

Inland waterways in the EU

SUMMARY

At more than 37 000 kilometres, the European Union (EU) has one of the longest networks of inland waterways in the world, spanning 20 Member States and connecting hundreds of cities and industrial sites. Inland waterways are important for transporting goods from major seaports to their hinterland. Considered a quiet and energy-efficient means of transport, it is also seen as a way to alleviate congestion, notably from roads.

However, over the longer term, the inland waterway transport sector has experienced a steady decline in its modal share. It is facing many specific structural difficulties (infrastructure insufficiently interconnected and integrated with other transport modes, overcapacity, skills shortages, etc.) which prevent it from tapping its full potential, i.e. increasing its modal share.

The EU has launched several initiatives to boost this transport mode, such as the Trans-European Transport Networks (TEN-T) policy and the adoption in 2006 of the first integrated European Action Programme for inland waterway transport (NAIADES). In September 2013, the European Commission (EC) presented the NAIADES II package (2014-20) which is now under consideration by the European Parliament.



In this briefing:

- Background
- Advantages and challenges
- EU action
- Recent policy developments
- Further reading

Background

Geography and network

The EU boasts the third longest network of inland waterways in the world [after](#) China and Russia. Extending to more than 37 000 kilometres, the EU network of [inland waterways](#) connects hundreds of cities and industrial regions, and is particularly dense in western Europe.

In 2010, the Member States with the longest stretches of inland waterways (navigable canals, rivers and lakes regularly used for transport) were Finland, with over 8 000 km ([length in use](#)), Germany (close to 8 000 km), the Netherlands (over 6 000 km) and France (over 5 000 km). In Germany, the Netherlands, France and Belgium in particular, inland waterways play an important role in transporting goods between the EU's main ports and their hinterland.

The network is characterised by several elements, either natural or man-made, such as depth of water, link with sea ports, availability of transshipment facilities, well equipped inland ports and connection between different river basins, which affect navigability. It is unequally distributed geographically and offers uneven transport capacity related to the size of vessels it can accommodate.

Spanning 20 Member States, the network of [inland waterways](#) in the EU is partially interconnected or integrated with other transport modes and major seaports. The five biggest EU seaports, gateways to external trade, are all connected to inland waterways. In 2010, the largest EU sea port, Rotterdam (the Netherlands), transferred one-third of all goods via inland waterways.

Importance of the inland waterway transport sector

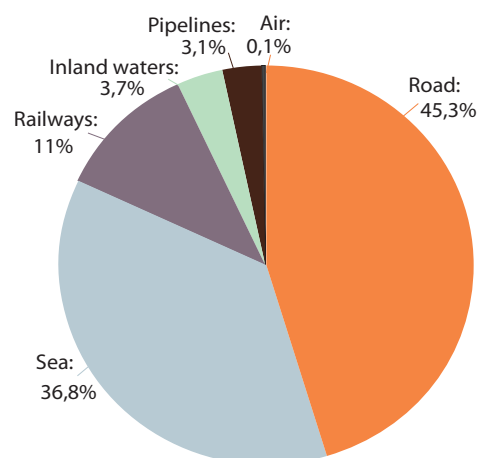
The importance of inland waterways as a transport mode is especially significant in the area of freight, with the movement of passengers extremely limited compared to other transport modes¹.

As far as freight is concerned, while around 140 billion tonne-kilometres (tkm)² are transported over EU inland waterways every year, this mode represents only a marginal share of the freight transported by all modes, which in 2011 was estimated to be 3 824 billion tkm³ in the EU 27.

Inland waterways account for 3.7% of freight transport based on tonne-kilometres, compared with 45.3% for road transport, 36.8% for sea transport and 11% for rail transport (see figure 1). In 2011, the Member States in which most freight was transported via inland waterways were Germany, with 55 billion tkm, the Netherlands (46.3 billion tkm), Romania (11.4 billion tkm), Belgium (9.3 billion tkm) and France (9 billion tkm).

Though increasing in absolute terms from 122 billion tonne-kilometres in 1995 to 141 billion tkm in 2011, the share of inland waterways in

Figure 1 - Freight transport, performance by mode (EU 27)



Data source: [EU Transport in Figures](#), statistical pocket book, European Commission, 2013.

the modal split slightly decreased over the same period of time (from 4% to 3.7%) while road transport saw its share increase (from 42.1% to 45.3%) at the expense of all other transport modes. Over a longer-term perspective, it is considered that the inland waterway sector has experienced a steady decline in its modal share.

Advantages and challenges

Advantages

Though used less than other transport modes, inland waterways are nonetheless considered to have many [advantages](#) for transporting goods.

This transport mode still has a fair amount of spare capacity and is able to carry large quantities and different types of goods. For example, only 15% of the capacity of the Danube is currently being used while one motorised cargo vessel with a load of 2 000 tonnes can carry as much cargo as 50 railway trucks at 40 tonnes each or 80 lorries at 25 tonnes each. The fleet has also changed in terms of size and type of vessels, making it more multifunctional. Inland waterway transport (IWT) is no longer limited to the transport of bulk goods such as sand, gravel or fodder but has evolved to carry a greater variety of goods. In recent [decades](#), dozens of container terminals have been created. While prior to 1998 there was only one very long vessel, of 125 metres, on the Rhine, there is now a fleet of vessels measuring more than 135 metres in length.

IWT is also generally [considered](#) a quiet, safe and energy-efficient means of transporting goods that is less congested than other transport modes, notably road transport. The CO₂ emissions and fuel consumption of large inland waterway ships are a third of those of road transport. According to some authors⁴, one tonne of goods could travel 500 km by inland waterway transport on five litres of fuel, compared to 333 km by train or 100 km by truck.

Consequently, IWT is considered to have development potential, i.e. it could serve as a means to alleviate congestion from roads and the busiest sea ports in the transport of freight, and increase its modal share in the transport of goods.

Challenges

However, like other transport modes affected by the economic slowdown, the sector is confronted by specific difficulties such as the lack of integration and fragmentation of infrastructure, over-capacity in certain market segments, skills shortages and fragmentation of its labour force, all of which are considered obstacles to its development potential.

IWT infrastructure remains insufficiently inter-connected and integrated with other transport modes. There are significant bottlenecks in the form of insufficiently large locks, bridges or fairways and missing links (large rivers like the Seine and the Scheldt, for example, need wider canals to allow large vessels to navigate between them). Inland waterways also often lack sufficient connections to logistics centres.

The sector also faces [over-capacity](#) in certain segments, such as liquid bulk cargo (with the introduction of the double-hull requirement), and in the large dry-bulk vessel segment⁵. Conversely, there is concern over the declining number of small vessels (under 1 000 tonnes), which are essential for trade and industry located on smaller waterways.

The EU fleet is also largely dominated (80%) by owner-operators, who live and work on their vessels, a labour force that is fragmented and confronted with a growing [shortage](#) of qualified staff. The crisis has brought further deterioration in the employment situation and working conditions in the IWT sector, resulting in a decrease in the total IWT [labour market](#) since 2008. Less cargo for operators to transport leads in turn to reduced demand for personnel. The low earning power of small operators gives them little leeway to innovate and potentially leads to under investment.

Though traditionally considered an [environmentally](#) friendly transport mode, the environmental [performance](#) of inland waterways in the reduction of air pollutants, notably nitrogen oxides and particulate matter, appears to have deteriorated. Progress in the reduction of air pollutants is considered to be insufficient, notably due to the existence of less stringent limits for inland navigation, the continued use of old engines, and the achievements of road transport in cutting emissions. Moreover, river systems are part of functional [ecosystems](#) which are heavily influenced by the activities taking place on the river itself and in surrounding areas. Because of this, inland water infrastructure has to be developed sustainably, within the framework of EU environmental laws, notably the [Birds](#) and [Habitats](#) Directives and the [Water](#) Framework Directive.

EU action

Aware of the structural challenges faced by the inland waterway transport sector, as well as of its development potential, the EU has, on several occasions, highlighted the importance of the sector.

The European Commission's 2011 "[Roadmap](#) to a Single European Area – Towards a competitive and resource efficient transport system" included many initiatives relating to inland waterways. In particular it proposed the following:

- a 30% shift of road freight on journeys of over 300 km to other modes such as rail and waterborne transport by 2030, rising to 50% by 2050;
- stimulating the integration of inland waterways into the transport system, and eco-innovation in freight;
- ensuring that by 2050 all core sea ports are sufficiently connected to rail freight, and where possible, to the inland waterway system;
- between 2016 and 2020, examining mandatory application of internalisation charges on all inland waterways in the EU.

In 2006, the Commission adopted a first Communication on an Integrated European Action Programme for Inland Waterway Transport called [NAIADES](#). This aimed to bolster the advantages of inland waterway transport and tackle a number of obstacles that may deprive it of certain opportunities, identified a number of possible actions and called for coordinated efforts to be carried out by all actors. The Action Programme included recommendations for the period 2006-13, focusing on five interdependent fields, i.e. market, fleet, jobs and skills, image and infrastructure, with different types of measures (legislative, coordination or support measures).

The NAIADES programme also provided for provisions for modernising the organisational structure of the IWT sector, considered as fragmented both in terms of resources and legal provisions, taking into account in particular the existing obligations between Member States and in international river commissions.

In order to help the implementation of the NAIADES programme, the Commission created a dedicated platform for stakeholders (i.e. Member States, river commissions⁶ and industry representatives) called PLATINA (Platform for the implementation of Naiades) in 2008. Funded through the Seventh Research Framework Programme, PLATINA provided effective support in the different areas of the NAIADES programme. In August 2013, the EC launched [PLATINA II](#) to support the implementation of the NAIADES II programme and maintain key stakeholders' expertise. Bringing together 12 partners from different European countries, PLATINA has received €2 million of funding from the EC.

As recalled in the mid-term progress [report](#) on its implementation, the programme initiated some concrete legislative, policy and coordination actions and raised the profile of the inland waterway transport sector on the political agenda of all stakeholders. However, it was not accompanied by new financial resources. Many of the actions [proposed](#) were implemented through different tools or instruments such as [TEN-T](#), [Marco Polo](#), or [Leonardo da Vinci](#).

For example, regarding [infrastructure](#) development, support to IWT was delivered through the TEN-T policy with financial support coming, for instance, from Structural Funds, the TEN-T budget or through loans from the European Investment Bank. Of the 30 TEN-T [priority projects](#), two specifically focus on inland waterways:

- Priority project 18 "Waterway axis Rhine/Meuse-Main-Danube", which runs from the North Sea at Rotterdam to the Black Sea in Romania. The project, which is ongoing, covers some river engineering projects, the construction of navigation locks and new bridges and a range of feasibility studies;
- Priority project 30 "Inland waterway axis Seine-Scheldt", whose objective is primarily to connect the French inland waterway network to the Belgian, Dutch and German networks and ports and includes, for example, developing the Seine Nord canal on French territory, and multimodal logistics sites.

Inland waterways are also promoted in the context of EU macro-regional strategies. The action plan accompanying the EU Strategy for the [Danube](#) Region contains many [actions](#) aimed at improving mobility and intermodality via inland waterways.

Recent policy developments

On 10 September 2013, the Commission adopted the NAIADES II package, setting out the policy priorities for the inland waterways sector for the period 2014-20, which aims

Central Commission for Navigation on the Rhine (CCNR)

Created in 1815 at the Congress of Vienna, the [CCNR](#) is the oldest inter-governmental organisation in the world. Its role is to ensure freedom and prosperity of navigation on the Rhine and throughout Europe, as well as a high level of safety for navigation and its environment. Since 1868, the CCNR has had a crucial regulatory role. It is composed of five countries (Germany, Belgium, France, the Netherlands and Switzerland), with 11 observer countries associated.

Considering the importance of the Rhine for inland navigation in Europe – more than two-thirds of all goods carried on inland waterways use the Rhine – the EU has longstanding cooperation with CCNR. In May 2013, the European Commission and the CCNR signed an administrative [arrangement](#) to develop a new form of bilateral cooperation, notably through better alignment of priorities and step-by-step adoption of uniform standards.

to improve the economic and environmental performance of inland navigation as well as transforming inland navigation into a quality mode of transport.

The NAIADES II package comprises a [Communication](#), entitled "Towards quality inland waterway transport", with an action programme for the years 2014-20. The key measures of this programme are to:

- Improve the infrastructure quality and the integration of inland waterways into the logistics chain;
- Support the need for qualifications, skills and quality jobs in inland waterways and the restructuring of the sector;
- Promote the greening of the sector by reducing emissions and innovation; and
- Develop a new approach to governance in order to tackle the issue of overlapping legal frameworks and competences in the inland waterway sector.

Though the sector operates in liberalised markets, lack of harmonisation in certain fields is hampering the functioning of the internal market. The action plan therefore includes sets of measures to be implemented by different actors (public authorities at EU or national level, sector representatives, river commissions, etc.). To foster integration of inland waterways into the logistics chain, the Commission will for instance review the deployment of river information services⁷ in order to improve data integration across transport modes. On the environmental front, the EC will review the emissions limits for new engines, explore further emission limits for existing engines and amend the rules to allow the use of liquid natural gas (LNG) as an alternative fuel.

The NAIADES II package also includes two legislative proposals and a staff working document on greening:

- A [proposal](#) for a directive on technical requirements, the objective of which is to allow the enactment of uniform standards for inland waterway vessels. This is part of the new approach on governance addressing the overlap of legal frameworks and competencies between international bodies such as the CCNR and the EU (see box above).
- A [proposal](#) for a regulation on Community-fleet capacity. Amending the [existing](#) Regulation, its purpose is to extend the scope to use the Reserve Funds for inland waterways, in order to train all crew members leaving the industry, strengthen professional associations at EU level, and favour innovation and environmental performance of vessels. Set up at national level in order to help the sector overcome difficulties, the Reserve Funds, currently amounting to €35 million, have not been used up to now.
- A staff working [document](#) on "Greening of the fleet: reducing pollutant emissions in inland waterway transport" — contributing to the impact assessment of future initiatives concerning the greening of the inland waterway fleet.

At EU level, financing will be provided for the period 2014-20 by the Connecting Europe Facility ([CEF](#)), for infrastructure measures, and [Horizon 2020](#), for research and innovation, including greening. Member States are also invited to include inland waterways in their integrated territorial investment strategies and projects, and to consider support through the Structural and Cohesion Funds.

Regarding [infrastructure](#) support, the [revised](#) (2013) TEN-T guidelines place particular emphasis on ease of access and the facilities available at sea ports and inland ports in

order to improve the share of IWT. Inland waterways are also an important element in six of the nine TEN-T core network corridors.

European Parliament

In its [resolution](#) of 15 December 2011 on the Roadmap to a single European transport area, the Parliament expressed its support for the NAIADES programme in accordance with nature conservation and environmental legislation, and called for its continuation from 2014. When adopting the revised TEN-T guidelines in 2013, it [underlined](#) the need to ensure the right balance between protecting the environment and developing inland waterways, with better safeguards for sensitive sites and habitats. The rapporteur from the Committee on Transport and Tourism (TRAN) on the NAIADES II package, Corien Wortmann-Kool (EPP, the Netherlands), [welcomed](#) the package and underlined the importance of developing innovative and sustainable inland waterway navigation; some Members, however, regretted the lack of new elements in the action programme. The lack of consistency in the inland waterways network and the need for a coherent system for navigable rivers in Europe were highlighted at a [hearing](#) on NAIADES II, held by the TRAN Committee on 9 January 2014. A vote in the Committee and in plenary on the two legislative proposals ([technical requirements](#) and [Community-fleet capacity](#)) is expected to take place before the end of the current legislature.

Stakeholder organisations such as the European Federation of Inland Ports ([EFIP](#)), the European Barge Union ([EBU](#)) and Inland Navigation Europe ([INE](#)) welcomed the NAIADES II package in general, even though some organisations (EBU and INE in particular) highlighted the importance of providing clarity and sufficient financial support for implementation.

Further reading

Transport et logistique fluviaux, Marie-Madeleine Damien, Dunod, 2009.

Future Challenges for Inland Navigation, Christa Sys, Thierry Vanelslander, UPA, 2011.

Endnotes

¹ The share of inland waterways in terms of [passenger transport](#) (see page 46 of "EU Transport in figures - Statistical pocket book 2013") expressed in passenger kilometres (pkm) is almost non-existent statistically. Consequently, this briefing focuses on freight. The passenger-kilometre (pkm) is a unit of measure that corresponds to 1 passenger transported over a distance of 1 kilometre.

² The tonne-kilometre (tkm) is a unit of measure that corresponds to 1 tonne transported over a distance of 1 kilometre.

³ As mentioned on page 36 of [EU Transport in figures](#), air and sea transport relate to domestic and intra-EU 27 transport (provisional estimates). Data for road transport refers to national and international transport by vehicles registered in the EU 27.

⁴ See page 34 of Transport et logistique fluviaux, Marie-Madeleine Damien, Dunod, 2009.

⁵ The introduction of new double-hull vessels into the market on top of the existing single hull vessels has led to over-capacity, while for the large dry-bulk vessel segment over-investment leading to over-capacity has put pressure on operators.

⁶ There are several [river commissions](#) in Europe such as the Central Commission for the Navigation on the Rhine (see box), the Danube Commission, the Sava Commission and the Mosel Commission.

⁷ River information services (RIS) are concerned with traffic management of inland waterway infrastructure. They specifically cover the setting up of an interoperable and intelligent traffic and transport system in order to optimise existing capacity and safety, and improve interoperability between other transport modes.

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<http://epthinktank.eu>

ep@ep.europa.eu