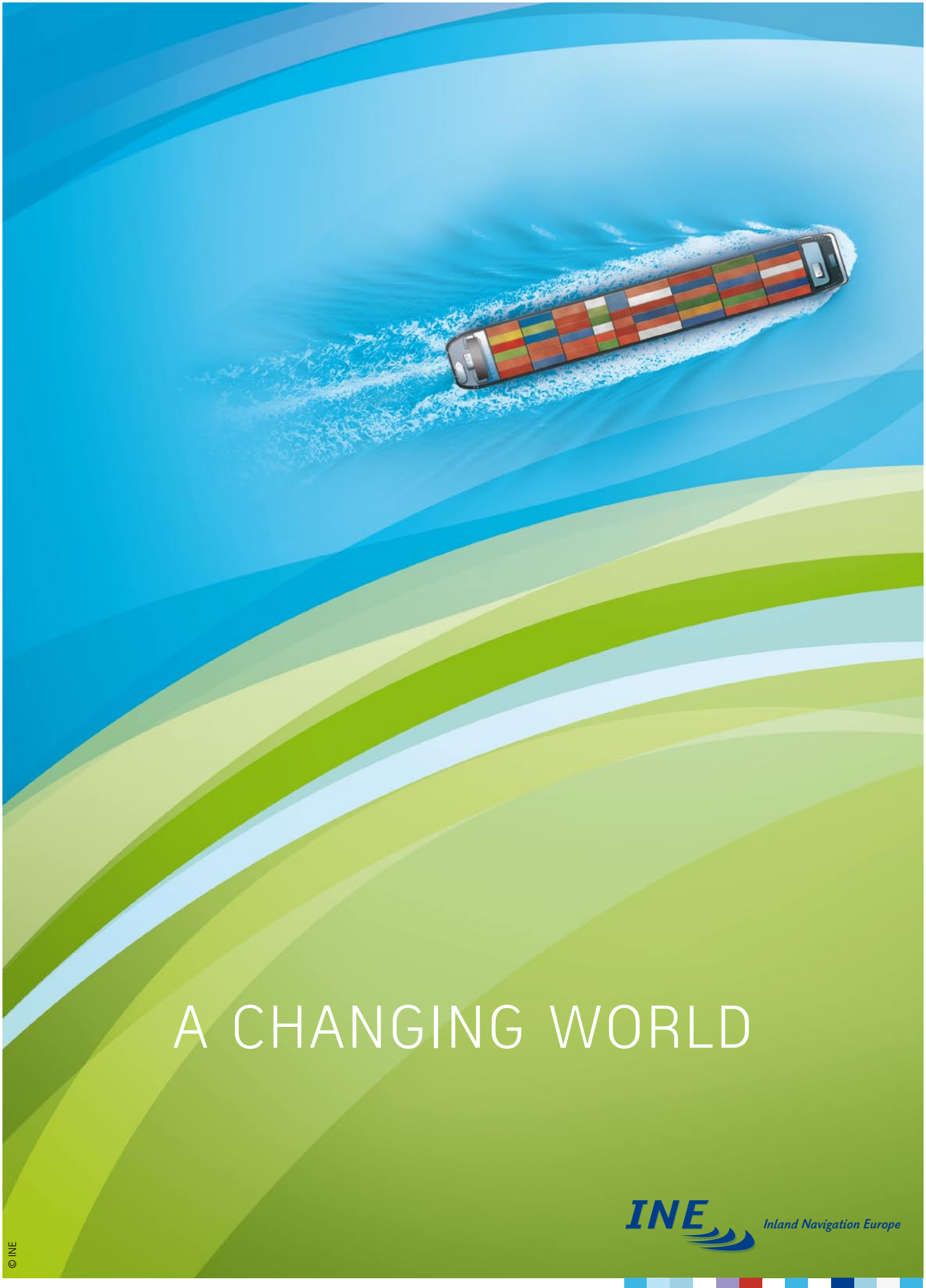


A CHANGING WORLD

INE Inland Navigation Europe

A CHANGING WORLD

The current economic situation seems all consuming, but climate change, dwindling natural resources and rising congestion are real threats to long-term economic growth. Part of the search for economic stability and sustainability has to include developing innovative solutions to these threats.

Of course, the term 'sustainability' has been fashionable for some years now, but because being sustainable is now a source of competitive advantage and a matter of survival rather than a costly inconvenience, the tension between efficiency and sustainability is vanishing. A growing number of cutting edge policy makers and companies are actively considering more efficient ways of transporting goods with new processes and technologies that increase environmental care and reduce dependency on scarce resources.

WORKING TOGETHER IS THE WAY FORWARD

According to the Global Commerce Initiative, the key to a more sustainable supply chain is sharing. Companies who collaborate with each other will see reductions in transportation costs and lead time, and a growth in on-shelf availability. Sharing will also have a positive impact on the environment, helping to shrink companies' carbon footprints and energy costs. This is illustrated in the diagram on page 3.

Over 70% of Europeans live in cities with a commensurate growth in traffic, making seamless logistics a paramount concern. Traffic congestion can be addressed through city hubs, joint warehouses and shared transportation, all of which will combine to reduce vehicles on the road, energy consumption, and carbon emissions.

WATERWAYS CONNECT

The European waterway network is an arterial system that reaches deep into the heart of many towns and cities, where over 70% of EU citizens live and work. Europe's rivers and canals are catalysts for the sustainable mobility of goods and people. They provide a vital link between coastal and inland ports and major sites of manufacturing, industry and commerce.

© SPW – BVB

INLAND NAVIGATION EUROPE (INE) is the European platform of national & regional waterway managers and promotion bureaux, established in 2000 with the support of the European Commission. INE sees major opportunities to contribute to long-term strategies for sustainable transportation by moving more goods by water in EU regions with accessible and navigable rivers and canals. INE is a neutral platform without commercial interests.

INE, Koning Albert II -laan 20, office 6G65, B-1000 Brussels
info@inlandnavigation.org • www.inlandnavigation.org

PLANNING THE FUTURE

Infrastructure has a long-term life span. We have to make strategic choices to be ready for the socio-demographic, technological, economic, environmental and political changes which are unfolding right now. To make inland navigation even more competitive, we offer some suggestions for an ideal 2020 future.

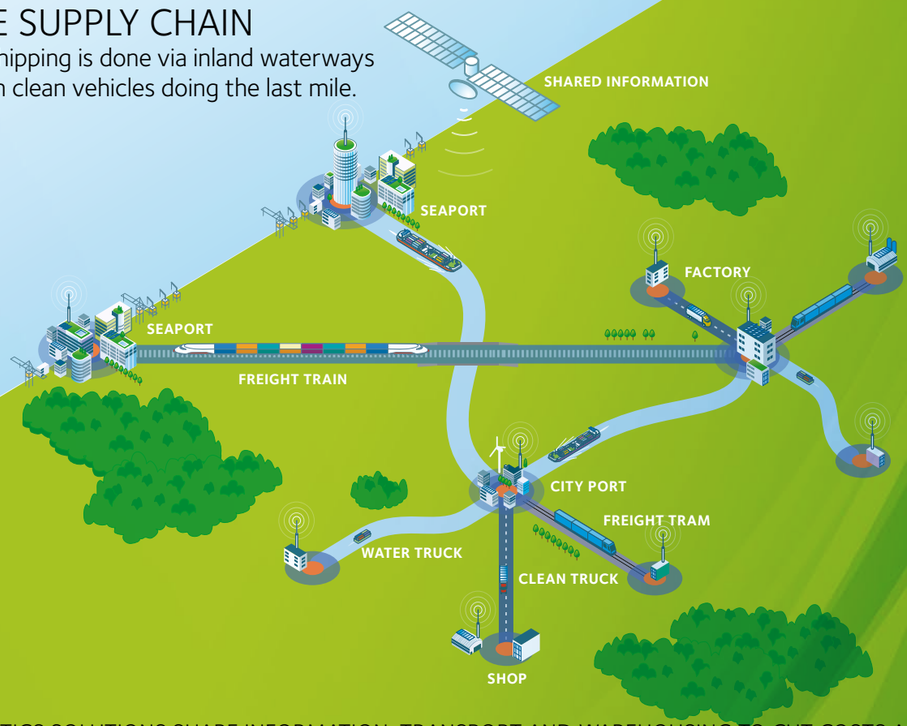
In transport, Europe's inland waterways can offer a powerful answer to expensive traffic jams and painful capacity shortages. Removing bottlenecks on the congestion-free waterways and upgrading connections to ports can be done with relatively limited financial resources as inland navigation has already proved it can grow more than the other modalities on less investment. Together with integrating intelligent information systems across modes this will enable citizens and businesses to keep moving.

Last but not least, the promotion of inland waterways goes beyond transport, it is a win-win solution for all concerned, reducing congestion and emissions in supply chains whilst more return on investment is generated with integrated landscape solutions encompassing environmental protection, regional development, water supply, leisure, tourism and flood control.

"AS 50% OF EUROPEANS LIVE CLOSE TO THE COAST AND IN THE RIVER VALLEYS OF THE 15 LARGEST RIVERS, CITY WATERWAYS ARE NATURAL HUBS FOR SUSTAINABLE DISTRIBUTION. IF YOU CAN MOVE 50 TRUCKS IN ONE GO AND IT SAVES FUEL, YOU CANNOT HELP BUT CONSIDER THE PRACTICALITIES OF WATER AS AN ALTERNATIVE FOR A FORWARD-LOOKING ECONOMY."
CATHERINE RIVOALLON,
MONOPRIX, CHEF DE DÉPARTEMENT

FUTURE SUPPLY CHAIN

Long haul shipping is done via inland waterways and rail with clean vehicles doing the last mile.



© INE

NEW LOGISTICS SOLUTIONS SHARE INFORMATION, TRANSPORT AND WAREHOUSING TO CUT COSTS AND EMISSIONS.

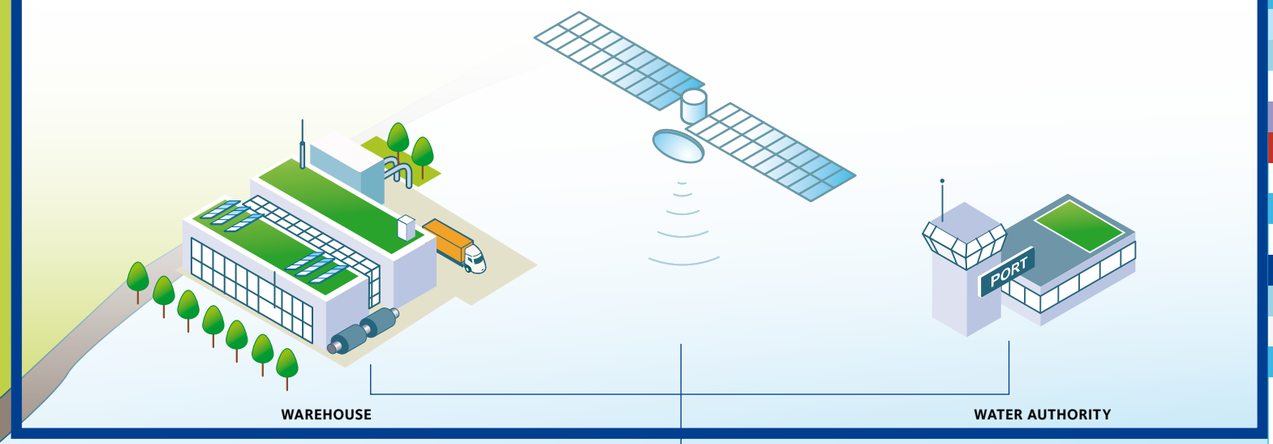
CONTENTS

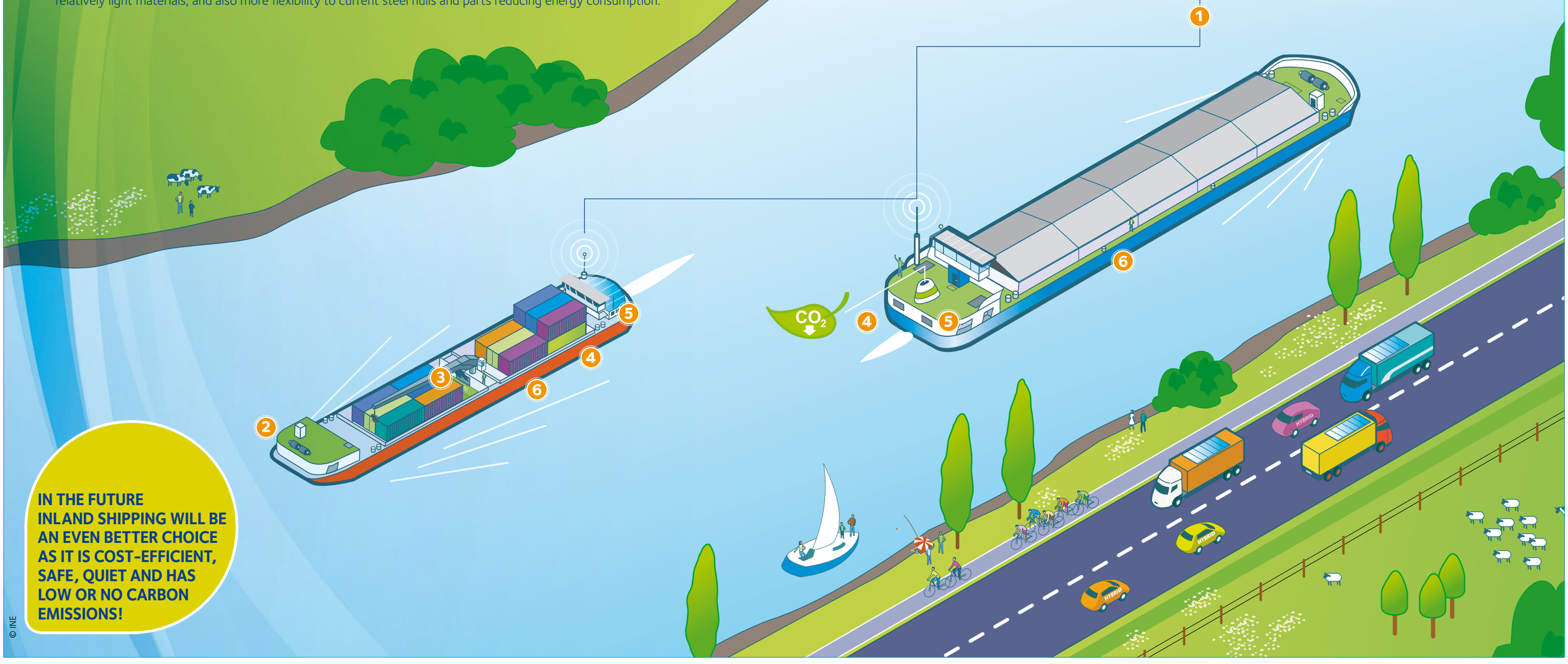
THE OLDEST MEANS OF TRANSPORT WITH THE NEWEST TECHNOLOGY

TOWARDS 2020 INLAND SHIPPING

1. **Information technology:** River Information Services (RIS) ensure more efficient and reliable services by allowing:
   - In-advance and real-time communication with port and waterway authorities and logistics players
   - 100% reliable operations through efficient lock management
   - Paperless and streamlined administrative procedures
   - On-line fuel tracking to save fuel and cut greenhouse gases
   - Tracking and tracing for more safety, especially when transporting dangerous goods
2. **Fleet diversity:** Small ships are real water trucks operating along short distances while bigger ships can take more cargo further using less fuel.
3. **Versatile and innovative:** Cost-efficient solutions with automated loading machines onboard mean fast moving consumer goods can be transported even when there is no transhipment facility available.
4. **Clean fuel:** Working towards zero-emissions, using hybrid, electric and hydrogen solutions from renewable energy sources, producing no noise.
5. **Good working conditions:** Modern ships provide a good quality of life for sailors, with comfortable working and living space.
6. **Vessel design:** Nanotechnology increasingly introduces the use of composites which provide great mechanical strength in relatively light materials, and also more flexibility to current steel hulls and parts reducing energy consumption.

RIS or River Information Services: an intelligent transport system that connects ship to shore



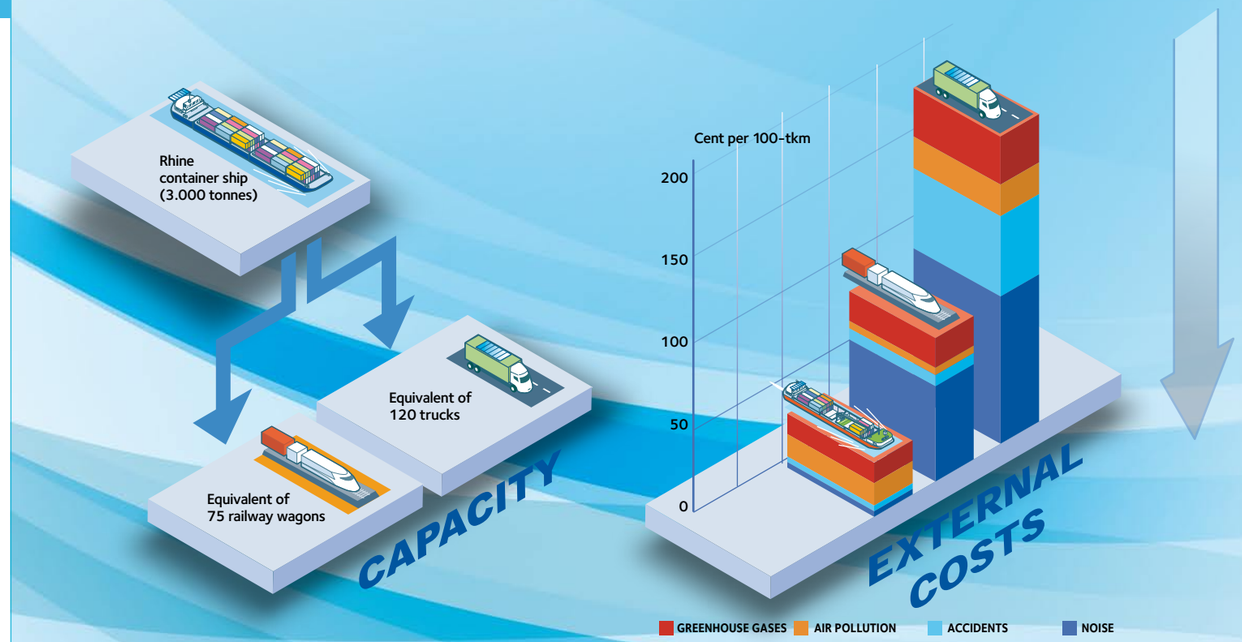


IN THE FUTURE INLAND SHIPPING WILL BE AN EVEN BETTER CHOICE AS IT IS COST-EFFICIENT, SAFE, QUIET AND HAS LOW OR NO CARBON EMISSIONS!

TODAY'S ACTIONS MAKE TOMORROW'S DIFFERENCE

INNOVATION FOR A GREEN ECONOMY

Forecasts predict that, despite the current slump, the demand for transport will pick up again and increase until 2020. Financial priorities should be innovation, clean propulsion, sustainable infrastructure, integration of smart networks and information systems. **Today's new inland shipping engines already save up to 30% on energy and CO_2.** It is clear that inland waterway transport is already an asset against global warming. By 2020, savings will have gone up significantly thanks to new propulsion solutions with the ambition to achieve zero emissions. That's the agenda of waterway transport and that's why it's a worthwhile investment.



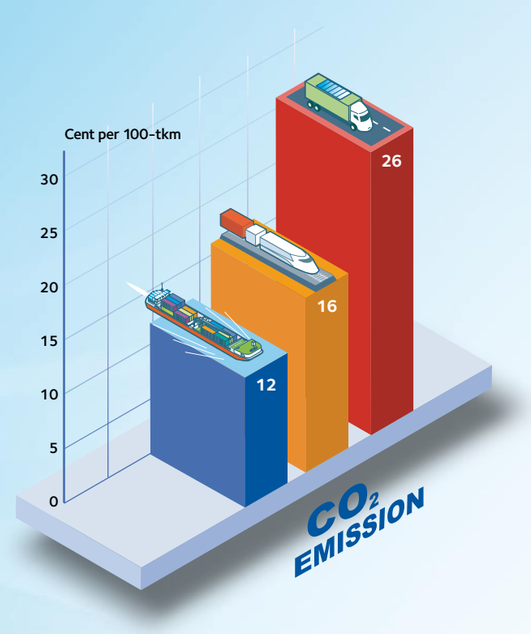
Calculations have been done assuming full 40-foot containers. The maximum weight that a truck can carry is 25 tonnes. In reality, trucks often travel with less load than this, and containers often weigh less than 25 tonnes, depending on contents.

Source: via donau

Inland shipping has low external costs when compared to other modalities. It compares especially favourably because of its low score on greenhouse gases, accidents and noise pollution. New fuels allow a dramatic drop in air pollution.

Source: PLANCO 2007

AIR POLLUTION FROM INLAND WATERWAY TRANSPORT WILL FALL BY 85% ONCE CLEAN FUEL IS AVAILABLE FOR INLAND WATERWAY TRANSPORT.



Carbon dioxide is the principal greenhouse gas. Because of its high capacity, inland shipping compares very favourably to other modalities.

Source: PLANCO 2007

ELECTRIC SHIP – THE WAVE OF THE FUTURE?

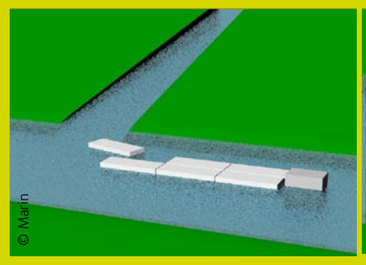
In congested cities, delivery by water makes sense to reduce congestion and emissions. But the city of Utrecht has gone one step further and commissioned an electric boat to deliver beer in the city. The boat will run completely electrically, including the cranes that are used to load and unload the goods onto the quays. As part of the project, the city will also introduce two electronic charging points – effectively nothing more than a plug, but a plug that delivers green energy! It is estimated that by using this electric boat instead of a truck to make the deliveries, the city will reduce CO_2 emissions by 16.5 tonnes per annum.

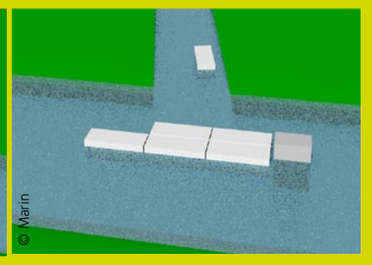
"The new beer boat will navigate on green electric power eliminating harmful emissions and slashing greenhouse gases by 94%, which is the size of 11 football fields."

JAAP DE JONG, HARBOUR MASTER OF THE CITY OF UTRECHT

BARGE TRUCK: LAST MILE DELIVERIES BY WATER

The barge truck concept is a green innovation currently being developed in the Netherlands. A convoy of small barges is pushed along a main waterway artery – each small barge is capable of independent mobility, and once a smaller artery or canal is reached, the small truck peels off from the main convoy and makes its own way down the smaller artery. The small barge is not manned, and its emissions are close to zero. This innovation will also enable deliveries of goods such as construction materials, sand and gravel to be made into the heart of cities without increasing traffic congestion. The barge trucks could also be used to ship waste out of city centres.





"EVO represents the interests of some 30,000 companies in the Netherlands that transport goods for their own account or contract this out to a professional transport company. They come from all sectors of industry, including wholesale, retail, construction, agricultural and business services. EVO supports projects like the Barge Truck. In the first place it is about saving transportation costs for companies. Secondly, the project enables the reduction of CO_2 emissions in freight transport, which is beneficial to the environment. We believe that the theme of energy reduction in freight transport is very important in the light of current global developments and more focus on sustainability."

PIETER VAN DER BAS, MANAGER EVO CONSULTING GROUP

RIVERS: ARTERIES FOR DEVELOPMENT

TOWARDS A 2020 LANDSCAPE

On rivers, there are bursts of activities that happily co-exist. This turns rivers into lifelines for the regional economy. Investments in rivers serve many purposes at once.

1 Transport and logistics:

- Sea and inland ports enhance clean freight distribution solutions. Traffic jams are strongly reduced through the use of clean trucks only for last mile deliveries
- Clean water truck convoys split in single units to serve factories and terminals located on smaller rivers
- Intelligent transport systems link up all means of transport ensuring efficient and safe services and better planning

2 Wildlife and biodiversity:

- Estuaries, rivers, lakes and canals host a rich fauna and flora
- Smart infrastructure such as fish ladders ensure the migration of fishes upstream and downstream
- Natural river banks are home to a wide variety of species

3 Energy production:

- Lock movements produce clean energy
- Factories on the waterfront use the water to run their electricity

4 Water supply and management:

- Water bodies provide drinking water to citizens and are core to a number of economic activities like industry and agriculture
- Water basins store water to regulate water levels in dry and high water periods
- Locks help to prevent floods

5 Leisure and tourism:

- The city waterfront is an exciting area of freight and leisure activities. People live and stroll around. Waterbuses, taxis and cruises enhance sustainable mobility
- In the countryside, fishers, cyclers and sailors enjoy the rich water environment

POLICY PLANNING IS PARAMOUNT

Inland waterway transport can be made even more competitive and efficient through policy planning that thinks ahead with the aim of creating an integrated landscape in which the needs of commuters, consumers, manufacturers and residents are met in a balanced and harmonious way.
No "business as usual", policy planners must think a generation ahead and have an essential role to play in making our vision happen. Incorporating land use and transport planning into the early stages of a development project and backing planning with a mediated process leads to successful sustainable development.

SUSTAINABILITY AND COMPETITIVENESS ARE INSEPARABLE

The emphasis should be on enabling networks to perform across modes when investing in transport. Integrated infrastructure and information systems are the crucial elements. The co-operative approach allows us to shape a new and efficient logistics system that enables goods to be easily loaded on and off and transported between multiple modes of transport.

WORKING WITH NATURE

The International Navigation Association (PIANC), bringing together government organisations, private companies, universities and professional individuals in all fields of maritime and inland water transport worldwide, calls for an important shift in the approach to navigation development projects, helping to deliver mutually beneficial, 'win-win' solutions as a necessary way to contribute to truly sustainable development. While waterway transport provides excellent opportunities to mitigate the effect of global warming in transportation, PIANC calls for sustainable development to adapt successfully to climate change, by using a comprehensive systems approach that allows continuous upgrades as new knowledge emerges and new engineering practices are developed to support satisfactory system safety and performance under the dynamic conditions and in the face of nonlinear processes associated with climate change.

WIN-WIN SITUATION ON THE DANUBE

Infrastructure projects, whether road, rail or waterway, are frequently objected to by the communities that will be impacted by the construction and operation. Inland waterway infrastructure development can often be particularly sensitive, owing to the fact that waterways are not only transport mediums but also part of a delicately balanced eco-system, providing a habitat for fauna and flora. An integrated river engineering project currently underway on the Danube to the east of Vienna proves that it is possible to find solutions that are acceptable to all the concerned parties. Through an integrative planning approach, which benefited from the input of experts for ecology and navigation and mediated interventions with concerned NGOs, via donau (the Austrian waterway authority), have developed a combination of measures that will improve navigability on the Danube and enhance the ecological functionality of the whole region by taking counteractive measures against river bed degradation, restoring riverbanks and connecting side arms to the main river.
"The Integrated River Engineering Project offers an opportunity to safeguard the ecological quality of the national park in the long term. More than a century after the regulation of the Danube we can now restore much of the river's freedom in a national park."
Carl Manzano,
Director of the Danube Floodplain National Park


© via donau


© via donau


© via donau

SEINE-SCHELDT CONNECTION – BUILDING FOR FUTURE GENERATIONS

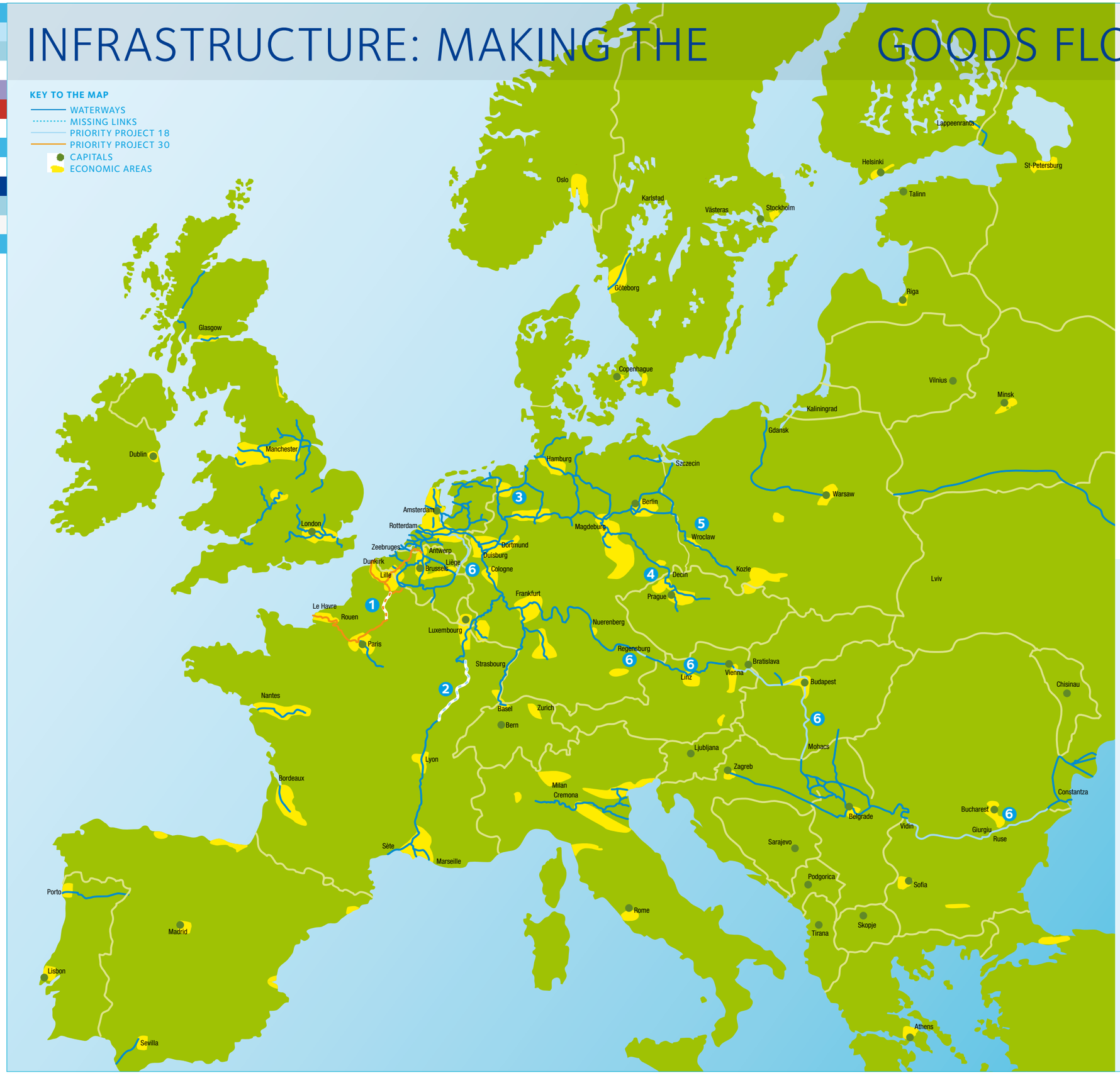
The Seine Scheldt link will connect the high-capacity river network in northern France with 20,000 km of European high capacity waterways, in particular in Belgium, the Netherlands and Germany. The main investment of the Seine Scheldt link, the Seine-Nord Europe Canal project, is situated at the heart of one of Europe's most congested corridors, which handles traffic of over 130 million tonnes a year. It will help to transport goods to the heart of the major European cities and industrial centers in conditions of optimum reliability, safety and cost while at the same time reducing the environmental footprint left by transport in terms of congestion, pollution, greenhouse gas emissions, safety and noise. An important added socio-economic value of the project is to bring economic development to the territory through four inland ports that will allow multimodal exchanges and industrial and logistics activities.

Best practices from all over Europe will be brought into play for this link, in terms of co-modality, information systems, services to users, innovation in building a modern fleet and integration of environmental aspects. Thinking ahead for future generations, the project, even at design stage, is integrating climate change adaptation measures in two ways. Firstly, thought is being given to adapting to water availability, even though it is very difficult to demonstrate that climate change could have an impact in the future on water availability. Secondly, the infrastructure has been designed to cope with the impact that extreme temperatures may have on infrastructure quality. In Belgium (Flanders) the Seine-Scheldt project involves a large chapter on river restoration of the Lys river. Old river branches are re-opened, ecological berms and fish passages are created. In this way the complex river ecosystem is preserved. These measures resulted from extensive discussions with environmental organisations. In addition to allowing for the effects of climate change, the project has also developed a range of measures and good practices to reduce its own environmental impact. Furthermore, an "observatory of the environment and of the sustainable development" is being set up by VNF in order to monitor and analyse the various impacts of the canal on the environment and on the territories concerned during the building phase and the exploitation phase.


© VNF

"The Seine-Scheldt Project will play a fundamental role, and will contribute decisively to the development of the European inland navigation world of tomorrow: a cross-border large-gauge network of canals, extending from the British Channel to the Black Sea, and offering competitive freight delivery solutions on a par with road transport."
Alain Gest, Chairman of the board of Voies navigables de France

INFRASTRUCTURE: MAKING THE GOODS FLOW



UPDATE EXISTING INFRASTRUCTURE

There has been significant underinvestment in rivers, canals, locks and bridges that would help to create a modern network. A connection is only as strong as its bottlenecks, so it's time to catch up.

CONNECT BUSINESS

Ports connect waterways to other transport modalities. Thriving and attractive ports are the essential link. Acting as hubs, they take trucks off the road, reduce tonnes of CO_2, optimise logistics costs and create jobs. By effectively integrating smaller seaports and inland ports on waterways into the network, major congested ports can be relieved and external effects can be taken down.

CONNECT INFORMATION

There are many ITS systems around, but they do not talk to each other, which mean no intelligent communication across the transport modalities. It's time that not only goods but also information goes co-modal to create a sustainable supply chain.

CONNECT COMMUNITIES

Rivers and canals do much more than transport, they are catalysts for regional and nature development, they are actors in water supply and flood defence, they foster leisure and tourism. That's how transport investment can be turned into integrated development and provides good value for money for entire communities.

SEINE-SCHELDT AREA

1 Seine-Scheldt connection

TEN-T project 30, Ongoing project of new canal Seine-Nord Europe and improving navigability between Le Havre/Île de France and Benelux

Related projects

- Seine-Scheldt West: improve navigability to the port of Zeebruges
- Seine-Scheldt East: improve navigability and lock capacity to Namur
- Albert Canal: improve navigability, lock capacity and bridge clearance
- Bray-sur-Seine to Nogent-sur-Seine: improve navigability

NORTH-SOUTH AREA

2 Saône-Moselle connection

Missing link between Marseille-Mediterranean and Moselle-Rhine–Ruhr area

EAST-WEST AREA

3 Mittelland canal: improve navigability

4 Elbe: improve navigability

5 Odra: improve navigability

RHINE-DANUBE AREA

6 Rhine/Meuse-Main-Danube connection

TEN-T project 18, Ongoing project between North Sea and Black Sea, including:

- Improve navigability on Maasroute
- Improve lock capacity between Namur and Liège
- Improve navigability between Straubing and Vilshofen
- Improve navigability between Vienna and Slovak border
- Improve navigability at certain spots between Palkovicovo and Mohacs
- Improve navigability at certain spots in Bulgaria and Romania

Related project

- Improve navigability of Sava river between Sisak and Serbian/Croatian border

MONEY, MONEY, MONEY

Economic challenges may offer support to those voices calling for a drastic cut in spending. But in fact, there is no shortage of money to spend on sound infrastructure schemes. Smart and long term planning enables us to create efficient infrastructure that multiplies system and technological innovation. The key here is to ensure sound investment and value for money by stimulating a green economy. Investing in waterways provides an excellent opportunity to adopt an integrated approach to logistics, energy, tourism, leisure, environmental protection, water management and yields wider benefits for regional economies.

"BETWEEN 1995 AND 2005, THE EU INVESTED SOME EUR 800 BILLION IN TRANSPORT INFRASTRUCTURE, ALLOCATING 64% TO ROAD TRANSPORT, 32% TO RAIL, 3% TO SEAPORTS AND 1% TO WATERWAYS. INLAND SHIPPING MANAGED TO GROW BY 14.5% DESPITE LOW INVESTMENT, BUT SPENDING TO OVERCOME A SERIOUS MAINTENANCE BACKLOG REMAINS NECESSARY TO TAP ALL ITS POTENTIAL."

MENNO MENIST, NEA

A comparison of the growth in investment with the growth in freight and passenger volume between 1995 and 2004 shows that inland navigation, despite having received the least investment, shows a substantial increase in freight volume, demonstrating that inland shipping is growing, regardless of the limited growth of investment in infrastructure. Imagine what more could happen if more investment is made.

Source: NEA 2008

PORT OF BRUSSELS – INVESTMENT PAYS OFF

Thanks to the port of Brussels and its commitment to inland navigation, 740,000 trucks are annually kept off the already congested roads, saving EUR 27.5 million of negative externalities to the city. The port is following a long term strategic plan, projected until 2015 and factoring in environmental, social and investment concerns to increase their contribution to the reduction of congestion and CO_2 within the city environment, developing an integrated solution that exists in harmony with the needs of city inhabitants. This broad reaching plan includes the renovation of locks, the conversion of a dock for recreational activity, the creation of a platform for river cruises and the raising of bridges that currently hamper navigation of some of the larger ships.


© Port of Brussels


© Port of Brussels

"The port of Brussels is committed to the development of Brussels as a friendly and congestion free city."

Alfons Moens, director general of Port of Brussels

RISING – INCREASING LOGISTICS EFFICIENCY

Infrastructure development isn't only about building concrete structures. Unless advanced and competitive intelligence systems that make cargo handling smooth and hassle-free are developed, freight transport in Europe will lose its competitive edge. This is also true of inland navigation. RISING, an EU-project officially launched in February 2009, will spend the next three years investigating increasing the efficiency of comodal transport-logistics processes using inland waterway transport. The project will increase efficiency by providing seamless traffic and transport-related information and standardised IT interfaces to transport-logistics actors and players. Europe as a whole is already committed to improving the deployment of River Information Services (RIS) in order to further the economic development of the inland waterway sector. Within RISING new RIS services will be developed in collaboration with key players from the transport-logistics sector.


© PBV

"We have a unique combination of expertise, experience, and market presence to guarantee a successful implementation of RISING project activities and results."

Institute of Shipping Economics and Logistics (ISL)

MEASURES TO TAKE

Inland navigation can make a substantial contribution to the reduction of greenhouse gases produced by transport as it uses three to five times less energy and emits three to five times less greenhouse gases than road transport.
The transfer of a portion of goods transportation to congestion-free inland waterway transport will also help to free up roads and enhance truly green corridors across Europe to the benefit of citizens and cities.

This contribution can be maximized by:

[1] The holistic improvement of existing waterway infrastructure, as well as the creation where necessary of new infrastructure. Inland navigation has already proved that it provides a considerable return on investment, having grown more than the other modalities on less investment in the past.

[2] The creation of truly multi-modal sea and inland ports, where goods are easily transferred from waterways to other transport modalities, ensuring optimal efficiency and maximum environmental friendliness of logistics operations.

[3] The continuation of and improvement to the already existing RIS (River Information Services), including a compatible and flexible interface with other intelligent transport systems that will enable efficient communication across the modes.

[4] Last but not least, the development of inland waterways provides untapped opportunities for sustainable regional development as well as to transport and logistics.

Promoting and growing inland navigation is a win-win solution for all concerned. Inland navigation reduces congestion and emissions and creates a logistics environment that is sustainable.

R.E. : Caroline Smith, Inland Navigation Europe, Koning Albert II-laan 20, office 6G65, B-1000 Brussels