, employment in the passenger sector decreased by 9 per cent in 2020. The war in Ukraine came as an additional blow for the river cruise industry, entailing a probable decrease in demand, bottlenecks of crew supply, and rises in fuel costs.

The river cruise sector has also boomed in China, though to a lesser extent. After the first Yangtze cruise vessels were built in the 1980s, the sector grew fast until the severe acute respiratory syndrome (SARS) epidemic in 2003. Today, China continues to build the largest river cruise vessels worldwide, but the number of newly built vessels is stabilizing. The fleet increased from 93 vessels licensed to carry foreign tourists in 2004 to 123 in 2022. At the same time, the river cruise fleet on the Nile, with 281 vessels in 2004, started dropping in the years 2010, as a result of political and economic crises plaguing the region. The pandemic erased the timid signs of a restart in 2019. The number of river cruise vessels active in 2022 was estimated to be 210. In the Russian Federation and Ukraine, the river cruise fleet has experienced a constant decline (from 166 vessels in 2004 to 118 in 2022), with few new vessels being built in the last 30 years. In the United States, river cruising remains marginal, although high growth rates have been noticed since the end of the pandemic. US passengers were prevented from travelling to Europe, which led to an increase in bookings on national cruises.

Note: The river cruise fleet referred to in this section consists of cabin vessels with a minimum of 40 beds. See Arnulf Hader, The River Cruise Fleet Handbook, 2022, part I-A, 1–10. River cruise vessels on the Mekong and the Amazon are often smaller, locally built, and of lower capacity.


32. In some regions, smaller boats and crafts operate in the informal economy, many of which are informally built, with little to no regard to safety requirements. It is inevitably difficult to assess their number and share in the economy, but the phenomenon is known to be widespread, for instance on the Congo, Mekong and Amazon networks.

Enterprises

33. The vast majority of IWT enterprises are microenterprises (defined as up to nine employees). They are typically small family-owned (formal or informal) businesses owning or operating one or two motor cargo vessels or passenger day-trip vessels, with two nautical crew members on board. Micro, small and medium enterprises (MSMEs) do not necessarily have a land-based office; sales, marketing and contracts are often dealt with by intermediaries, and recruitment increasingly by

crew management agencies, which may affect profitability. Digital connectivity could offer MSMEs the opportunity of functional upgrading by reducing costs for communication, access to information and transactions.

34. Large enterprises can be found in more specialized forms of transport (tankers, containers, tugs, and also passenger traffic) and mainly operate big vessels, such as pushed or towed convoys and large cabin passenger vessels. They have installations on land and can be considerable in size, especially in China and the United States, where the largest company operates about 150 pushers and 5,000 barges. Some are subsidiaries of industrial companies and carry out own-account transport.

35. IWT enterprises are privately owned in most parts of the world, except in urban transport, where State-owned undertakings are more common due to their public service role.

36. In line with maritime practices, the recruitment of personnel and the maintenance of the vessel(s) are increasingly outsourced to external service providers, including in foreign countries. The river cruise industry is characterized by international company structures, involving four main actors: cruise vessel owner; tour operator (time charter); company managing nautical aspects, including crew; company managing hotel and restaurant service on board, including personnel.

Table 1.5. Information on IWT enterprises worldwide

<table>
<thead>
<tr>
<th>Region</th>
<th>Enterprises</th>
<th>Rounded figures</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>Goods 1</td>
<td>5,600</td>
<td>MSMEs</td>
</tr>
<tr>
<td></td>
<td>Rhine</td>
<td>87%</td>
<td>MSMEs</td>
</tr>
<tr>
<td></td>
<td>Danube</td>
<td>4%</td>
<td>large enterprises (LEs)</td>
</tr>
<tr>
<td></td>
<td>Passengers 2</td>
<td>4,200</td>
<td>MSMEs (day trip)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LEs (river cruise)</td>
</tr>
<tr>
<td>Africa</td>
<td>Congo 3</td>
<td>n/a</td>
<td>LEs (public and semi-public) in the Democratic Republic of the Congo and the Central African Republic</td>
</tr>
<tr>
<td>Asia</td>
<td>China 4</td>
<td>~ 7,000</td>
<td>LEs (public)</td>
</tr>
<tr>
<td></td>
<td>Mekong Upper Middle</td>
<td>n/a</td>
<td>MSMEs/informal economy</td>
</tr>
<tr>
<td></td>
<td>Lower/Viet Nam</td>
<td>n/a</td>
<td>MSMEs/informal economy</td>
</tr>
</tbody>
</table>

36 Around 80 per cent of IWT freight companies in Western Europe and 50 per cent in Switzerland are microenterprises. On average in the EU, there are five persons employed per IWT company (passenger and freight). See CCNR, Thematic Report: The European Inland Navigation Sector Labour Market, 2021, 24 and 50.

37 ILO, Guide to Recommendation 189: Job creation in small and medium sized enterprises Recommendation, 2022, 32.
### Region Enterprises

<table>
<thead>
<tr>
<th>Region</th>
<th>Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td></td>
</tr>
<tr>
<td>HPP</td>
<td>~ 50 LEs</td>
</tr>
<tr>
<td>United States</td>
<td>n/a ⁵ LEs (operating thousands of barges)</td>
</tr>
</tbody>
</table>

Note: Reliability of figures in italics is not guaranteed.

Sources:
2. CCNR, Annual Report 2022.
4. dun&bradstreet, Inland Water Transportation Companies In China.
5. The US Army Corps of Engineers, in its Vessel company summary and vessel characteristics, lists about 3,500 US waterborne operators in 2020; this covers not only IWT enterprises, but also companies operating floating structures and coastal shipping companies.
Chapter 2: Sectoral trends and developments

37. New trends and developments in the IWW sector may affect the world of work of IWT workers.

1. Environmental sustainability

38. “To ensure its future, the response of IWT to climate change must be twofold: it must adapt to the changing climate and mitigate its carbon footprint. The former will make IWT resilient against adverse effects of climate change, the latter will bring IWT in line with the Paris Agreement and decarbonise IWT.”

1.1. Impact on climate change and mitigation efforts

39. IWW vessels are mainly powered by diesel fuel, which produces greenhouse gases (GHGs) and pollutes the air. On the other hand, IWT is a comparatively low-emission mode of transport, which may explain why plans for the mitigation of GHG emissions have yet to be developed in China and the United States. In Europe, the EU and the Central Commission for the Navigation of the Rhine (CCNR) explicitly aim at zero-emission vessels and eliminating GHG emissions from IWW vessels by 2050. Low-emission vessels are already being built and chartered. Other countries and regions in the world with a significant IWT sector will need to follow suit to be consistent with the ambitious goals laid down in the Paris Agreement on climate change.

40. The reduction of energy consumption must also be part of the transition to climate neutrality for IWT. “This includes for example better use of vessels, increased efficiency by means of modern propulsion systems, the improvement of vessels’ hydrodynamics, smart navigation with less waiting time at locks, and efficient integration of inland navigation into seaports logistics.”

41. All analysed transition pathways include a mix of technologies and energy carriers, as no single solution fits all transport tasks, from urban passenger transport to large-scale freight transport. The following were identified as promising:

- hydrotreated vegetable oil, used in internal combustion engines;
- battery electric propulsion systems, with fixed or exchangeable battery systems;
- methanol used in fuel cells or internal combustion engines;
- hydrogen stored in liquid or gaseous form and used in fuel cells or internal combustion engines.

[39] For example, in 2020, China’s IWT fleet emitted just 1.5 per cent of CO₂ emissions from the country’s entire transportation sector – see ICCT, Fact Sheet China: Potential pathways for decarbonizing China’s inland waterway shipping, 2023, 2; Aritua, 7. In the United States, the share is even lower – see Dundon, 18.
[40] ICCT, Fact Sheet China, 2.
[41] Dundon, 2.
42. The operation of vessels using hydrogen to be burned in fuel cells is considered as complex and not yet fully implementable on a large scale, also requiring sophisticated control systems. Furthermore, as some of the new technologies and energy carriers create substantial safety risks for the vessels and persons on board, new and complex safety regulations are necessary.\(^{45}\) Pollutant emissions, especially nitrogen oxides and particulate matter, also need to be reduced for IWT to become a truly green mode of transport.\(^{46}\)

43. Consequently, the transition to a greener fleet requires considerable investments that exceed the sector's capacity by far.\(^{47}\) While some public funding and subsidization may be available, it is likely that many, if not most, of the vessels constituting the current fleets will not be converted to low or zero-emissions propulsion. The turn towards greener and decarbonized IWT will hence have a major impact on current operators in the sector, with many financially weak shipping companies being driven to cease operations in the future. The shift towards clean IWT will thus also have far-reaching consequences for IWT workers. Moreover, the use of complex, expensive technologies will require large investments in training and upskilling the workforce to operate new and sophisticated green vessels safely and efficiently (see Chapter 3, section 3.1).

44. The urgent need to switch to a sustainable model of economic growth and work towards achieving Goal 11, target 11.2 relating to sustainable transport, has prompted some public authorities to promote the integration of IWT as part of urban logistics and short-distance transport. The EU, for instance, has set forth ambitious goals: 30 per cent of road freight over 300 kilometres should shift to rail or waterborne transport by 2030, and more than 50 per cent by 2050.\(^{48}\) To benefit from this evolution, significant and long-term investments would be required to improve intermodal connectivity and maintain smaller waterways and a small-vessel fleet. State policies would need to make it fiscally attractive for business to invest in this mode of transport. Moreover, in urban agglomerations on rivers or lakes, public IWT services would need to be developed or expanded, and better integrated with the existing public transport network, to achieve sustainable mobility by expanding public transport in line with Goal 11, target 11.2.

45. Lastly, dredging and IWT development (channels) are known to have an impact on water quality, river pollution and aquatic life. Any environmental effects of IWT infrastructure projects thus need to be considered prior to undertaking such works (ex ante impact assessments) and addressed through mitigation measures.

1.2. Impact of climate change and adaptation efforts

46. Climate-related impacts are not new to inland navigation since IWT depends on water flows in rivers and water supply for canals, which in turn depend on the climate. However, climate change will and is already exacerbating these impacts and introducing new ones, such as flooding, high flow velocities, low water levels, reduced water supply and riverbed or bank erosion. In addition, IWT is faced with indirect economic impacts as the effects of climate change on other industry

\(^{45}\) Pauli and Boyer.


\(^{47}\) Wisselmann, Roux and Boyer.

sectors lead to shifts in the nature, quantities or timings of goods being transported (such as the phasing out of coal and other mineral oil products) or of passenger traffic.49

47. On the other hand, if increased water flows in rivers or rises in sea level caused floods or large-scale damage to road and rail infrastructures, IWT could become an important, if not vital, readily available alternative. Also, in some parts of the world, climate change may increase precipitation, which in turn would lead to higher water levels in rivers, thereby favouring IWT.50

48. For all these reasons, climate change adaptation must become part of medium- and long-term planning in IWW development. Higher water levels reduce bridge clearance, thereby impacting traffic on affected waterways, whereas low levels trigger the need to reduce loads, or even the risk of grounding or the inability to operate. Adaptation often requires building new or altering existing infrastructure, with all the implied consequences on already constrained public finances. This challenge is already being tackled in Viet Nam.51

49. Extended and recurrent low river flow conditions leading to low water levels are likely to pose the severest, sometimes existential, risk to IWT and make workers redundant. River levels in Latin America (Paraná) and Europe (Rhine) ran so low during summer months in recent years as to impede navigability by IWW cargo vessels.52

50. The following measures are available to support IWT’s adaptation to this specific impact of climate change:53

• good maintenance and possible upgrading of infrastructure (for example, channel improvements);
• improvement of water management (for example, buffering of water in upstream reservoirs);
• designing vessels to cope better with low-water periods;
• adaptation of logistic chain (for example, improved efficiency of port operations, cooperation with other transportation modes and increased storage facilities for goods);
• development and application of targeted digital tools (for example, extended predictions of water levels).

51. In addition to government policies and initiatives that support MSME development and provide an enabling environment for sustainable enterprises that is conducive to inducing investment, MSMEs would need targeted support to develop resilience and to be able to adapt to a changing environment and also tap into new potential business opportunities.

52. Moreover, IWT workers, including in microenterprises, must be made aware of climate change risks and impacts and acquire the necessary knowledge and skills to deal with resulting challenges (for example, navigation in high- or low-water situations) and use adaptation measures.

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49 The World Association for Waterborne Transport Infrastructure (PIANC), Climate Change Adaptation Planning for Ports and Inland Waterways, EnviCom WG Report, No. 178, 2020, 11.
51 World Bank, 80.
52 “Germany’s waterways are unsung, but essential”, The Economist, 18 August 2022; Daniel Politi and Sebastián López Brach, “An Economic Lifeline in South America, the Paraná River, Is Shriving”, The New York Times, 4 September 2021.
53 CCNR, “Reflection paper: Act now!” on low water and effects on Rhine navigation, 23 February 2021.
2. Technological innovation

53. Further digitalization is needed to make IWT more sustainable, to keep it competitive vis-à-vis other transport modes and to better integrate it into logistic chains.⁵⁴ It is also a prerequisite for continued automation. Consequently, many – partly overlapping – concepts have been developed for further digitalization of IWT, such as:

(i) River information services (RIS):

“Concept of information services (...) that supports traffic and transport management, including, wherever technically feasible, the interfaces with other transport modes. RIS is intended to improve the safety, efficiency and environmental performance of inland navigation towards a sustainable transport mode.”⁵⁵ The technology alleviates manual steering and is widely implemented and harmonized in Europe. Certain information services are provided in other parts of the world, but lack cross-border compatibility.⁵⁶

(ii) Intelligent shipping:

Concept of using sophisticated information and communications technology (ICT) applications, promoting cross-departmental cooperation and cross-regional information resource integration, to improve transportation efficiency and reduce costs.⁵⁷ Intelligent shipping is similar to RIS but broader and technologically more complex. In 2019, China issued the Intelligent Shipping Development Guideline, the first such structured approach in the world.⁵⁸

(iii) Smart shipping:

Concept exploring new ways to perform IWT, ranging from IWW vessel trains, remote-controlled ships to small(er) drone-like platforms for transportation of goods and people. Smart shipping consists of four components: smart vessel, smart traffic management and infrastructure, smart travel and transport, and smart regulation and facilitation.⁵⁹ It represents the implementation and further development of RIS and intelligent shipping with the aim of automation.

(iv) Automation:

Concept whereby navigational tasks are progressively automated. The CCNR has defined six automation levels in IWT, starting with level 0 (full-time human-based navigation and steering mode with no automation) and going up to level 5 (full automation or autonomous navigation).⁶⁰ Research and development regarding the automation of navigational tasks is ongoing. The necessary technologies relating to automation level 1 (steering assistance) are

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⁵⁴ CCNR, "Mannheim Declaration “150 years of the Mannheim Act – the driving force behind dynamic Rhine and inland navigation”, 2018.
⁵⁷ Jiayi Xu et al., "Status of Research and Application Cases in Intelligent Shipping", in Proceedings of PIANC Smart Rivers 2022: Green Waterways and Sustainable Navigations, eds Yun Li et al. (Springer, 2023), 916–926.
⁵⁸ Aritua, 116.
⁵⁹ PIANC, Smart Shipping on Inland Waterways, InCom WG 210 (2022).
already available\textsuperscript{61} for higher levels, they are at different stages of validation and demonstration.\textsuperscript{62}

(v) Remote control:

Concept whereby “navigation decisions are taken by a human or a machine external to the craft”. “Automation and remote control therefore are two different concepts, even if they may use technologies and technical equipment that are partly identical.”\textsuperscript{63} Some companies are testing services to help operate unmanned and crew-reduced vessels, and to support and control automated ships via their remote control centre.\textsuperscript{64} The remote control of vessels introduces new roles for IWT workers, such as “remote operator”.\textsuperscript{65} In Europe, new competence standards for remote control operations are under development in the framework of the PLATINA project.\textsuperscript{66}

54. All concepts rely on a wide range of interconnected ICT applications, causing serious cybersecurity challenges. “To fully benefit from the advantages of digitalisation and ensure a safe and seamless integration of ICT technologies into inland navigation vessels and infrastructure, the sector needs to take cybersecurity issues seriously” and provide for specific training of personnel using these applications, as well as awareness-raising.\textsuperscript{67}

55. The above-mentioned technologies have also allowed the wide application of ship-handling simulators, making them an efficient and cost-effective tool for the education and examination of IWT workers.\textsuperscript{68}

3. Impact of COVID-19 pandemic

56. The COVID-19 pandemic led to a suspension of non-essential IWT activities in 2020, followed by a partial recovery in 2021 and a slow return to normal since 2022. In China, the suspension lasted longer, and activities resumed in late 2022. On the Mekong, the pandemic led to an entire shutdown of both passenger and freight IWT for more than a year. In Europe, the pandemic also triggered a complete standstill of river cruises and a drastic limitation of other passenger IWT, but freight IWT was viewed as an essential service and continued at a slower pace, with supply chain disruptions.\textsuperscript{69} On the Amazon, where IWT represents more than 85 per cent of inland passenger and freight transport, freight transport continued, but passenger transport was limited
to essential services (firefighters, police and medical emergencies) and only exceptionally authorized for regular passenger transport, with just 40 per cent of vessel capacity.\textsuperscript{70}

57. For IWT workers, the main impacts of the COVID-19 pandemic are presented below.\textsuperscript{71} Many measures imposed to limit the spread of the disease were country-specific and, at least initially, uncoordinated at regional level and without due consideration for the specific situation of IWT workers.

- **Impact of travel restrictions:**
  - Travel restrictions (including quarantines) caused lengthy waiting times and control procedures at borders. Crew changes were disrupted, with numerous IWT workers being stranded on board vessels for extended periods. Many were denied shore leave, including for access to medical care, medicines, food and other essentials.
  - Certain river commissions adopted a common attestation for work-related travel to facilitate smoother border crossings and crew changes. Some countries temporarily authorized derogations to the legal framework on safety and working conditions, suspending compliance with working time and Manning requirements.

- **Impact of strengthened occupational safety and health (OSH) measures on board:**
  - IWT workers had to be provided with personal protective equipment (PPE) and access to clean and disinfected facilities. Processes to avoid contamination, such as strict isolation and quarantine measures, were hard to implement in the confined environment of vessels.

- **Impact on income and social security:**
  - River cruise workers experienced a complete cessation of work for a minimum of one season, with sporadic financial assistance provided by the government or employer. However, seasonal and foreign hospitality staff did not always receive support and sometimes lost their jobs. Some seasonal workers in passenger IWT were stranded in their host countries without income, protection, transportation, shelter, medical care, or food. The pandemic heightened the vulnerability of seasonal workers, who typically have limited social security coverage and inadequate access to healthcare for themselves and their families.\textsuperscript{72}

58. The COVID-19 crisis negatively affected employment. In 2020, IWW passenger transport in Europe fell 9 per cent compared to 2019. Available figures appear to indicate a slow return to the pre-COVID-19 situation.\textsuperscript{73} In the United States and Europe, the volume of goods transported has recovered in part. The pandemic accelerated the retirement of some vessels, but did not affect the number of bankruptcies.\textsuperscript{74} The total number of workers employed in transportation seems to

\textsuperscript{70}“Coronavirus: l’Amazonie coupée du monde sans transport fluvial”, Le Point, 7 April 2020.


\textsuperscript{73}CCNR, Annual Report 2022, 111 and 121.

\textsuperscript{74}CCNR, Annual Report 2022, 114. State aid and suspension of loan payments by banks helped enterprises to survive the crisis. Also, the strong boom in recent years has provided the river cruise industry with financial reserves.
be progressively recovering from the decline in 2020. In the United States, the number of people employed in IWT increased 1.8 per cent on average between 2018 and 2023.

4. Other sectoral trends and developments

4.1. Scale increase

Economies of scale also apply to IWT, and more specifically in the context of vessel size. The scale of barges has progressively increased over the years and this trend continues. IWT in Europe and China show that where infrastructure and regulation allow, the average size of IWW vessels is increasing over time. The scale increase of vessels may, on the one hand, be due to poor business environment conditions making it unfeasible to maintain the operation of small and medium-sized enterprises (SMEs) unless they reach significant scales to have some market control. On the other hand, scale increase can largely be explained by increase in productivity (larger volume of cargo transported with the same crew size; increased fuel efficiency, optimized (un)loading time in ports) as well as technological advances of IWW vessels and better conditioning of cargo. This is necessary to keep IWT competitive vis-à-vis road and rail transport.

The increased fuel efficiency leads to a smaller ecological footprint (the less fuel is consumed, the fewer air pollutants and GHGs are emitted). At the same time, the navigation of larger vessels is more complex.

Scale increase in IWT creates a competitive disadvantage for smaller vessels, with the related consequences for the MSMEs involved. A reduced number of smaller vessels would however result in a reduced service on smaller waterways, which would make IWT more vulnerable to climate change, as large vessels become inefficient in periods of low water. In the long term, climate change will require the continued ability of vessels to operate on smaller IWW.

The increase of scale of IWW vessels may affect IWT personnel:

- an increase in average vessel size reduces the overall number of personnel needed;
- larger vessels require better crew navigation skills, as their steering is more challenging;
- larger vessels can potentially provide better accommodation for crew members;
- larger vessels tend to operate around the clock, with crew members working in multiple shifts.

4.2. Re-registration

Re-registration is a trend in the formal economy involving the reflagging of a vessel or relocation of an enterprise’s headquarters to a country where there are less corporate taxes, social charges,

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77 The average loading capacity of Rhine cargo vessels was around 1,500 tons in 2020, compared to 1,090 tons in 2005 (CCNR, *Annual Report 2022*, 91). In China, the average deadweight tonnage (dwt) increased much faster – more than tenfold between 1995 and 2018 (Aritua, 68) – due to the numerous newly built vessels entering the IWT fleet each year. Worldwide, where IWT fleets increase rapidly in size, the average vessel size surges.
78 DST et al., *Study to examine the need for supportive funding for small and structurally optimized inland vessels: Executive summary*, 2022, 1.
79 STC-NESTRA, “GHG emission factors for IWT” (Rotterdam, 2018), 17.
80 DST et al., 1.
technical requirements or inspection duties on the vessel, thus reducing regulatory or fiscal pressure.

63. Reflagging is a well-known phenomenon in maritime transport. In IWT, reflagging is more circumscribed, for two main reasons:

(i) Whereas the sea is an open space accessible to all flags, this is rarely the case on IWW.81 On national waterways (for instance, in China and the United States), IWW are often restricted to national flags. On international waterways, access is typically restricted to the riparian States,82 or extended to the Member States of specific regional organizations.83

(ii) Whereas at sea States exercise jurisdiction over vessels flying their flag, this is not necessarily the case in IWT. For instance, within the EU, the social rules applicable are those of the State where the worker carries out the substantial part of their activities,84 a criterion that is difficult to apply to cross-border IWT workers. However, where uniform safety-related requirements are adopted by the relevant river commission, they systematically apply to the crew, regardless of the flag (for example, on the Rhine). On other IWW, where a certain level of harmonization of technical requirements is achieved, the impact of re-registration is limited.

64. On IWW without uniform or harmonized regulations, where it is the law of the flag State that applies, reflagging changes not only the corporate and tax rules applicable to the concerned vessels, but also the labour and social protection ones, which can sometimes have negative consequences for IWT workers.

65. For instance, in Latin America, most vessels on the HPP are registered in Paraguay or the Plurinational State of Bolivia for fiscal or social reasons, countries where there is no sectoral social dialogue or collective bargaining, workers do not benefit from a minimum wage, and shortcomings have been reported in practice concerning the provision of food and water, PPE, minimum rest and Manning.85 Reflagging also leads to reduced job opportunities for qualified IWT workers originating from other countries, since the law of the flag State typically requires that a certain proportion or certain ranks of the nautical crew be nationals.

66. In Europe, since the 2004 enlargement of the EU,86 some vessels on the Rhine, especially river cruise vessels, have been reflagged in Malta and Switzerland, and some enterprises relocated to Cyprus.87 Thus, out of 378 European river cruise vessels in 2019, 172 fly the Swiss flag, followed by Germany (53), Malta (43), France (41), Netherlands (41) and Portugal (19).88 On the Danube, where navigation is open to all flags, vessels flagged in the Democratic Republic of the Congo, Marshall Islands or Panama have been reported.

67. The phenomenon of reflagging is facilitated by the absence of a requirement for a genuine link between the owner/operator of the IWW vessel and the flag State.

81 The Danube and the Moselle are exceptions, both being accessible to all flags.
82 Initially on the Rhine and currently on the HPP.
83 On the Rhine since 1985 (access granted to EU Member States); and on the Congo (access granted to Member States of the Central African Economic and Monetary Community (CEMAC).
85 Canessa and Brunet, 15–18, 39 ff., 44–46, 48 ff, 54, 57 ff.
86 According to the ETF, about 50 vessels/year were reflagged in the 1990s, as opposed to 250 in 2013.
87 Malta and Cyprus are usually viewed as open registries for the flagging of maritime vessels.
4.3. Migrant workers

Migrant workers are workers engaged in a remunerated activity in a State of which they are not a national. According to the 2022 Global estimates of modern slavery, migrant workers are three times more at risk of being in a forced labour situation than non-migrant workers (see Chapter 3, section 4). This vulnerable group of workers calls for special consideration and scrutiny.

In IWT, in regions where the law of the flag State is applicable, non-resident workers may be entitled to only marginal or basic social security protections, if any. In regions where the applicable law is that of the State where the workers carry out the most substantial part of their activities, non-resident IWT workers, who are mostly seasonal workers, may often fail to reach the minimum qualifying conditions to be eligible for benefits or may only qualify for short-term benefits, such as sickness or maternity benefits, but not for old-age or invalidity pensions. This is linked to the fact that contributory social security schemes, also referred to as social insurance mechanisms, are collectively financed mechanisms based on social solidarity, the application of which is generally territorial. They are usually conceived to cover those who reside and work in the country.

To tackle this limitation and the possible resulting gap in social security protection, the MLC, 2006, establishes the obligation for ratifying States to ensure that seafarers ordinarily resident in their territory but working on board ships flying a foreign flag “are entitled to benefit from social security protection no less favourable than that enjoyed by shoreworkers” (Regulation 4.5(3) and Standard A4.5(3)). It also puts the primary responsibility on ratifying flag States to ensure decent working and living conditions for all seafarers working on board their ships. Unlike seafarers, IWT workers are not protected by an international standard like the MLC, 2006, aimed at addressing the shortcomings existing in national law and practice. Moreover, in the absence of formal social security agreements or arrangements, coverage by the State of origin where IWT have their ordinary residence is made challenging, as the legal basis for collecting contributions from foreign employers is often missing. In this regard, it may be useful to recall that Standard A4.5(4) of the MLC, 2006, provides that “Members may determine, through bilateral and multilateral agreements and through provisions adopted in the framework of regional economic integration organizations, other rules concerning the social security legislation to which seafarers are subject”.

At the regional level, wages for the same work on an IWW vessel in Europe may vary from €600 to €3,000. This substantial regional disparity in potential earnings leads to a considerable migration disparity of migrant workers from Central and Eastern Europe to Western Europe (share of foreigners among IWT workers is 34.7 per cent in Germany (freight), 41 per cent in Austria and 99.5 per cent in Luxembourg (freight)). Migrant workers, especially in construction and transport, may earn less than local workers in the host countries. To exploit the wage differences, the practice may involve hiring workers from an undertaking established in a low-cost labour country to work at a user undertaking located in a country with higher social standards. The recruited workers are typically low-skilled EU citizens from Central and Eastern Europe or non-EU citizens, working either as boatmen or as cabin crew (seasonal workers). Directive (EU) 2018/957 seeks to tackle the issue of posted workers (workers who, for a maximum of 12 months, carry out work in the territory of a State other than where they normally work). They are governed by the

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90 CCNR, Thematic Report, 6.
91 CCNR, Thematic Report, 9.
labour law of the posting State (where the undertaking is established) but benefit from the core conditions of employment of the host State, such as working time and remuneration. While posted workers were only guaranteed the minimum wage rates of the host State, they are now entitled to domestic wages established through collective bargaining.\textsuperscript{92} Multinational crews on river cruise ships appear to be particularly vulnerable, with recent inspections revealing serious labour violations and unacceptably low wages.\textsuperscript{93}

72. On the HPP, the Bolivian seafarer’s book does not enjoy significant recognition, resulting in a lack of hiring of Bolivian seafarers by foreign companies operating under the Bolivian flag. This situation leads to the migration of Bolivian seafarers (including IWT workers) towards other countries in the region.

73. In the Lower Mekong subregion, big differences in wealth among riparian States encourage the labour migration of low-skilled workers. Lack of clear labour rights, not to mention the absence of enforcement, are conducive to labour exploitation of these migrant workers, including an unsafe work environment. Forced labour and trafficking in persons still appear to occur occasionally.\textsuperscript{94}

4.4. Hydropower development

74. The development of hydropower can be beneficial for IWT. Reliable and efficient navigation to Basel, Switzerland, subsequently enabling its port to move 50 per cent of Swiss foreign trade, would not have been possible without regulation of the Rhine via hydropower development.\textsuperscript{95} In China, since the late 1980s, hydropower and IWT development have gone hand in hand, allowing it to become the largest IWT nation in the world.\textsuperscript{96} In the United States, the many dams in the Mississippi basin, initially built to generate hydropower, support an inland navigation system that creates more than $13 billion of net benefits for society.\textsuperscript{97}

75. Hydropower requires the construction of dams to increase water level and water storage, which is essentially positive for inland navigation. However, if dams are not equipped with ship locks or lifts, they may block inland navigation (for example, on the Paraná or the Ganges rivers\textsuperscript{98}). They may also interrupt sediment transport, which in turn leads to erosion of riverbeds, with negative hydrological and ecological impacts downstream, including for ports and navigation. Dams can further disrupt the migration of fish, affecting the livelihood of large populations, and can cause the massive displacement of indigenous peoples (for example, on the Mekong).\textsuperscript{99} Thus, the negative effects of dams must be considered and mitigated as much as possible during their planning, design, construction and operation, to ensure that their impact overall, and on navigation, remains positive (see the \textit{Study on the Sustainable Management and Development of the Mekong River Basin including Impacts of Mainstream Hydropower Projects}\textsuperscript{100}).

\textsuperscript{93} Articles on Bavarian television website and Nautilus International website.\textsuperscript{94} Jorge Soutullo Sanchez. \textit{The Mekong River: geopolitics over development, hydropower and the environment}, European Parliament Study, 2019, 35 ff. See also, the ILO Mekong Sub-Regional Project to Combat Trafficking in Children and Women.
\textsuperscript{95} Hans-Ulrich Schiedt, \textquote{Schiffahrt}, in \textit{Historisches Lexikon der Schweiz HLS}.
\textsuperscript{96} Aritua, 48.
\textsuperscript{97} See US Army Corps of Engineers Institute for Water Resources website.
\textsuperscript{98} Aritua, 108.
\textsuperscript{99} Soutullo Sanchez, 9, 29 ff., 36, 48 ff.
\textsuperscript{100} MRC, The Study, Chapter 9.
76. Constructing dams for hydropower, irrigation or flood control can significantly change the way navigation is conducted. Higher water levels and more steady water flows allow larger vessels to operate and reduce adverse seasonal effects on navigation. On the other hand, they also create new risks. IWT workers need to acquire the knowledge and skills to handle larger vessels, to safely operate vessels in ship locks and lifts, and also to understand the operation of dams, in particular their impact on the water flow regime.

77. The International Energy Agency (IEA) foresees roughly a doubling of hydropower generation by 2050, mostly in Africa, Asia and Latin America. Should the construction of the relevant dams consider the needs of the sector, IWT could experience a significant boost on the affected waterways.

101 IEA, table 6.1, 281.
Chapter 3: Opportunities and challenges for decent and sustainable work

1. Governance framework

78. The governance of IWW typically involves river commissions. Historically, they were focused on IWT, with the riparian States as members, but later, river commissions covering other IWW uses emerged, extending membership to all States of the watershed. They may also have institutional relations with regional integration organizations.

79. Member States entrust the river commission with missions aimed at organizing and monitoring freedom of navigation on the IWW. Access to the waterway is usually granted, for international transport operations, to vessels flagged in a State party; less commonly for national transport operations (for example, the Rhine) and rarely to vessels flagged in a non-State party (for example, the Danube). Such treaties may greatly impact the dynamism of IWT (for instance, traffic doubled in Thai ports following the conclusion of the Quadripartite Agreement).

80. Freedom of navigation entails duties for riparian countries:
   (i) non-discrimination of foreign vessels regarding tariffs and navigation fees;
   (ii) safety on their IWW section through proper maintenance of the infrastructure and adoption of a regulatory framework.

81. River commissions help coordinate efforts in these domains, including tariffs and navigation fees, infrastructure, safety, and, rarely, social standards and rules. Some have decision-making powers, at times combined with a transnational administration for their application, while others can only adopt non-binding recommendations or master plans.

Table 3.1. Main IWW sector-specific instruments and initiatives with a bearing on the labour conditions of IWT workers and their international or regional custodian institutions

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<tr>
<th>International or regional institutions</th>
<th>Member States</th>
<th>Main relevant IWW instruments</th>
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<td>ILO</td>
<td>187</td>
<td>Non-binding:</td>
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<td>• Hours of Work (Inland Navigation) Recommendation, 1920 (No. 8) ¹</td>
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<td>• Inland Transport Committee (ITC) (1945-1992) resolutions and conclusions pertaining to the IWW sector and outcomes of global meetings ²</td>
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¹ The MRC for the Mekong, CICOS for the Congo.

² Institutional relations of European river commissions with the EU, of CICOS with CEMAC in Central Africa, of the MRC with the Association of Southeast Asian Nations (ASEAN) in South-East Asia, and of the HPP with MERCOSUR in Latin America.

³ Starr, 26.
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<tr>
<td><strong>Economic Commission for Europe (ECE)</strong></td>
<td>56 (in Europe, Central Asia and North America)</td>
<td><strong>Non-binding:</strong></td>
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<td>- ECE resolution No. 24 (Rev.6): European Code for Inland Waterways – CEVNI (2021)</td>
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<td>- ECE resolution No. 90 (Rev.6): European Code for Signs and Signals on Inland Waterways – SIGNI (2019)</td>
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<th>EU</th>
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<td>- Implementing Regulation 2020/182 on models in the field of professional qualifications in inland navigation</td>
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<td>- Directive 2020/12 supplementing Directive 2017/2397 as regards the standards for competences and corresponding knowledge and skills, for the practical examinations, for the approval of simulators and for medical fitness</td>
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|    |    | - Council Directive 2014/112/EU implementing the European Agreement concerning certain aspects of the organization of working time in inland waterway transport, concluded by the

**Depositary function of the ILO:**
- Agreement concerning the Social Security of Rhine Boatmen (Rhine Agreement). ³
- Agreement concerning the Conditions of Employment of Rhine Boatmen, 1954. ⁴
- European Agreement concerning the Social Security of Boatmen engaged in Inland Navigation, 1993. ⁵
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<tr>
<th>International or regional institutions</th>
<th>Member States</th>
<th>Main relevant IWW instruments</th>
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</table>
| Central Commission for the Navigation of the Rhine (CCNR) | 5 (Belgium, France, Germany, Netherlands, Switzerland) | European Barge Union (EBU), European Skippers’ Organisation (ESO) and European Transport Workers’ Federation (ETF)  
- Council Directive 87/540/EC on access to the occupation of carrier of goods by waterway in national and international transport and on the mutual recognition of diplomas, certificates and other evidence of formal qualifications for this occupation  
- Rhine Vessel Inspection Regulations (2011) as amended up to 2016 (RVIR)  
- Regulations for Rhine navigation personnel (2010) as amended up to 2016 (RPN)  
- Police regulations for the navigation of the Rhine (1995) as amended up to 2022 (RPR)  
- European Standard for Qualification in Inland Navigation (ES-QIN) adopted by the European Committee for drawing up Standards in the field of Inland Navigation (CESNI)  
- European Standard laying down Technical Requirements for Inland Navigation vessels (ES-TRIN) adopted by CESNI |
| Danube Commission (DC) | 11 (Austria, Bulgaria, Croatia, Hungary, Germany, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Ukraine) | Non-binding:  
- Basic rules of navigation on the Danube (BRND) and Special application recommendations (2018)  
- Recommendations on technical requirements for inland waterway vessels (2014)  
- Recommendations on boatmaster’s certificates (2012)  
- New version of the model of a service record (2011)  
- Recommendations on vocational education and training of inland waterway operators (2010) |
| International Sava River Basin Commission (ISRBC) | 4 (Bosnia and Herzegovina, Croatia, Serbia, Slovenia) | Binding:  
- Decision 32/07 on Rules on Minimum Requirements for the Issuance of Boatmaster’s Licenses on the Sava River Basin (2007) |
2. Social dialogue and tripartism

82. Social dialogue includes all types of negotiation, consultation and exchange of information among representatives of governments, employers and workers on issues of common interest relating to economic and social policy. It is based on respect for freedom of association and the effective recognition of the right to collective bargaining. These fundamental rights, set forth in the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), and the Right to Organise and Collective Bargaining Convention, 1949 (No. 98), cover all workers in all sectors, including in IWT.

83. Social dialogue and tripartite cooperation among governments and workers' and employers' organizations in the elaboration of policies constitute one of the pillars of the ILO Decent Work Agenda and lead to the tangible improvement of living and working conditions. The social partners, including at the sectoral level, have a crucial role to play in adjusting the changing world of work forged by new trends on the labour market, such as digitalization and greening, while ensuring social justice and democracy at work. The social partners help to find balanced solutions
in times of change or even crisis, as illustrated during the COVID-19 pandemic.\textsuperscript{105} The \textit{Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy} (MNE Declaration) also serves as a framework for social dialogue at the sectoral, national, regional and international levels (provisions on employment, training, living and working conditions, industrial relations, regional tripartite dialogue platforms, tripartite appointed national focal points).

84. At the international level, the sectoral global union federation the ITF represents the interests of transport workers, including IWT workers. The International Organisation of Employers (IOE) represents the interests of employers, including in the IWW sector. In merchant shipping, the International Chamber of Shipping represents shipowners, including owners of river-sea vessels, which, however, fall outside the remit of this report (see Background).

85. At the regional level, within the EU framework, sectoral social dialogue is conducted by the European Sectoral Social Dialogue Committee for IWW. The social partners are ETF, representing workers, and ESO and EBU, representing employers. Through social dialogue, the social partners seek to promote decent work in IWT, in particular as regards working time, harmonization of qualifications and manning requirements, social security and on-board working and living conditions. One of the key achievements of the European social dialogue partners in the sector is the conclusion of the European Agreement concerning certain aspects of the organization of working time in IWT, later integrated in the binding \textit{EU Directive 2014/112/EU} implementing the aforementioned European Agreement. No other regional social dialogue committees specific to the IWW sector have been identified.

86. At the national level, the degree and quality of the involvement of social partners varies considerably among countries.\textsuperscript{106} Member States need to ensure the consultation of social partners on the design and implementation of all economic, productive, environmental, employment and social policies relating to IWW. The large share of microenterprises and the high number of enterprises and workers in the informal IWW sector, may render their inclusion or representation in social dialogue processes all the more difficult.

3. \textbf{Sustainability of employment}

3.1. \textbf{Just transition}

87. IWT is a mode of transport with high levels of energy efficiency and lower CO\textsubscript{2} emissions than other modes, and with a close link between maritime and IWW in global supply chains. Unlike shipping, the IWW sector is not subject to the environmental regulations of the International Maritime Organization (IMO). There is no comprehensive IWT-specific ILO instrument providing for an international level playing field regarding labour conditions, and there is room for improvement as regards the implementation of the existing generally applicable ILO Conventions covering all aspects of decent work in the IWW sector (see Chapter 3, sections 5 to 9). A move towards greening the fleet while harnessing the full potential of IWT to free up congested roads and rail corridors needs to be accompanied by measures to ensure a safe and productive industry with decent living and working conditions for IWT workers.

\textsuperscript{105} Joint Open Letter to United Nations agencies from the global maritime transport industry (19 March 2020) and other COVID-19 responses by the international social partners in the shipping sector; EBU, ESO and ETF, European Social Partners for Inland Waterways Transport launch urgent COVID-19 recommendations, 31 March 2020.

\textsuperscript{106} For example, in France, the \textit{national collective agreement for IWT personnel} is in force (unlimited duration) and provides for yearly wage negotiations between the social partners.
88. Policies aiming at the reduction of GHG emissions need to be progressive and pursue a human-centred approach. In the 2015 Paris Agreement on climate change, recognizing the impact of climate mitigation measures on the world of work, governments committed to take into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs. The ILO tripartite constituents agreed in 2015 on Guidelines for a just transition towards environmentally sustainable economies and societies for all, which are relevant in all sectors (including IWW) and outline principles and potential entry points to promote a just transition. In its related 2023 resolution concerning a just transition towards environmentally sustainable economies and societies for all, the International Labour Conference endorses the Guidelines and calls for their accelerated implementation by promoting inclusive, sustainable and job-rich economies; advancing social justice; managing the process of just transition; and financing a just transition.

89. The transition of the sector towards reducing GHG emissions will involve the introduction of measures and policies which will undoubtedly impact the workforce. Skill mismatches and widening skill gaps are identified as major obstacles to the greening of enterprises, notably in non-energy-related sectors. The implementation of green processes entails training needs, which should be considered when formulating skills development policies. The importance of social dialogue at all levels cannot be overstated in this regard. Climate change has enlarged the traditional areas of negotiation between the social partners in many national and international contexts. A just transition involves gradually phasing out high-carbon imprints and transitioning to low-carbon practices, while at the same time ensuring that workers are not left behind but are an integral part of the transition process.107

90. Technological innovation will continue to have profound impacts on IWT personnel. Albeit gradual, the speed of implementation is higher than in the past. Technology will increasingly assist IWT workers in performing their tasks. The required professional competences will evolve and become more demanding. With the introduction of remote control of IWW vessels, they may migrate from vessel to shore. Personnel would no longer be socially separated by being on board over extended periods, improving their work–life balance and making the sector more attractive, particularly for workers with family responsibilities. On the one hand, remote control of IWW vessels can thus help to alleviate the deficit of IWT personnel and reduce the barriers for women’s employment in the industry,108 and might simplify access to social security, such as in the case of cross-border IWT. Technological advances and skilled workers could also contribute to creating employment in IWT, by rendering the sector more competitive than other methods of transportation and making it grow.

91. On the other hand, automation is expected to reduce the number of jobs in the long run, mainly those requiring lower skills.109 In this regard, evidence from 13 countries shows that the sector is dominated by workers with either a basic or intermediate level of education. The combined share of workers with a basic or less than basic level of education accounts for more than a third of the workforce in most of the countries (figure 3.1).

107 ILO, Greening Enterprises Transforming processes and workplaces, 2022, xix–xx.
Figure 3.1. IWT employment by level of education

![Bar chart showing IWT employment by level of education for various countries](chart.png)


92. Country examples (14) also show that IWT workers with medium-level skills\(^\text{110}\) account for more than half of the workforce in most countries. In some countries in Southeast Asia, the proportion of IWT workers with low skill levels is considerable, ranging from 20 to 40 per cent:

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\(^{110}\) Skill level is defined according to the complexity and range of tasks and duties to be performed in an occupation (see International Standard Classification of Occupations (ISCO)).
Figure 3.2. IWT employment by skill level


93. Future-proof vocational training, education and human resources policies should therefore enable IWT workers and enterprises to adapt to the energy transition and to an increasingly digitalized environment and gradually automated navigation by ensuring that the workforce matches the needs of the labour market and that it benefits from lifelong learning, training and retraining, as well as reskilling and upskilling. IWT workers will indeed need to be trained on how to use new methods of on-board propulsion, handle new low- to zero-carbon fuels, as well as adjust to working on zero- or low-emission vessels, and meeting the additional safety measures and other requirements this may involve.

94. In the shipping industry, in view of training needs associated with the use of alternative fuels and new technology relating to ship propulsion and thus safe operation and navigation, efforts are under way to establish “national maritime skills committees” aimed at ensuring tripartite national sectoral discussion of developing skills to ensure a just transition for seafarers.111 This initiative could serve as an inspiration for the IWW sector and could include IWT workers. Sector skills bodies for IWT could play a role in understanding the future skill needs of the IWW sector,

111 The United Kingdom Maritime Skills Commission is already active.
addressing skill gaps, considering skills solutions to address the impact of new technology and automation, and promoting government and industry skills initiatives. These bodies should also consider the needs of those operating small vessels or employed by microenterprises to ensure a just transition for all IWT workers and leave no one behind.

3.2. Formalization

95. Two billion workers (61 per cent of the global workforce) earn their living in the informal economy, which encompasses 80 per cent of enterprises worldwide (90 per cent of micro and small enterprises). The share of informal employment ranges from 18.3 per cent in developed countries to 67.4 per cent in emerging countries and 89.8 per cent in developing countries.113

96. In IWT, significant informal activity is known to exist in Africa, Asia and Latin America. Indeed, according to ILO estimates (figure 3.3), the share of workers with informal jobs was more than two thirds in almost all countries sampled. For example, most workers in Colombia – 88 per cent of the total workforce – perform work informally (48 per cent of the IWT workforce are employees and 49 per cent own-account workers). Pakistan is an exception, with 76 per cent of the workforce in formal employment (87 per cent of the workers are engaged as employees) (see Chapter 1, section 3):

![Figure 3.3. IWT employment by nature of the job](https://ilostat.ilo.org)


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114 ECLAC, FAL Bulletin, 8.
97. The majority of IWT workers work in informal enterprises. Country examples show that at least half of the workers in Bangladesh, the Plurinational State of Bolivia, Colombia, Egypt, Myanmar, Peru, Thailand, and Viet Nam work in the informal IWW sector (figure 3.4).

Figure 3.4. IWT employment by unit of production\(^{115}\)

![Graph showing IWT employment by unit of production](image)


98. In 2015, the ILO adopted the *Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204)*, which provides guidance on policies and measures to facilitate the transition. In addition to employees, workers in the informal economy also include contributing family workers and own-account workers, which form an important part of the IWT workforce.

99. Formalization entry points include: (i) coordinated policies aimed at providing incentives, including tax incentives, for the formalization of micro and small enterprises, combined with training, education and skills development policies that support lifelong learning and recognize prior learning;\(^{116}\) (ii) legislative frameworks effectively adapted to the various categories of workers operating in the informal economy, through properly enforced laws and regulations aiming to achieve decent work and to respect, promote and realize fundamental principles and rights at work; and (iii) social protection floors designed and implemented so as to promote the

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\(^{115}\) Unit of production maps persons in the informal or formal sector based on the 15th ICLS, the 17th ICLS and the document *Measuring informality: A statistical manual on the informal sector and informal employment*, 2013. We define whether the person works in the formal sector (all workers in incorporated enterprises), or the informal sector (all workers in unincorporated enterprises that produce at least partly for the market and are not registered). See also ILOSTAT Microdata Processing Quick Guide, 2018.

\(^{116}\) ASEAN, *Vientiane Declaration on Transition from Informal Employment to Formal Employment towards Decent Work Promotion in ASEAN*, 2016.
progressive extension of social insurance to all workers with contributory capacity, for example via incentivization or subsidization of contributions (see Chapter 1, section 3). In addition, an enabling business environment is crucial to achieve a more developed sector, offering better jobs and contributing to economic growth.

100. Workers in the informal economy also need to be guaranteed their fundamental rights to organize and to bargain collectively, to have their voice heard. Any obstacles, formal or practical, to their exercising their right to freedom of association, need to be cleared. Their effective representation allows for participation in negotiations and collective bargaining, which are key drivers of formalization and enablers of decent work, and their active participation in social dialogue is essential to inform national formalization strategies and influence decision-making processes. In this regard, most representative workers’ organizations should seek to represent the interests of workers in the informal economy, and employers’ organizations should strive for the formalization of informal enterprises. Social dialogue between governments and workers’ and employers’ organizations should be the vehicle to tackle informality among workers and microenterprises.

101. In addition to efforts directed at the economy as a whole to promote transitions from the informal to the formal economy, a sectoral approach focusing formalization efforts on IWT, if considered an especially vulnerable, growth-oriented, and/or receptive sector, would allow prioritization of the IWW sector and ensure a targeted and well-adapted application of formalization methods.

3.3. Attraction and retention

102. As vessels grow in technical complexity, the IWW labour market suffers from a shortage of qualified staff, including women and younger professionals, compounded by the increasing average age of IWT workers (especially self-employed) in certain regions, such as Europe.

103. Reasons for the workforce shortage include more severe working conditions compared to other sectors (including long working hours and prolonged absences from home due to working periods with continuous journeys), low wages, the image of the IWT sector, insufficient social protection, and the lack of harmonization of qualifications. The attractiveness of the sector for jobseekers is a matter of joint concern to employers’ and workers’ organizations, which opens gateways for effective bipartite and tripartite social dialogue.

104. To respond to these challenges, it is imperative to develop policies aimed at improving the image and visibility of the IWW sector, making the profession attractive for younger workers by securing decent working conditions, actively promoting employment opportunities for women in the sector, and increasing the mobility of workers.

105. Training is viewed as a key factor to address the constant shortage of personnel. It facilitates cross-border recognition of professional certificates, which in turn eases the mobility of workers. It is also the main driver to change the image of the profession and encourage young people to choose IWT as a modern and dynamic sector offering viable and diverse career opportunities.

117 ASEAN Members were encouraged to advocate strategies, for example, providing government subsidies/loans as an incentive for informal workers, including self-employed workers and micro-entrepreneurs, to register workers or contribute to the voluntary social insurance system (ASEAN Declaration on Strengthening Social Protection: Regional Framework and Action Plan to Implement the ASEAN Declaration on Strengthening Social Protection, 2016, 5 and 17).

118 ILO, Conclusions concerning the promotion of sustainable enterprises, 2007, para. 11.


120 ECE, 2020, xii.
Training can develop the skills and employability of young people, offer better career prospects to all crew members, and facilitate the transition of experienced workers from other sectors.¹²¹

106. Most importantly, efforts to attract and retain workers need to include upping the social competitiveness of IWT by tackling decent work challenges and guaranteeing fundamental principles and rights at work in the sector, as well as adequate labour and social protection. In this regard, the importance of the role of governments to implement and enforce national law and promote decent working conditions in the IWW sector, and of the responsibility of enterprises to comply with national law in line with international labour standards, should be highlighted.

107. The margin for progress is proportionate to the importance of informality and the severity of decent work deficits currently observed in the sector, including with regard to migrant workers. For instance, the ETF regularly denounces abuses in the booming river cruise industry, such as scandals in 2018 and 2021,¹²² where random checks by river police in Germany and the Netherlands revealed excessive working hours of up to 100 hours per week, poor working and living conditions on board, and unacceptably low wages. It was established, for example, that 30 crew members on two river cruise vessels navigating the Danube were paid less than the prescribed minimum wage of €8.84 per hour (some receiving as little as €2.80 per hour), with a net monthly wage of €800 for 280 hours of work (€300 were deducted for board and lodging).

108. In July 2019, the EBU, ETF and IG RiverCruise signed an agreement, committing to work together on measures that support fair employment in the European river cruise sector. This is key to enhancing the attractiveness of this flourishing sector, where labour force shortage is a concern and the impact of the COVID-19 crisis on the labour market continues to be felt.¹²³

4. Fundamental principles and rights at work and international labour standards

109. Pursuant to the 1998 ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up, as amended in 2022, Members have an obligation, by virtue of their ILO membership, to respect, promote and realize the following core principles, regardless of ratification of the fundamental ILO Conventions in which they are expressed:

- freedom of association and the effective recognition of the right to collective bargaining;
- elimination of all forms of forced or compulsory labour;
- effective abolition of child labour;
- elimination of discrimination in respect of employment and occupation;
- a safe and healthy working environment.

110. Governments and social partners thus have a duty to ensure that fundamental principles and rights at work are applied to, and protect all those engaged in, the IWT sector. In this sense, governments need to pay greater attention to the mutually reinforcing nature of fundamental principles and rights at work as described below.

¹²¹ ECE, 2020, 57.
¹²² Articles on Bavarian television website and Nautilus International website.
¹²³ CCNR, Thematic Report, 16 ff.
- **Harnessing the essential role of social partners in the IWW sector**, taking into account ILO Conventions Nos 87 and 98.
  - No specific statistics as to unionization of IWT workers are available. According to the ITF, its IWT membership has almost doubled since 2015, due to a significant increase in the number of members in Asia and Latin America. It is also worth noting that the 2022 ITF Inland Navigation Section Conference brought together 110 unions from 65 countries representing more than 180,000 tug, towage, river cruise, ferry and other IWT workers.
  - Collective bargaining agreements are an important tool for determining working conditions in IWT, such as in several European and Latin American countries. They can also pave the way for consistent treatment for IWT workers, in particular in the river cruise sector.
  - Regarding industrial action, the ILO supervisory bodies have considered that "it should be possible for strikes to be organized by workers in both the public and private sectors in numerous services, including (...) transport services and public transport", as they are not considered as essential services, where the right to strike could be restricted or prohibited, because their interruption “would endanger the life, personal safety or health of the whole or part of the population”. Nonetheless, half of the countries covered in a recent ILO paper defined transport as an essential service. In Bangladesh, over 200,000 river transport workers called a nationwide strike in 2022, which ended, after months of negotiations, with improved pay and working conditions.

- **Pursuing equality of opportunity and treatment in IWT for women and men without discrimination of any kind**, taking into account the ILO Equal Remuneration Convention, 1951 (No. 100), and the Discrimination (Employment and Occupation) Convention, 1958 (No.111).
  - While women account for 39 per cent of total employment, they only make up 20 per cent of employees in the global transport sector.
  - The IWW sector is highly gendered, with 92 per cent of the workforce being male and only 8 per cent female (figure 3.5).

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124 Canessa and Brunet, 15–17; de Leeuw van Weenen, 33, 36, 42.
128 WMU, 47.
The small share of female employment in the IWT workforce is compounded by the fact that women partly hold informal jobs as contributing family workers.

It is worth noting that, according to national statistics, women account for 23 per cent of China's IWT workforce (212,491 female workers).  

Figure 3.6. Cause–effect relationship of poor retention of women in the transport sector

Efforts to tackle labour shortages in IWT need to include action to improve equality of opportunity and treatment between women and men in the sector. An essential element of promoting sustainable employment opportunities for women in IWT is to combat violence and harassment, one of the strongest factors pushing women out of the transport sector. In this regard, the recent adoption of the ILO Violence and Harassment Convention, 2019 (No. 190), is crucial.

At its 2022 Inland Navigation Section Conference, the ITF denounced the fact that sexual harassment had become a recurrent issue in the river cruise sector; testimonies highlighted that addressing sexual harassment cases was a major challenge for women in IWT, including inadequate measures to discontinue the situation, insufficient investigations and sanctioning of perpetrators, and victimization. In this regard, the European social partners of the IWW sector (EBU, ESO, ETF) expressed their commitment in the Joint Declaration of the Inland Navigation Social Partners for Elimination of Violence against Women and LGBTQI Workers in the Workplace (2018).

Furthermore, maternity discrimination in IWT was reported to compel women to decide between their career and having children, with some taking sick leave or being declared medically unfit, leading to a significant number of resignations after maternity breaks; for those choosing to stay, inadequate regulations hindered their seamless return to work at sea or their transition to shore. Other challenges include inadequate PPE and lack of provision for menstrual products and disposal devices on board.

- **Adopting measures to prevent and eliminate child labour in the IWW sector**, considering the ILO Minimum Age Convention, 1973 (No.138), and the Worst Forms of Child Labour Convention, 1999 (No.182). See Chapter 3, section 5.1.

- **Adopting measures to prevent and eliminate the use of forced or compulsory labour in IWT**, considering the ILO Forced Labour Convention, 1930 (No. 29), and its Protocol of 2014, and the Abolition of Forced Labour Convention, 1957 (No. 105).

The issue of forced labour and trafficking in persons in IWT should be highlighted. For instance, it was reported that, on the HPP, grain and tourist boats were used to transport girls, adolescents, and young people to locations on the Paraguay and Paraná rivers for the purposes of commercial sexual exploitation in tourist boats, making it a main route for this form of sex tourism (known as the *barqueritas* or boat girls), a criminal activity without an adequate response from the authorities. Moreover, severe decent work deficits on IWW vessels, blending excessive overtime, unacceptably low wages and abusive working and living conditions (see Chapter 3, section 3.3), can amount to forced labour for labour exploitation under specific circumstances.

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131 ITF, "Diverse in our work, united for change' - inland navigation unions hold successful conference in Amsterdam", press release, 11 December 2022.
132 Human Rights at Sea, “IWD: An Interview with India’s First and Only Woman Marine Pilot, Reshma Nilofer Visalakshi MNI” 7 March 2023.
• Promoting a safe and healthy working environment, considering the Occupational Safety and Health Convention, 1981 (No. 155), and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187).

  o Having been elevated to the fifth fundamental principle and right at work by ILO constituents in 2022, realizing the right to a safe and healthy working environment should be one of the priority aims of national policy, which will ultimately contribute to a decrease in the number of occupational fatalities, injuries, and diseases globally.

  o Recent major accidents in inland navigation have tarnished the image of the IWT sector as one of the safest modes of transport and has harmed the reputation of shipping as a whole. Some of the deadliest accidents involved ferries on lakes and rivers in Africa and Asia, for instance the Democratic Republic of the Congo (2022), Bangladesh (2021), Indonesia (2018), and the United Republic of Tanzania (2018).

  o On the one hand, reasons include overloading, unseaworthiness of vessels, poor safety measures, and lack of search-and-rescue and life-saving aid. On the other hand, accidents have also been linked to human factors. According to CICOS, more than 5,000 persons lost their lives in accidents on the Congo waterway network between 2008 and 2012 – approximately 30 per cent of incidents were caused by human error. The European IWW sector has experienced an increase in the number of accidents since 2014, with human factors accounting for 70–80 per cent of incidents. Among the most important root causes of accidents identified are fatigue and lack of skills, training, and communication.135 See Chapter 3, sections 5.3, 6.3 and 6.4.

5. Minimum requirements to work on board

5.1. Minimum age

111. ILO Convention No.138 applies to IWT. Under the Convention, the minimum age for admission to work is not less than the age of completion of compulsory schooling and, in any case, not less than 15. Under certain conditions, a minimum age of 14 years is acceptable. The minimum age for hazardous work is not less than 18 years (in certain exceptional cases 16). Member States must determine whether work or certain activities on board an IWW vessel are considered hazardous. The Minimum Age Recommendation, 1973 (No. 146), and the Worst Forms of Child Labour Recommendation, 1999 (No. 190), provide guidance to help make such assessments: lifting of heavy weights; handling of dangerous substances, agents or processes; work in confined spaces; work with dangerous machinery, equipment and tools; work in an unhealthy environment (temperatures, noise levels, or vibrations damaging to health); work under particularly difficult conditions (such as work for long hours, night work). ILO ITC resolution 26/1949 concerning protection of young workers on inland waterways adds the handling of winches and cranes, operations in navigation involving hazard, (un)loading, trimming, stoking and engineering operations.136

112. The resolution further recommends that, where the minimum age varies among riparian countries, intergovernmental agreements should establish the minimum age for operations on international IWW.

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113. In Europe, under the CCNR and DC, the minimum age to work on board is 16 (under the ISRBC it is 17); earlier entry is possible for apprentices as of the age of 15. In almost all EU Member States, national regulations offer special protection to minors, for example by prohibiting night work.

114. No minimum age for admission to work in IWT is stipulated at regional level in Africa, Asia, or Latin America. On the HPP, while some national regulations allow minors to work on board IWW vessels as apprentices (as of 14 or 16), others do not. In practice, the vessels sailing in the HPP do not appear to have minors on their crews. In Uruguay, transport activities on IWW have been included on the list of types of work that are hazardous by their nature and thus prohibited for minors.\(^\text{137}\)

115. In Asia, on the Lower Mekong, Thailand has shipping legislation applicable to IWT setting the minimum age at 16, while others have a minimum age of 15 or 14 under general labour laws. In addition, general labour laws prohibit minors from engaging in hazardous work; but it remains unclear whether certain countries have determined specific tasks on board IWW vessels to be hazardous. In China, the applicable Crew Regulations stipulate a minimum age of 18 (16 for apprentices).

5.2. Medical examination

116. The ILO ITC Conclusions (No. 114) concerning the working and social conditions of boatmen in domestic and international inland navigation emphasize that entrance and periodic medical examinations, attesting to fitness for work, are essential for IWT workers and should be carried out free of charge by doctors authorized by the competent authority and familiar with IWT, and recall that the ILO Medical Examination of Young Persons (Industry) Convention, 1946 (No. 77), applies to the IWW sector. Furthermore, IWT workers should not be required to undertake an HIV test or disclose their HIV status (ILO HIV and AIDS Recommendation, 2010 (No. 200)).

117. Under the ECE, EU, CCNR, DC and ISRBC frameworks, a valid health certificate indicating medical fitness (including vision and hearing), issued by an approved doctor, is required for crew members. The CCNR imposes strict criteria for physical fitness, vision and hearing, and lists diseases that may impair the boatmaster’s physical fitness. The EU, CCNR and DC regimes also call for a mental fitness examination.

118. In the EU, medical examination provisions have been harmonized and linked to the professional qualifications in IWT. Directive (EU) 2020/12 calls for national requirements to conform to medical fitness standards in ES-QIN, which specify the necessary medical tests and criteria for determining medical fitness, including vision, hearing and physical and psychological conditions that may render temporarily or permanently unfit, and are aligned with the ILO/IMO Guidelines on the medical examinations of seafarers (especially criteria applied to coastal services). A medical certificate model for inspecting fitness in IWT is provided. Frequency of certificate renewal varies among European countries, and only a few require regular renewal after entering the profession.

119. In Asia, on the Lower Mekong, a medical certificate is normally required for any workplace, including IWW vessels. Employees undergo a medical examination to ensure good mental and physical health before receiving the certificate.

120. In Latin America, all HPP countries require a medical certificate, following medical examination, to work on board. The frequency and scope of medical examinations differ. Hearing and vision examinations are required in all countries.

\(^{137}\)ILO, CEACR Observation Convention No. 182 Uruguay (2019).
121. Via resolution, the 1968 ILO Meeting on Conditions of Work in the Inland Water Transport Industry considered that there was an urgent need for the adoption of an international minimum standard on medical examination in IWT. It is worth noting that ILO Guidelines on the medical examinations of seafarers were adopted in 2011 and are currently under development for fishers, and may provide a source of inspiration for future guidelines for IWT workers.

5.3. Training and certification

122. The 1968 ILO Meeting on Conditions of Work in the Inland Water Transport Industry considered that vocational training in the sector should be at least equivalent to that provided in other industries, should enable IWT workers to develop their skills to the full, and should maintain and improve the efficiency and safety of the sector. It considered that certification was key for ensuring the safety of navigation and the protection of human life and the environment. Lack of skills and training (including the shortage of qualified personnel and limited retention training (for example, no periodical (re)training, limited knowledge of working with automation, no lifelong development)) was indeed identified as an important cause of accidents. In Africa, China and Europe, on the HPP and the Mekong, efforts are being made to generalize training and set common standards.

123. In Asia, the Mekong River Commission adopted a training plan in 2014 to help Member States to strengthen their institutional mechanisms and their capacity to effectively implement the MRC Navigation Programme. According to the 2009 Agreement on Waterway Transportation between Viet Nam and Cambodia, IWW vessels engaged in cross-border navigation must carry on board a crew list specifying the titles and professional certificates of each crew member. On the Lower Mekong, some countries have developed education and training programmes for IWT workers in deck and engine departments (for example, Thailand via shipping legislation).

124. In Africa, CICOS has created and directly manages a training school for IWT workers on the Congo. South Africa’s 2021 Inland Waters Strategy focuses on education via the launch of a nationwide training programme implemented by the competent maritime authority.

125. In Latin America, Regulations 12 and 13 annexed to the Santa Cruz de la Sierra Agreement harmonize qualification requirements by setting common standards for the training and certification of nautical crew. Moreover, HPP countries use the IMO International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), ratified by most HPP countries, as a common reference to design their training programmes. Interviewed crew members complained that Bolivian qualifications did not enjoy significant recognition in the regional context, resulting in a lack of hiring of Bolivian personnel by foreign companies operating under the Bolivian flag.

126. In Europe, IWW navigation schools and training institutes of various EU Member States and beyond have gathered in an educational network (EDINNA) to share and continuously upgrade their training programmes and curricula. In parallel, standards on qualifications, initially adopted at State or waterway level, have recently been harmonized at EU level through ES-QIN, which lays down detailed standards for competences required for the safe operation of the craft by crew

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138 INTERGO, 27.
139 Aritua, 4, 6, 71.
141 Centre régional de formation en navigation intérieure (Decision No. 04/CICOS/CM-05 of 13 December 2007). 
members at operational and management levels, as well as the corresponding knowledge and skills, standards for practical examinations and approval of simulators. ES-QIN contains model certificates in physical and electronic formats linked to the European Crew Database, see figure 3.7 for the model certificate for boatmasters.

**Figure 3.7. Certificate of qualification in inland navigation – Boatmaster**

127. The 1968 ILO Meeting on Conditions of Work in the Inland Water Transport Industry emphasized the need to adopt international instruments on vocational training and certificates of competency in IWT. Harmonizing qualification certificates promotes labour mobility, improves safety in IWT, and increases the sector’s appeal. Supporting the development of modern education and training programmes, adapting training to new practices, digital technologies and automation, and continuing to harmonize certificate issuance and recognition processes are important steps in this direction.143

6. **Conditions of service**

6.1. **Work agreements**

128. Work agreements are concluded between the IWT worker and the employer, which is either the vessel owner or a third party (such as an employment agency); in the latter case, the vessel owner should retain the ultimate responsibility in the event the employer fails to meet their obligations to the IWT worker. Work agreements set out the terms and conditions of employment. At a minimum, they must meet the conditions negotiated in any sectoral collective agreements, and they go a long way to empowering IWT workers and reducing their vulnerability.

129. The 1954 Agreement concerning the Conditions of Employment of Rhine Boatmen lays down certain minimum terms and conditions of employment. In 2013, the Swiss Federal Council considered that its provisions were still relevant for Switzerland, as a withdrawal would negatively impact the labour conditions of IWT workers on the Rhine, in view of the non-application of EU regulations and the lack of sector-specific national legislation.

130. Country examples show that the most common types of contracts are “Unknown” and “Permanent”. “Unknown” are contracts that are neither “Permanent” (without limit of time) nor “Temporary” (with a specific duration); they may be indicative of agreements per voyage or of diverse forms of work arrangements, especially in the context of high informality (figure 3.8).

143 ECE, 2020, 57.
131. In Europe, neither the ECE nor the river commissions have issued guidance concerning work agreements. The regulation of work agreements in IWT falls under the domestic ambit of each State. In passenger transport, nautical personnel usually work under a permanent contract of employment, whereas hospitality personnel usually work on the same vessel throughout the season under a seasonal contract.\(^{144}\)

132. On the Mekong (Asia), work agreements are governed by general labour law across economic sectors, including IWT. While work contracts are generally in writing, in certain circumstances they may be oral. There is no available data to estimate the percentage of the workforce holding a work agreement.

133. On the HPP (Latin America), contracts are generally freely entered into between vessel owners and crew members. Most countries have a sector-specific regulation. Contracts are typically temporary and limited to the duration of the trip or to a predetermined period. In Uruguay, contracts are collective, being signed by the owner and the workers’ representatives at the union of the branch of activity.

6.2. Wages

134. Wages are among the conditions of work that have the most tangible effect on everyday life since they are vital for the maintenance of workers and their families. Access to adequate and regular wages is key.

135. According to the ILO ITC resolution on industrial relations in inland transport (1947),\(^{145}\) governments should set up machinery whereby minimum wage rates can be fixed in branches of

\(^{144}\) Tournaye, 66.

inland transport services, where there are no arrangements for effective regulation via collective bargaining agreements. Furthermore, account should be taken of the need to enable IWT workers to maintain a suitable standard of living.

136. In several European countries, collective agreements represent an important tool for determining the working conditions of IWT workers, including wages (for example, France and Germany). It is worth noting, however, that there is a significant wage gap between Central and Eastern Europe on the one hand (wages of €600–€1,000, usually below the average wage levels in the national economy or transport sector), and Western Europe on the other (for example, monthly gross median income for IWT workers in Germany of €2,780–€2,917 in 2017).146

137. In Asia, on the Lower Mekong, general labour laws ensure that every worker receives a minimum wage to provide for their basic livelihood. In some countries, a national tripartite body determines the minimum wage rate; but in practice, only priority economic sectors enjoy its benefits, except for Thailand where it applies to IWT. In Bangladesh, the adjustment of the inadequately low minimum wage was the main demand during nationwide strike action in 2022, which resulted in a 60 per cent pay rise for 200,000 riverboat workers.147 In China, the applicable crew regulations prohibit deductions from wages and prescribe the minimum wage fixed by the local government where the employer is located.

138. In Latin America, national laws stipulate a minimum wage for all workers, which also applies to IWT workers. Wages are typically stipulated in the work agreement, and can take various forms (fixed sum, per trip, for a set period of time, or share of freight/profits). Uruguay has a unique system of tripartite and joint salary councils, where minimum wage increases are negotiated in commissions by activity branch. In Argentina and Brazil, salary increases are determined through collective agreements negotiated between industry-specific employers and unions.

6.3. Working time

139. The regulation of working time is one of the oldest concerns of labour legislation and seeks to safeguard workers' physical and mental health. It also addresses the risk of fatigue,148 which is a contributory factor to, or root cause of, many accidents in IWT.149

140. At the international level, the Hours of Work (Inland Navigation) Recommendation, 1920 (No. 8), is the only international labour standard specific to the IWW sector. This brief non-binding instrument provides that each ILO Member should enact legislation to limit the hours of work of IWT workers “in the direction of” 8 hours per day or 48 hours per week. Riparian ILO Member States are invited to enter into agreements to this end.

141. In Europe, the Agreement concerning the Conditions of Employment of Rhine Boatmen laid down normal working hours (48 hours per week and 8 hours per day), minimum rest (10–12 hours at night), weekly rest (1 day), and annual leave (1 working day for each month). Some of its rest time provisions are now obsolete due to changes in modern technology and operating patterns.

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146 CCNR, Thematic Report, 6.
147 ITF, 60% pay rise won by 200,000 riverboat workers, press release, 24 April 2023.
148 Barry Strauch and Isabel Gonzalez, Fatigue among Panama Canal tugboat captains: Its relationship to the captains’ health and to Panama Canal operational safety, 2018. The study raises serious OSH concerns indicating that captains were required to work excessive shifts (12–20 hours) with insufficient rest, disrupting their circadian sleep cycles, and that most interviewed captains reported work-induced fatigue.
149 See Chapter 3, section 4.
142. The CCNR's Regulations for Rhine navigation personnel (RPN) harmonize minimum rest times on the Rhine depending on the operation mode of the vessel (no navigation at night (A-Mode); continuous navigation (B-Mode)) and impose:

(i) 8 hours of rest per 24 hours, including 6–8 hours of uninterrupted rest outside navigation time\(^\text{150}\) under A-Mode;

(ii) 24 hours of rest within a 48-hour period, including two 6-hour periods of uninterrupted rest, under B-Mode.

143. The same is recommended under ECE resolution No. 61.

144. At the EU level, the European Agreement concerning certain aspects of the organisation of working time in inland waterway transport (integrated into Council Directive 2014/112/EU) was concluded by the European Sectoral Social Dialogue Committee for IWW, now driving its implementation. It stipulates as follows:

- maximum average working time of 48 hours per week within a 12-month period;
- maximum 14 hours of work in 24 hours (12 hours for seasonal work on passenger vessels);
- maximum 84 hours of work per week (72 hours for seasonal work on passenger vessels);
- minimum 10 hours of rest in 24 hours (6 hours uninterrupted);
- minimum 84 hours of rest per week;
- maximum working time during the night of 42 hours per week;
- minimum four weeks of paid annual leave;
- paid annual health checks.

145. On the HPP (Latin America), national laws establish an eight-hour working day, and any work going beyond is considered overtime. Some countries establish special regulations responding to the particularities of work on a given vessel; others extend the application of the general regulations to IWT. The requirement to record the work of crew members in the ship's book facilitates implementation. Argentina and Brazil provide for 12 hours of rest after 12 hours of work; other countries stipulate 6 hours of rest after 6 hours of work. Argentina matches the number of days worked (30) with the equivalent number of rest days (30); in other HPP countries, the relationship is 60 or 90 working days to 30 rest days.

146. On the Mekong, general labour law stipulates normal working hours of no more than 8 hours per day and 48 hours per week, with at least one day of rest. In Thailand, legislation provides flexibility to adjust working hours in certain economic sectors (for instance, transport) to fit in with the nature of the work.

147. Harmonizing these requirements at the waterway level is crucial for ensuring safety and fair competition. In the absence of harmonization, rest times would be determined either by the flag State or the territorially competent State. The former results in variations among riparian countries, leading to disparities in working conditions among IWT workers operating on the IWW (such as HPP); the latter results in difficulties in practical implementation and enforcement.

\(^{150}\) Unless the equipment on board includes appropriate, individual rooms that are protected from unacceptable levels of noise and vibration.
148. As to night work and related health repercussions, countries may define the term “night”, limit work undertaken during the night, demand regular free health checks for the workers concerned, prohibit night work for minors, or provide for extra pay.

6.4. Manning levels

149. Manning levels refer to the minimum number and skill level of crew members required on board IWW vessels of a given size and operation mode, to ensure the safe and efficient operation of the vessel, guarantee safe navigation and prevent fatigue. In general, the longer the vessel, the more workers are needed; and the higher the operation mode, the more crew should be on board.

150. At the international level, the Agreement concerning the Conditions of Employment of Rhine Boatmen contains only a broad provision concerning safe manning.

151. In some regions, no minimum crew standards are in force, not even at country level. Hence on the Mekong, no safe manning requirements for IWT have been established in Cambodia, the Lao People's Democratic Republic or Thailand.

152. On the HPP, the Second Additional Protocol (Navigation and Safety) to the Agreement on River Transport via the HPP provides that safe manning shall be regulated according to national law, while establishing a model safe manning certificate and fixing a minimum crew for certain vessel types (three to six persons), which is largely exceeded in practice, with diverging crew averages in the HPP countries (Argentina 11 to 12; the Plurinational State of Bolivia 8 to 10; Brazil 12; Paraguay 9 to 12). The minimum number of crew members on vessels navigating the HPP is determined by the competent national naval authority, based on vessel size or trip duration.

153. In Europe, manning requirements are outlined in Chapter 23 of ECE resolution No. 61 (with similar DC and ISRBC frameworks). On the Rhine, minimum crew requirements are not only harmonized but uniformly established, through a detailed CCNR regulation setting out size and composition of crews according to vessel length, mode of exploitation and technical equipment quality. Discussions are under way to update these 30-year-old requirements. Simultaneously, efforts are made to harmonize crewing requirements at EU level. In 2019, the social partners presented proposed new crewing requirements based on workload assessment, working hours, competencies and use of electronic control tools.

154. Crewing requirements should ideally be harmonized at waterway level to achieve a level playing field. This presupposes, as a first step, a common system of qualifications for crew members in all riparian countries, as described in the previous section. On international IWW where minimum crewing requirements have not been harmonized, the law of the flag State usually applies, which can lead to inconsistent treatment among IWT workers.

7. Safety, health and well-being

7.1. Occupational safety and health

155. The IWT sector has a long history of providing safe transport of passengers and cargo, which explains its low external costs. However, when accidents do occur, they can be fatal and cause injury and damage to environment and property.

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151 CCNR, Regulations for Rhine navigation personnel (RPN).

152 DST, INTERGO and Peter Turnbull, eds, Tasmania: Towards a Sustainable Crewing System (European Social Partners Organizations EBU/ESO/ETF, 2019).
156. At the international level, IWW vessels are not explicitly excluded from the IMO International Convention for the Safety of Life at Sea (SOLAS), 1974; for example, the Regulations in Chapter V on safety of navigation apply to all ships on all voyages, except warships and ships solely navigating the Great Lakes of North America. The IMO, which does not generally regulate in this area, recently chose, in view of the high loss of life through ferry accidents, to adopt non-binding Model Regulations on Domestic Ferry Safety, which focus on safety but also touch upon safety-related matters, such as medical certificates, certification, and manning. Furthermore, two fundamental ILO Conventions of general scope aim to: implement coherent national OSH policies through social dialogue and promote a national preventive OSH culture (Convention No. 187); set out basic principles for a national- and enterprise-level policy and strategy for the implementation of OSH preventive and protective measures (Convention No. 155); and call for requirements and procedures for the recording and notification of occupational accidents and diseases, and the publication of annual statistics (Protocol of 2002 to the Occupational Safety and Health Convention, 1981). Albeit not applicable to vessels exclusively engaged in inland navigation, it is worth noting that, for the shipping sector, the MLC, 2006 (Standard A4.3), lays down requirements concerning risk evaluation to be conducted by the shipowner, and protection against noise and vibration (see also the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148)).

157. The ECE's European Code for Inland Waterways (CEVNI) sets out uniform rules applicable to traffic on IWW, including accident reporting, and has inspired the DC and ISRBC rules. The CCNR's Police regulations for the navigation of the Rhine (RPR) regulate safety of navigation in more detail.

158. Furthermore, ECE resolution No. 61 contains recommendations on harmonized Europe-wide technical requirements for inland navigation vessels. In Europe, the relevant CCNR and EU requirements have been aligned through ES-TRIN, which contains provisions on the technical safety of IWW vessels, special provisions for passenger vessels, and OSH provisions on PPE\textsuperscript{153} and workplace safety (such as measures to protect against falls, dimensions of workplaces and gangways, access to workplaces, protection against noise and vibration), with references to SOLAS and certain IMO resolutions. The European social partners for IWT actively support its implementation in the sector.\textsuperscript{154}

159. With regard to overloading, it is worth noting that the designated inspection body of a CCNR/EU Member State must set the maximum permitted number of passengers (to be entered into the inland navigation vessel certificate), which shall not exceed the number of passengers taken into account for the evacuation area and for the vessel's stability calculation, and which is to be displayed on board. ES-QIN includes basic safety training as a competence to be acquired by all IWT crew members. The boatmaster is responsible for ensuring the safety of the crew and, in accordance with Council Directive 89/391/EEC, must identify any potential risks and conduct a risk assessment.

160. On the HPP in Latin America, national laws contain a few sector-specific OSH provisions, but mostly it is general OSH regulations that are applied to the IWW sector, with the main onus for a safe workplace being on the vessel owner. Shortcomings pointed out in interviews relate to PPE, which is either not provided by the owner, or of poor quality, or to be paid for by IWT workers (Paraguay).

\textsuperscript{153} The majority of fatal work-related accidents on IWW in the Netherlands between 1998 and 2009 were cases of drowning, mostly as a result of not wearing a life jacket.

\textsuperscript{154} See information on ES-TRIN on EU IWT platform website.
161. In Asia, on the Lower Mekong, no IWT-specific OSH measures have been adopted; existing rules apply to all workplaces across economic sectors, and stipulate devising, implementing and reviewing OSH policies and measures, including on risk assessment, accident reporting and PPE.

162. In South Africa, the Inland Waters Strategy seeks to promote and enhance human safety and well-being.

7.2. Medical care, accommodation and food

Medical care

163. IWW vessels, unlike seagoing vessels, operate along riverbanks. Therefore, in the event of accidents, illnesses or other health-related emergencies, crew members can typically be rapidly transported to hospital onshore. Consequently, relevant rules do not elaborate on the provision of medical care.

164. ECE resolution No. 61 and ES-TRIN, applicable to EU and CCNR Member States, do not contain detailed provisions on medical care on board, but stipulate the provision of at least one first-aid kit, its location within the vessel, and its dimensions. The DC framework recommends that first-aid kits be available in sufficient numbers.

165. In Asia, the bilateral Agreement between Cambodia and Viet Nam on Waterway Transportation stipulates that, in the event of sickness, crew members of vessels flying the flag of either contracting party shall be allowed to remain in the territory of the other party for the time necessary for medical treatment. The Quadripartite Agreement contains a similar provision on medical assistance. No specific measures have been adopted to address the issue of medical care on board IWW vessels. General legislation provides for primary healthcare and first-aid kits.

166. On the HPP in Latin America, all national regulations require the vessel owner to provide the necessary first-aid kit and on-board first medical assistance in the event of occupational injury or common illness.

Accommodation

167. Safety-related requirements for the construction and equipment of IWW vessels should also address social concerns. Just as for shipping, unless vessels return daily to their home port, IWT workers often live and work on board. Strenuous working hours on IWW vessels warrant the need for adequate rest and living spaces to ensure the safety and comfort of crew members. Quality varies greatly, with larger and newer vessels typically having better accommodation.

168. ECE resolution No. 61 contains provisions on crew accommodation, including dimensions and location; protection against noise and vibration; and heating, cooking and refrigerating equipment.

169. In Europe, ES-TRIN harmonizes accommodation requirements and was integrated into EU Directive 2016/1629, which does not apply to ferries. ES-TRIN contains provisions on the construction and equipment of IWW vessels; ventilation, heating and lighting of living and sleeping quarters, dimension requirements, maximum occupation of sleeping cabins (two), minimum floor area, headroom (2 m), minimum air volume, furnishing (one bunk (2 m x 0.9 m) and one wardrobe per crew member); galley (with cooker, sink, refrigerator, storage and working space); sanitary facilities (one toilet per six crew members, one sink per four crew members and one shower per six crew members).

170. On the HPP, most countries have a general requirement for the owner to provide appropriate accommodation to allow crews to rest; only Brazilian legislation sets out detailed crew
accommodation provisions. Interviewed crew members were satisfied with accommodation on HPP vessels. On the Lower Mekong, there are no comprehensive accommodation standards.

**Food and water**

171. Since IWW vessels operate close to land, it is usually not considered necessary to have detailed rules on the provision of food and water.

172. In Europe, ES-TRIN requires that galleys be provided for the preparation of food and communal meals and a potable water supply be made available to those on board IWW vessels.

173. On the Lower Mekong, there are no sector-specific food and water requirements; general legislation sometimes requires employers to ensure access to potable water. In the Lao People’s Democratic Republic, it seems that in practice, while food and beverages are provided to IWT workers, the cost is deducted from their wages.

174. On the HPP, national laws establish the obligation of the owner to provide adequate and balanced meals on board. Interviewed crew members highlighted compliance with this requirement, except those from Paraguay, who said that only half of the companies adequately complied, with some owners granting sums of money instead of supplying food to crew during navigation.

175. It is worth noting that in 2014 the ILO adopted *Guidelines on the training of ships’ cooks* for seafarers, and these may provide a source of inspiration for future guidelines for IWT workers.

**8. Social security**

176. Social security is a human right and is defined as a set of collectively financed policies and programmes designed to reduce and prevent poverty, vulnerability and social exclusion throughout the life cycle. Social protection includes nine main areas: child and family benefits, maternity protection, unemployment support, employment injury benefits, sickness benefits, health protection (medical care), old-age benefits, invalidity/disability benefits, and survivors’ benefits. Social protection systems address all these policy areas through a combination of contributory schemes (social insurance) and non-contributory tax-financed benefits (including social assistance).

177. The ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), lies at the core of international legal provisions in this area, as it first grouped these nine social risks under the heading of social security, set minimum benefit levels applicable to the various types of contributory and non-contributory schemes, and established the main principles of administration and financing applicable to them.

178. The Rhine Agreement – the only sector-specific regional and international instrument in the field of social security – coordinates social security legislation among six countries for a specific group of migrant workers, the Rhine boatmen, covering their entitlement to benefits and the aggregation of periods of activity. Since Regulation (EC) No. 883/2004 of the European Parliament and of the Council of 29 April 2004 on the coordination of social security systems came into force in 2010, it partially replaced the Rhine Agreement, which no longer applies to Rhine boatmen residing within the territory of the EU; in parallel, a Derogation Agreement concerning legislation applicable to Rhine boatmen was concluded, allowing the parties to the Rhine Agreement to retain the vessel operator’s seat as the criterion for determining the applicable social security legislation (Rhine principle). The European social partners for IWT called for the

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application of the Rhine principle to crew members on all European IWW vessels to ensure legal certainty.\textsuperscript{156} Regulation 883/2004 and its application to cross-border employment such as IWT are questioned and seen as failing to ensure that all Rhine boatmen working on the same vessel are subject to the same social security legislation.

179. On the Lower Mekong in Asia, there are no specific regulations governing the liability of vessel owners in the event of occupational injuries or diseases on board IWW vessels; but general labour law usually holds the employer liable to assume the cost of medical expenses and to pay compensation to workers who are victims of employment injuries. General social security legislation usually applies to IWT workers on nationally flagged vessels if they are insured persons paying contributions; it is unclear whether it applies to IWW vessels navigating through waters under the jurisdiction of another State and to foreign workers. In Bangladesh, where most IWT workers are in the informal sector and have no retirement security, the creation of a provident fund and of a welfare fund for crew social security, as well as compensation for accidents and deaths at work,\textsuperscript{157} were among the main demands of the 2022 nationwide strike.

180. On the HPP in Latin America, the owner is required to assume the initial costs of medical care and hospitalization for the crew, after which the coverage of the social security system begins, or the compulsory insurance covers this contingency from the start. Convention No. 102 has been ratified by all HPP countries, and the Southern Common Market (MERCOSUR) establishes the general rule that the social security regulations of a State party apply, regardless of nationality, to persons working in its territory, including persons working on board vessels flying its flag. National social security laws apply this rule to IWT. Conditions for, and amounts of, benefits vary.

181. As observed above, the vast majority of the world’s IWT workers work under informal arrangements and are hence not covered by contributory statutory programmes and schemes. In this respect, it should be recalled that the Social Protection Floors Recommendation, 2012 (No. 202), calls on all countries to establish social protection floors applicable to all as a fundamental element of their national social security systems, with a view to guaranteeing access to essential healthcare and basic income security and to contributing to the promotion of productive economic activity and the formalization of employment.

9. **Enforcement and compliance**

182. All ILO Member States have the duty to adopt, implement and effectively enforce national laws and regulations to ensure that fundamental principles and rights at work and ratified international labour Conventions protect and are applied to all IWT workers, taking into account their obligations under other international labour standards.

183. Employers in the IWT sector have a responsibility to respect human and labour rights in their supply chains, consistent with the United Nations Guiding Principles on Business and Human Rights and the MNE Declaration, and to comply with national law wherever they operate.

184. Labour inspection is the cornerstone of ensuring compliance with the legal framework relating to conditions of work and the protection of workers while engaged in their work. The ILO’s Labour Inspection Convention, 1947 (No. 81), requires ratifying States to maintain a system of labour inspection in industrial and commercial workplaces, with the possibility of excluding mining and transport undertakings, an option which hardly any States ratifying the Convention have taken

\textsuperscript{156} Joint EBU/ESO/ETF Letter of 2 June 2020.

\textsuperscript{157} ITF, “Bangladesh, global solidarity shines spotlight on 200,000 striking waterway workers”, press release, 8 December 2022.
up. Water transport services are covered in principle by Convention No. 81. The Convention establishes principles for the functions and organization of the inspection system, recruitment criteria, status and conditions of service of labour inspectors, as well as their competencies and obligations. Labour inspection services must publish an annual report to be communicated to the ILO.

185. Enforcement generally tends to focus on IWW vessel safety and operation as opposed to conditions of work and the protection of workers. These inspections can nonetheless enhance the OSH of IWT workers and certain labour conditions with a bearing on safety (for example, hours of rest, Manning, qualifications).

186. In Europe, the national river and navigation police authorities of the CCNR Member States monitor the observance of the CCNR regulatory framework, especially its navigation rules. River police inspections of IWW vessels may involve checks of documents on board and of life jackets. Also, AQUAPOL, the European network of agencies for waterborne law enforcement, seeks to enhance safety and security on Europe’s main IWW by improving cross-border law enforcement cooperation, including by tracking vessels and gathering data from national authorities on police controls undertaken. Furthermore, to ensure that vessels operating on EU IWW comply with the uniform technical safety requirements in ES-TRIN, EU countries must set up national inspection bodies to carry out initial, periodical and other vessel inspections. A Union inland navigation certificate (model in ES-TRIN, Annex 3) is issued before entry into service, with a period of validity of ten years (five for passenger vessels). Countries need to assign each vessel with a unique identification number and to update the European Hull Data Base by entering the certificate status.

187. Similarly, the Second Additional Protocol (Navigation and Safety) to the Agreement on River Transport via the HPP requires HPP Members to implement a uniform inspection regime for vessels, ensuring compliance with minimum safety standards. Regulation 10 outlines procedures, frequency and scope of inspections of HPP vessels by national authorities in order to obtain or renew safety certificates. Vessels in foreign ports are subject to port State control.

188. Enforcement at national level often remains limited or sketchy, even where regional regulations on aspects of IWT exist, due to their mostly non-binding nature (except on the Rhine) or the discretion afforded to national authorities to implement and enforce them.

189. As regards national governance frameworks:

• countries often lack sector-specific legislation governing IWT and apply labour law of general application to the IWW sector;

• some countries apply their shipping laws and regulations, in full or in part, to the IWT sector;

• a number of countries have sector-specific national laws and regulations relating to IWW, mostly focusing on safety of navigation and technical requirements, and occasionally governing labour conditions.

190. Countries with sector-specific IWT or shipping legislation usually designate a transport or maritime authority to enforce it, many of which tend to focus on monitoring compliance with

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160 In South Africa, the Merchant Shipping Act (MSA) was declared applicable to IWW in 2008, with the South African Maritime Safety Authority (SAMSA) as the competent authority; in the United Republic of Tanzania, the MSA also applies to IWT, including Lake Victoria; in China, the 2007 Crew Regulations cover both seafarers and inland river crews.
technical safety requirements relating to IWW vessels or at least with safety-related labour aspects (for example, qualifications, manning and working time).  

On the other hand, in countries where general labour law is applied to IWT, labour inspectors are normally responsible for overseeing compliance with working conditions, OSH and other labour-related issues in establishments ashore. Considering the limited human and financial resources of labour departments, the non-existence of specific regulations for IWT and the lack of cooperative agreements between labour and IWW, maritime or transport departments, questions arise as to the efficiency and frequency of labour inspections of IWW vessels.

161. As described in the previous sections, national laws vary greatly, not only across but also within regions, in terms of substance and level of protection. This renders enforcement in cross-border IWT irregular, tedious and expensive, and results in inconsistent treatment of IWT workers and employers.

191. Moreover, national regulatory frameworks diverge with respect to their scope of application. They may apply to:

(i) all vessels flying the national flag, regardless of geographical position;
(ii) all vessels navigating in the country concerned, regardless of flag; or
(iii) all vessels of which the operator has its seat in the country concerned.

192. In the absence of harmonization and without collective agreements, territorial competence leads to vessels having to comply with a different national legislation each time they cross a border, thus creating practical difficulties for IWT enterprises and workers (such as different wage rates and requirements to account for hours worked in another State); flag State competence may disrupt the level playing field, fostering unfair competition; and complex company structures and outsourcing add to the difficulty of tracing responsibilities. This can result in legal uncertainty and lack of effective enforcement. In light of the foregoing, harmonization is vital to ensure that all vessels navigating on the IWW are placed on the same footing.  

193. In addition, a normative instrument on sustainable and responsible business conduct, such as the MNE Declaration, can also contribute to promoting decent work opportunities while minimizing challenges stemming from the transboundary nature of IWT.

162 See, for example, HPP Fourth Additional Protocol seeking to enhance homogenization among the regulations of HPP members.
Non-exhaustive reference list of ILO standards, declarations and guidance, and other international instruments to advance decent and sustainable work in the inland waterways sector

International labour standards

Fundamental Conventions (and related Recommendations)

- Forced Labour Convention, 1930 (No. 29), its 2014 Protocol, the Forced Labour (Indirect Compulsion) Recommendation, 1930 (No. 35) and the Forced Labour (Supplementary Measures) Recommendation, 2014 (No. 203)
- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- Equal Remuneration Convention, 1951 (No. 100), and the Equal Remuneration Recommendation, 1951 (No. 90)
- Abolition of Forced Labour Convention, 1957 (No. 105)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111), and the Discrimination (Employment and Occupation) Recommendation, 1958 (No. 111)
- Minimum Age Convention, 1973 (No. 138), and the Minimum Age Recommendation, 1973 (No. 146)
- Occupational Safety and Health Convention, 1981 (No. 155), and Occupational Safety and Health Recommendation, 1981 (No. 164)
- Worst Forms of Child Labour Convention, 1999 (No. 182), and the Worst Forms of Child Labour Recommendation, 1999 (No. 190)
- Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), and the Promotional Framework for Occupational Safety and Health Recommendation, 2006 (No. 197)

Governance Conventions (and related Recommendations)

- Labour Inspection Convention, 1947 (No. 81), and the Labour Inspection Recommendation, 1947 (No. 81) and the Labour Inspection (Mining and Transport) Recommendation, 1947 (No. 82)
- Employment Policy Convention, 1964 (No. 122), the Employment Policy Recommendation, 1964 (No. 122), and the Employment Policy (Supplementary Provisions) Recommendation, 1984 (No. 169)
- Labour Inspection (Agriculture) Convention, 1969 (No. 129), and the Labour Inspection (Agriculture) Recommendation, 1969 (No. 133)
• Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144), and the Tripartite Consultation (Activities of the International Labour Organisation) Recommendation, 1976 (No. 152)

Technical Conventions (and related Recommendations)

• Medical Examination of Young Persons (Industry) Convention, 1946 (No. 77), and the Medical Examination of Young Persons Recommendation, 1946 (No. 79)

• Labour Clauses (Public Contracts) Convention, 1949 (No. 94), and the Labour Clauses (Public Contracts) Recommendation, 1949 (No. 84)

• Protection of Wages Convention, 1949 (No. 95), and the Protection of Wages Recommendation, 1949 (No. 85)

• Migration for Employment Convention (Revised), 1949 (No. 97) and the Migration for Employment Recommendation (Revised), 1949 (No. 86)

• Social Security (Minimum Standards) Convention, 1952 (No. 102)

• Equality of Treatment (Social Security) Convention, 1962 (No. 118)


• Medical Care and Sickness Benefits Convention, 1969 (No. 130), and the Medical Care and Sickness Benefits Recommendation, 1969 (No. 134)

• Minimum Wage Fixing Convention, 1970 (No. 131), and the Minimum Wage Fixing Recommendation, 1970 (No. 135)

• Workers’ Representatives Convention, 1971 (No. 135) and the Workers’ Representatives Recommendation, 1971 (No. 143)

• Paid Educational Leave Convention, 1974 (No. 140) and the Paid Educational Leave Recommendation, 1974 (No. 148)

• Migrant Workers (Supplementary Provisions) Convention, 1975 (No. 143), and the Migrant Workers Recommendation, 1975 (No. 151)

• Human Resources Development Convention, 1975 (No. 142), and the Human Resources Development Recommendation, 2004 (No. 195)

• Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148), and the Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977 (No. 156)

• Labour Relations (Public Service) Convention, 1978 (No. 151), and the Labour Relations (Public Service) Recommendation, 1978 (No. 159)

• Collective Bargaining Convention, 1981 (No. 154), and the Collective Bargaining Recommendation, 1981 (No. 163)

• Workers with Family Responsibilities Convention, 1981 (No. 156), and the Workers with Family Responsibilities Recommendation, 1981 (No. 165)

• Maintenance of Social Security Rights Convention, 1982 (No. 157), and the Maintenance of Social Security Rights Recommendation, 1983 (No. 167)
• Termination of Employment Convention, 1982 (No. 158), and the Termination of Employment Recommendation, 1982 (No. 166)

• Vocational Rehabilitation and Employment (Disabled Persons) Convention, 1983 (No. 159), and the Vocational Rehabilitation and Employment (Disabled Persons) Recommendation, 1983 (No. 168)

• Indigenous and Tribal Peoples Convention, 1989 (No. 169)

• Labour Statistics Convention, 1985 (No.160), and the Labour Statistics Recommendation, 1985 (No. 170)

• Chemicals Convention, 1990 (No. 170), and the Chemicals Recommendation, 1990 (No. 177)

• Occupational Health Services Convention, 1985 (No. 161), and the Occupational Health Services Recommendation, 1985 (No. 171)

• Protection of Workers' Claims (Employer's Insolvency) Convention, 1992 (No. 173), and the Protection of Workers' Claims (Employer's Insolvency) Recommendation, 1992 (No. 180)

• Part-Time Work Convention, 1994 (No. 175), and the Part-Time Work Recommendation, 1994 (No. 182)

• Private Employment Agencies Convention, 1997 (No. 181), and the Private Employment Agencies Recommendation, 1997 (No. 188)

• Maternity Protection Convention, 2000 (No. 183), and the Maternity Protection Recommendation, 2000 (No. 191)

• Maritime Labour Convention, 2006, as amended (MLC, 2006)

• Work in Fishing Convention, 2007 (No. 188), and the Work in Fishing Recommendation, 2007 (No. 199)

• Violence and Harassment Convention, 2019 (No. 190), and the Violence and Harassment Recommendation, 2019 (No. 206)

Technical Recommendations

• Hours of Work (Inland Navigation) Recommendation, 1920 (No. 8)

• Voluntary Conciliation and Arbitration Recommendation, 1951 (No. 92)

• Co-operation at the Level of the Undertaking Recommendation, 1952 (No. 94)

• Communications within the Undertaking Recommendation, 1967 (No. 129)

• Examination of Grievances Recommendation, 1967 (No. 130)

• Employment Promotion and Protection against Unemployment Recommendation, 1988 (No. 176)

• Job Creation in Small and Medium-Sized Enterprises Recommendation, 1998 (No. 189)

• Promotion of Cooperatives Recommendation, 2002 (No. 193)

• List of Occupational Diseases Recommendation, 2002 (No. 194)

• Employment Relationship Recommendation, 2006 (No. 198)
• HIV and AIDS Recommendation, 2010 (No. 200)
• Social Protection Floors Recommendation, 2012 (No. 202)
• Forced Labour (Supplementary Measures) Recommendation, 2014 (No. 203)
• Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204)
• Quality Apprenticeships Recommendation, 2023 (No. 208)

Conclusions, declarations and resolutions of the International Labour Conference

• ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up, 1998, as amended in 2022
• ILO Declaration on Social Justice for a Fair Globalization, 2008, as amended in 2022
• ILO Centenary Declaration for the Future of Work, 2019
• Global call to action for a human-centred recovery from the COVID-19 crisis that is inclusive, sustainable and resilient, 2021
• Resolution concerning small and medium-sized enterprises and decent and productive employment creation, 2015
• Conclusions concerning the promotion of sustainable enterprises, 2007
• Resolution concerning skills and lifelong learning, 2021
• Recovering from the crisis: A Global Jobs Pact, 2009, as amended in 2022
• Resolution concerning a just transition towards environmentally sustainable economies and societies for all, 2023

ILO guidance

• Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, 2017, as amended in 2022
• General principles and operational guidelines for fair recruitment and Definition of recruitment fees and related costs, 2019
• Guidelines for a just transition towards environmentally sustainable economies and societies for all, 2015
• Protection of workers’ personal data: An ILO code of practice, 1997

Other international instruments

• United Nations, Guiding Principles on Business and Human Rights, 2011
• OECD AI Principles, 2019