INE contribution on upcoming EU Port Strategy

Executive Summary

Inland waterways play a vital role in the EU port ecosystem due to their function as sustainable, resilient and strategic transport corridors for critical goods. These corridors extend the reach of maritime trade for industry in ports' hinterlands. Their importance goes far beyond transportation, however, as these waterways also provide essential water supplies for industry and energy, pertinent flood control systems, and are key in the protection of critical water infrastructure across Europe. These waterways are foundational to the safety and functioning of European societies.

Several barriers and threats exist to the optimal use of inland waterways in the port ecosystem. These include historic infrastructure underinvestment, climate change stressors, modal shift bottlenecks and both physical and digital security threats. Amidst geopolitical tensions and the impacts of climate change, these challenges and threats must be addressed through a strengthened and collaborative policy that recognises the intricacy of ports' networks.

It is essential to transition from crisis response to anticipation and coordinated response. We fully support the 'preparedness' by design' approach proposed by the Commission, but we are opposed to the administrative or physical fencing that would create barriers for modal shift. We propose a multi-use approach to infrastructure due to the interdependencies of waterways' functions and maximizing of synergies. This coordination can be achieved through coherence in policy and a comprehensive pan-European vulnerability assessment, an EU predictable framework for infrastructure investment, innovation & digitalization and the prioritization of safety and security. Coordinated EU-level action is needed to bridge gaps and safeguard this critical infrastructure for a secure, strategic and sustainable port ecosystem.

1. Inland waterways in the port ecosystem

While EU ports handle the majority of the Union's external trade, the bulk of cargo starts or ends its journey in the European hinterland, where most consumption and production centres are concentrated. This highlights the intricacy of trade and logistics networks, where ports act as pivotal hubs, connecting sea and land transport modes and creating significant added value.

Inland waterways play a vital role in this ecosystem. They connect the EU's main seaports – many of which lie on shipping canals – to inland regions, enabling the **sustainable transport of large volumes of goods** with lower environmental impact. Inland ports, strategically located along navigable waterways, function as important transshipment hubs and gateways, extending the reach of maritime trade into the heart of Europe's industrial, agricultural, and consumer areas.

In addition to their transport function, waterways also provide **essential services to the wider economy and society**. Surface waters of rivers and canals are indispensable to the strategic nexus water supply for the population, agriculture, energy, and industrial clusters – especially those situated in and around ports. They implement measures to address water scarcity and drought, thereby enhancing port resilience. Furthermore, they invest in measures to mitigate the impact of flooding, safeguarding society and industry against potential damage while ensuring the protection of transport infrastructure, a crucial pillar of the economy. Waterway authorities also manage critical and often multifunctional infrastructure such as locks, reservoirs, dams, dikes, and embankments, which also host key utilities like pipelines, electricity networks, and high-capacity data lines. These physical assets are foundational to the safety and functioning of European societies.

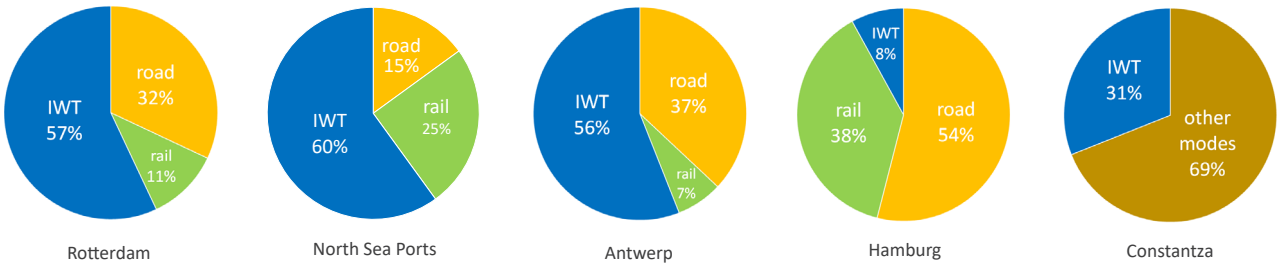
BASF Noordlandbrug Antwerp

Given their multi-faceted functions, inland waterways are indispensable links in the port ecosystem. The underperformance of inland waterways and their related infrastructure directly impacts port performance.

2. Added value of inland waterways to EU ports

2.1. Inland waterway transport (IWT) in EU mainports

Some of the EU's largest ports have a strong reliance on inland waterway transport for their hinterland connectivity, with IWT shares in modal split exceeding 50%. This underlines the importance of inland navigation not only as a sustainable alternative but as a cornerstone of logistics in and out of core EU ports.

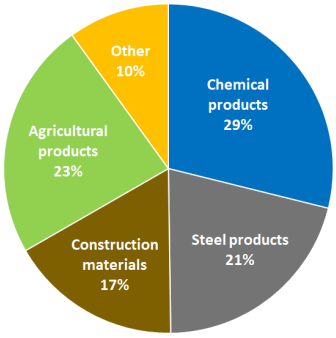


Sources: port authorities (2023), Rotterdam CBS (2023)

2.2. Transport of critical cargo by waterways

IWT only account for 6% of total freight, but a closer look at the figures behind this statistic reveals that inland waterways carry the **building blocks of our economy** by moving foundational raw materials and semi-finished products – such as steel, chemicals, construction materials, and renewable fuels – that are indispensable to Europe's manufacturing base and energy transition goals. These commodities underpin the Clean Industrial Deal and the circular economy. Furthermore, IWT's unique capacity to handle **outsized cargo, including heavy military equipment**, is a key asset, especially given the weight and dimension constraints that road and rail transport face (e.g. overwire limitations). Inland ports play a vital role in military mobility by offering staging areas for strategic cargo, provided they are equipped with Ro-Ro ramps, strengthened quaysides, and high-capacity cranes.

With its ability to adapt to unexpected events and respond quickly to sudden disruptive changes, inland navigation has also proven to be a **strong back-up mode**. During the COVID-19 pandemic, inland waterways maintained essential supply chains, including pharmaceutical raw materials. More recently, the Danube became the principal Solidarity Lane counting for more than 25% of Ukrainian grain exports after the Black Sea corridor was compromised – demonstrating IWT's ability to function as a vital contingency route.



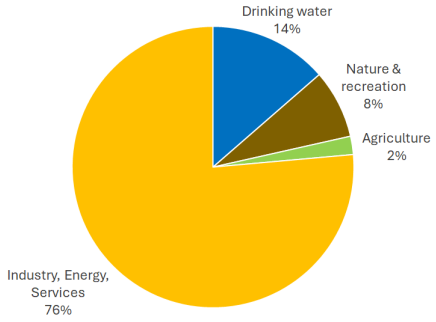
Commodities transported by IWT
Source: Eurostat 2023, transport performance in mln tkm, processed by EICB (2025)

2.3. Energy transition and independence

In order to meet its climate targets and reduce energy vulnerability, the EU must transform its ports – including inland ports – into green and resilient energy hubs with strategic reserves of alternative energy and critical raw resources that are essential for the green transition. To ensure future readiness, inland ports must increase alternative energy production and distribution capacity, supported by robust, multimodal supply chains and investment in alternative bunkering infrastructure, shore power (OPS), and digital coordination platforms to align energy logistics with vessel and grid requirements. The inland waterway sector has already signalled its commitment to decarbonisation under the Sustainable Transport Investment Plan, outlining its annual needs for sustainable alternative fuels. Inland navigation is also ideally suited to transporting large volumes of such fuels, as it has long done for conventional energy products. To meet the future demand for alternative fuels and to facilitate electrification, we propose to include inland waterways and ports in the development of **green energy corridors**. These will bring together public and private stakeholders to introduce comprehensive alternative energy solutions.

2.4. Water resilience and security in a broad sense

Waterways are multifunctional and their infrastructure supports far more than transport. Waterway authorities are **guardians of critical systems that manage water resources, protect against floods, and support energy, industrial and agricultural needs**. The continuity of these functions is interlinked with port operations. Locks and dikes, for instance, are essential for maintaining year-round navigability and consistent water levels, thereby ensuring uninterrupted port access. Any damage or failure in these systems can disrupt transport, compromise safety and interrupt energy or industrial production sites and supply chains. **Ports and waterways must be seen as interdependent systems**, necessitating joint investment and protection strategies, particularly in view of the increasing risks posed by climate change, cyberattacks and sabotage.



Total surface freshwater usage on the Albert Canal for the period 2005-2019, in Mm3/year

Source: Flemish Environment Agency

Over **75%** of water consumption from surface water of the Albert Canal is used by the industry, mainly by the chemical clusters in and around the Port of Antwerp

3. Stress factors hindering the achievement of competitiveness, sustainability and resilience

3.1. Port barriers to IWT

While some mainports are located on waterways, infrastructure access to IWT remains suboptimal, resulting in low modal shares. Other mainports with a high share of inland shipping in hinterland transport are keen to increase this share, given the free capacity on inland waterways. However, the handling of inland barges does not have priority on seaport container terminals. This results in extended and costly waiting times, which diminishes the appeal of IWT in the multimodal transport mix. This, in turn, undermines ports' performance and contingency capacity, as well as the EU's strategic goals for modal shift.

3.2.Infrastructure underinvestment

Decades of underinvestment in inland navigation corridors has led to bottlenecks that threaten to reverse modal shift and divert freight back onto already congested roads and railways. This, in turn, has a detrimental impact on port hinterland capacity and their overall performance. These bottlenecks also affect readiness for military transport and disaster response. An overview of bottlenecks has been made per EU transport corridor. Finally, underinvestment also affects other functions of waterways, compromising overall safety.

Lock complex Gambsheim

3.3. Security threats

In addition to capacity constraints for military mobility that are to be identified in the EDA assessment (gaps in Ro-Ro readiness, heavy lifting infrastructure and multimodal access), there is an increasing vulnerability of inland waterways and port infrastructure to digital and physical disruption. Alongside the challenges posed by foreign digital dependence and sabotage risks to critical infrastructure, waterway authorities are facing an increasing number of cyberattacks and system intrusions that pose a potential threat to all the vital societal functions they manage. It is imperative to take preventive measures to avert the takeover of locks, dams, reservoirs or flood control systems that provide access to critical societal functions.

3.4. Climate change exerts a detrimental multiplier effect

Adverse consequences include increased flooding and prolonged periods of water scarcity and drought. These effects have a negative impact on the competitiveness and safety of day-to-day operations, although IWT services continuously adapt to climate with for instance climate proof vessel design. Furthermore, these changes have consequences for the availability and quality of water supplies, which are essential for economic activities. Climate change also compromises the stability and safety of critical waterway infrastructure and water-related structures such as dams, locks, reservoirs, bridges, dikes, embankments and hosted utilities. While resilient infrastructure does incur higher costs compared to conventional infrastructure, neglecting to address these issues will result in cascading and costly disruptions.

Sigmaplan ensuring water safety and security, protecting nature, improving navigation and protecting large adjacent areas and infrastructure from flooding

4. How to strengthen the role of inland waterways to the benefit of a resilient EU port ecosystem

4.1. Multiple-use preparedness by design (instead of dual-use)

In light of the present geopolitical and economic turmoil, the dual civil/defence approach is undeniably very important. However, waterway authorities advocate taking this a step further. Drawing on their own experience in managing multi-functional infrastructure for transport, water services, biodiversity, energy and security, they recommend not only a dual-use approach, but a multiple-use approach to infrastructure to ensure the most strategic return on investment for our economy and society in terms of security and safety, as well as competitiveness and sustainability.

Already today, climate change strongly affects waterways' resilience and the safety of infrastructure on top of a backlog in renovation, decrease in funding and increasing danger of hybrid warfare. This will only increase and this causes a systemic risk to multiple and interdependent vital societal functions which we described in our contribution to the Water Resilience Strategy. Waterway authorities therefore engage in integrated and multidisciplinary planning, design and management of projects for infrastructure. These projects address transport, climate and water resilience, acknowledging interdependencies and combining functions wherever possible to maximise synergies and co-benefits.

4.2. From crisis response to anticipation and coordinated response

In order to increase the resilience and preparedness of the EU port ecosystem, it is essential to transition from crisis response to anticipation and coordinated response. We fully support the 'preparedness by design' approach proposed by the Commission, but we are opposed to administrative or physical fencing that would create barriers for modal shift.

Since the inland waterways serving EU's mainports cross national borders, it is our proposal that the above mentioned factors are addressed in a coordinated manner at the EU level, through the following actions:

- **Coherence between policies:** The Commission has launched a number of interlinked initiatives. Policies on transport, military mobility, ports, renewable energy, water resilience, biodiversity, climate change mitigation and adaptation, and preparedness all affect inland waterways due to their multifunctional role. INE requests that the Commission ensures the policies it develops are complementary and mutually reinforcing, and that any discrepancies are avoided. This approach will enhance implementation and prevent the emergence of new bottlenecks.
  - Dredging is often perceived as environmentally unfriendly, but it is essential to maintain the functioning of waterways and to deliver climate and water resilience. It is also indispensable for the implementation of nature-based solutions. The CIS guidance on integrated sediment management provides criteria for sustainable dredging.
  - Civil and defence authorities must collaborate to ensure that inland ports are designed or upgraded with multi-use functionality as a priority. This should include Ro-Ro ramps and ferry terminals suitable for heavy vehicles and military convoys; heavy lifting infrastructure (e.g. cranes, reinforced quays); secure zones with high-capacity transshipment capabilities; energy and data infrastructure for dual-use resilience; and redundant and interoperable connectivity with road, rail, and digital networks.
- Conduct a **comprehensive pan-European vulnerability assessment** of the inland waterway network, including ports. This assessment should address supply chain continuity, climate resilience and security.

- Provide support to **research, innovation and deployment** to bridge uncertainties by investigating data gaps; improve forecasting, early warning and monitoring capacity for waterways; maximise the potential of digitalisation with IoT, digital twins and AI with due attention to EU sovereignty in data and digital networks in a unifying strategy on digital autonomy as a strategic resource for dual/multiple use; design, test and implement inter-disciplinary resilience solutions and advanced technologies that not only reduce vulnerability but boost robustness and agility. Special attention should be given to market transfer and deployment.
- Digital technologies are widely adopted in inland navigation. **Digitalisation** is an important tool for data sharing and should be enhanced across modes to facilitate seamless multimodal logistics. Digitalisation is also key to optimising design, governance, management and operations, addressing labour shortages without compromising safety and creating new and different jobs. River information services, automation and other digital services rely heavily on cybersecure communication and interconnectivity.
- Following a comprehensive **investment gap analysis**, it is essential to direct and prioritise EU and national public **funding into the safety and security of infrastructure** securing vital societal functions which have been neglected for too long. These include ensuring good navigation conditions, multimodal connectivity and dual/multiple-use readiness that also support the port ecosystem. Funding must be predictable, coordinated at EU level coordinated and embedded in corridor work plans to ensure cross-border implementation. **We are only as strong as our delivery capacity.**

Remote control navigation

Inland Navigation Europe (INE) is the European platform of national & regional waterway authorities and organisations promoting waterway transport, established in 2000 with the support of the European Commission, and a neutral platform without commercial interests.

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