

UNECE

Promoting Data Quality in Inland Waterway Statistics

Sharing Country Practices



Workshop for the Working Party on
Transport Statistics (WP.6)



UNITED NATIONS

Promoting Data Quality in Inland Waterway Statistics

Inland water transport can be a low-cost, green, safe and congestion-fighting option for moving freight long distances, and river passenger transport is a growing sector too. But gathering the necessary data to allow evidence-based policy decisions at a time of budgetary pressures remains a challenge. To assemble country and organization best practices on this topic, the United Nations Economic Commission for Europe (UNECE) held a workshop entitled *Promoting Data Quality in Inland Waterway Statistics*. The workshop was the second in UNECE's series of workshops on transport statistics (the first workshop addressed [rail statistics](#) and took place in June 2017) and was convened in conjunction with the annual session of the UNECE Working Party on Transport Statistics held in June 2018. It consisted of presentations from national statistics offices, transport ministries as well as international organizations active in the field of inland waterway transport.

Specifically, presentations were made by Canada, Netherlands, Poland and Russian Federation, together with the Central Commission for Navigation on the Rhine (CCNR), Danube Commission (DC) and Eurostat.

As in many statistical domains, **innovations in data collection** were a major consideration for many presenters. Within the inland waterway sector, many data collectors are increasingly using Automatic Identification Systems (AIS) or similar river information systems to track vessel movements. AIS is a technology that requires all ships above certain thresholds to periodically emit information such as their unique identification number, position, course and speed. This can be used to monitor traffic levels, and when combined with origin and destination information can allow tonnage and tonne-km traffic figures to be calculated.

Figure 1
AIS vessel information, as utilized by Statistics Netherlands



This increasingly-used data source provides benefits to data providers, but also challenges. On the one hand this is a source of already-existing information available at minimal cost to the statistics office, and it can provide a complete or near-complete picture of all ship movements. This in turn, means that traditional surveys and their associated costs and sampling difficulties are less necessary. However, data from AIS are not as comprehensive as

those they replace from surveys, with cargo information (size and type) not always easy to determine, and practical problems associated with managing the dataset (the high frequency of “pings” from ships can have data storage implications and addressing erroneous transmissions could also be time-consuming). Delegates agreed that integrating AIS data into statistical production would be increasingly utilised in the future, and sharing best practices is an area of future collaboration.

Another shared issue across countries was that of collecting data on a country’s stock of vessels. While data were typically well captured for enterprises registered in the reporting country, vessels belonging to **foreign operators** (who often lack an office in the reporting country) were under no obligation, via national laws on statistics or otherwise, to provide survey data. In the case of Poland, a strategy of close cooperation with their counterparts in Germany (where the majority of foreign vessels in Poland come from) has led to an improved situation, and is an example of the importance of multilateral **collaborative relationships** in statistics production.

Figure 2

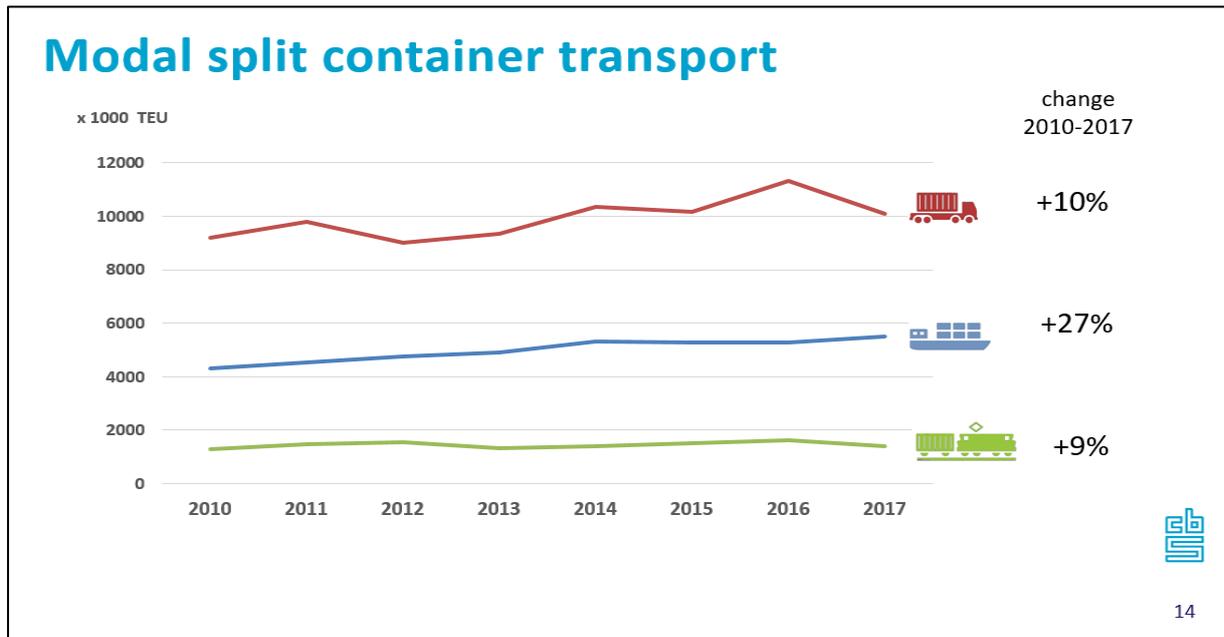
MSC LA Blanca, an example of four-layer container carrying. Source: Binnenvaart.web-log.nl



All of these data collection activities were put in context throughout the workshop, with policy goals and market analyses that the collected data allowed. The Netherlands use their inland waterway statistics to measure progress against the European Commission’s goal of moving freight journeys of more than 300 km from road to inland waterways and rail, and their efforts to **facilitate intermodal transport** were presented. Increasing bridge clearances (to allow four-layer container traffic), depths, widths and lock capacities will all be considered in the future.

The importance of inland waterways in achieving this strategy was emphasised by the size of Netherlands' inland waterway movements. One million tonnes are moved each day on their canals, one seventh of which is container transport, and yet these numbers only represent around one third of Dutch freight tonnage. It is promising to see that while road container freight tonnage has increased by 10% since 2010, there has been a 27% increase in containers shipped by inland waterways (and a 9% increase in rail), thus inland waterways transport is increasing as a share of total freight.

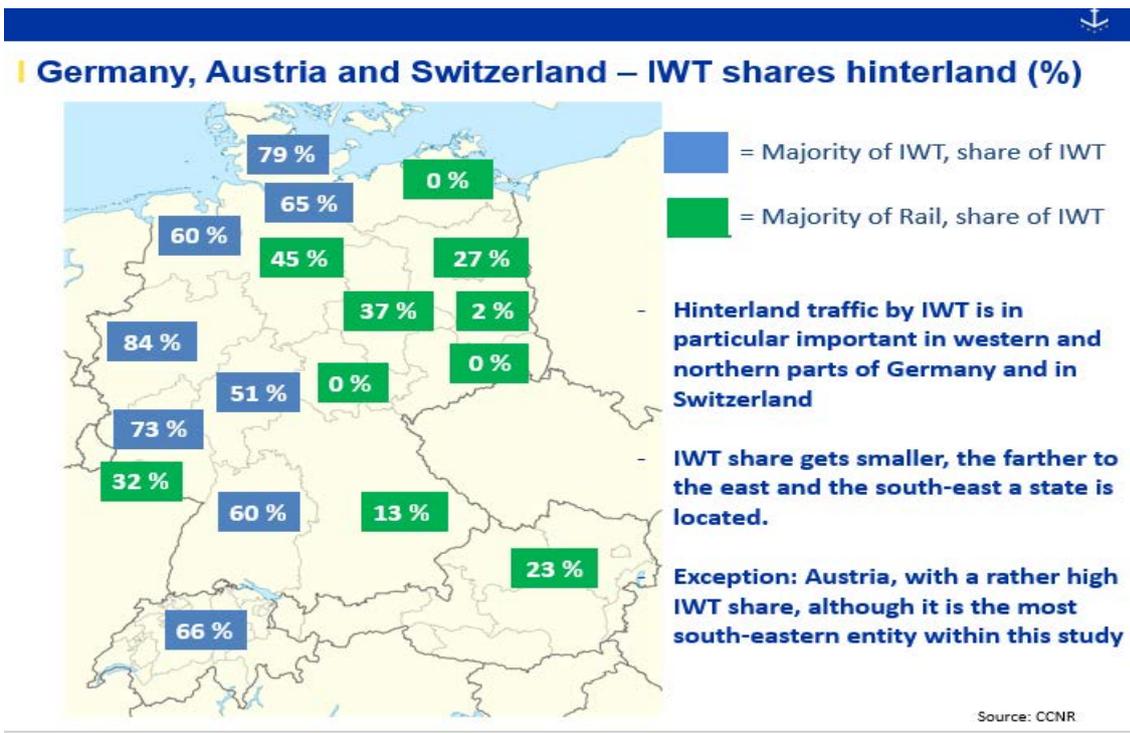
Figure 3
Share of Netherlands inland container transport by mode, 2010-2017



Examples of inland waterway data analyses continued with CCNR's presentation which focused on identifying the major seaports and mode of inland transport principally used for trade in different regions of Germany, Switzerland and Austria. The first point of note was that waterway import tonnage was much greater than export tonnage in these countries. This is due to the typical goods imported being heavy primary resources such as coal and iron ore, whereas the exports were typically finished products such as cars and machinery. There was also a clear modal difference between the three Low Country ports of Antwerp, Rotterdam and Amsterdam against the German seaports of Bremen and Hamburg, with the German ones having a much higher share of rail traffic than inland water traffic, due in large part to geographical considerations.

The topic was further enriched with region-specific analyses of their shares of imports and exports going to seaports via rail and inland waterways. For example, Switzerland had 66% of its seaport imports delivered by inland waterways, despite its large distance from major ports, whereas some smaller German regions further away from principal waterways had a much lower share, even zero in the cases of Thuringia and Saxony.

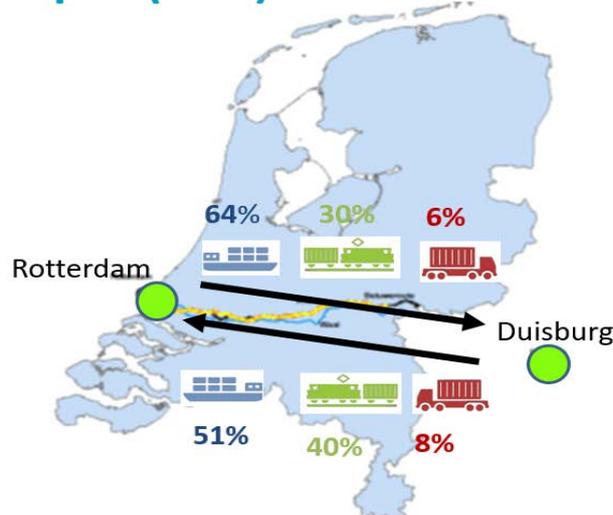
Figure 4
Inland Waterway shares of Hinterland regions' seaport imports



This kind of region-specific observation was complemented by Netherlands' own analyses of one of the European Commission's TEN-T corridor analyses, with the Rotterdam-Duisburg corridor's container modal share shown in both directions.

Figure 5
Modal share on the Rotterdam-Duisburg TEN-T corridor, 2016

Modal split (TEU) on TEN-T corridor, 2016

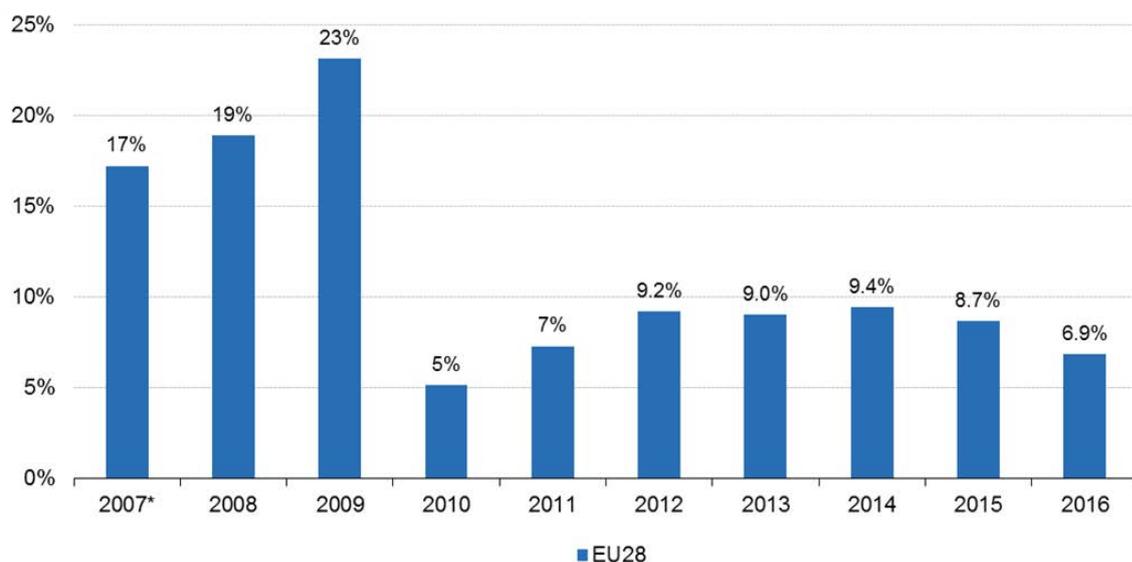


While these detailed analyses are certainly useful, some delegates noted that a **type of goods breakdown** of data, or at the very splitting least tonnage by containers versus bulk, would

allow for more detailed analyses, as demonstrated above when explaining the difference in modes for imports versus exports. This is also a pertinent topic given the way data are collected in different countries. In Canada (as in North America generally) freight traffic data come from a commodity flow survey, whereas in many European countries an origin-destination survey is more commonly used (the latter was discontinued in Canada in 2011). Obtaining meaningful commodity statistics from available Border/Customs administrative sources continues to be a work in progress, due to challenges in both extracting the necessary goods information from the data source, and dealing with confidentiality of specific commodity and transporting movements.

The issue of **data comparability** was highlighted during a presentation from the Danube Commission. This is particularly acute in Central Europe where countries are members of multiple organizations each with their own data reporting requirements. For example, Germany is a member of the CCNR, DC, Eurostat, the International Transport Forum and UNECE. Even data produced for the same organization can be subject to biased errors, and it is this reason that Eurostat’s mirror checks on total inland waterway intra-EU imports and exports acts as a useful top-level yardstick of statistical accuracy. There has been a noticeable improvement in this difference from 2010 onwards.

Figure 6
Mirror checks of Eurostat import and export values by inland waterways



While the workshop stressed the significance of inland water freight, Eurostat’s presentation on their efforts in starting data collection activities on inland waterway passenger and accident statistics was also relevant to complete the sectoral picture. Eurostat’s task force has been active for the last few years on considering which data items may be collected, and these items will be submitted to its Coordinating group on Statistics of transport in November 2018. There are fifteen EU countries who collect data on inland waterway passengers, and another seven who do have passenger transport but lack data on it.

Conclusions

To conclude the workshop the secretariat solicited opinions on which currently-produced statistics on inland waterway transport they considered to be the priority. Tonne-kms and total tonnes carried were chosen as the most valuable by a majority of delegates, with further responses on vessel information and type of cargo carried. Delegates also seemed to agree that AIS or other tracking systems, together with other sources of administrative data, were the biggest opportunity for producing better inland waterway statistics, with a substantial minority also wishing to see passenger numbers. Given the interest generated in the workshop's discussions focussing around the items related to intermodal transport and tracking cargo across modes, it was unsurprising that when workshop topics for next year were considered, the most popular choice was for **intermodal transport**, which would allow the discussions to continue.

The workshop was a useful exercise in increasing sharing of information between different inland waterway data producers and users and it should be viewed as part of ongoing conversations that UNECE will continue to foster on this topic. UNECE has plans to continue to promote communication and collaboration between countries and organizations on inland waterway statistics data collection.

To learn more about inland transport statistics or to receive information on future transport statistics workshops, the UNECE can be contacted directly by email at stat.trans@unece.org. In addition, all transport statistics for UNECE member states are available on our website – w3.unece.org/PXWeb/en