



Federal Ministry
of Transport and
Digital Infrastructure

Inland Waterway Transport Masterplan



Contents

Glossary of abbreviations	3
A. Foreword	4
B. Introduction and background	5
C. Action areas and measures	8
I. Provision of infrastructure that meets the needs	8
1. Implementation of the 2030 Federal Transport Infrastructure Plan	8
2. Challenges of climate change.....	10
3. Continuation of the dialogue on faster and better planning and construction.....	10
4. Assistance for the resolution of conflicts of use regarding inland port areas.....	11
5. Degassing of inland waterway vessels	12
6. Making available shore-side electricity systems in line with the needs	12
7. Abolition of charges for the use of inland waterways	13
II. Measures for a more environmentally friendly and competitive fleet	13
1. Evolution of the Financial Assistance Programme for the Sustainable Modernization of Inland Waterway Vessels.....	13
2. Support of technological innovations.....	14
3. Development of a concept for the future structure of the fleet	15
4. Optimization of energy efficiency and emissions	15
5. Intensification of research and development in inland waterway transport	16
III. Measures to address the digital challenges	16
1. Identification of further need for digitalization	16
2. Optimization of locking processes	17
3. Implementation of new technologies	18
4. Establishment of digital platforms and their evolution.....	18
5. Improvement of network coverage.....	19
6. Evolution of the Reporting and Information System for Inland Waterway Transport.....	19
7. Automated and connected navigation, including autonomous navigation	19

IV. Measures to strengthen inland waterway transport within multimodal transport chains.....	20
1. Strengthening container transport by inland waterway vessel.....	20
2. Strengthening bulk cargo transport by inland waterway vessel.....	20
3. Strengthening the transport of abnormal loads by inland waterway vessel	21
4. Integrating inland waterway transport in the initial and continuing training of the haulage and logistics industries.....	22
V. Measures to guarantee sufficient numbers of skilled workers in inland waterway transport.....	23
1. Evolution of the financial assistance programme for the initial and continuing training in inland waterway transport	23
2. Launch of a campaign to attract new recruits to the inland waterway transport sector	24
3. Further support measures	24
4. Increasing the attractiveness of the training to become an inland waterway boatman.....	25
D. Looking ahead.....	26
List of sources	27

Glossary of abbreviations

AIS	Automatic Identification System
ARA	Antwerp, Rotterdam and Amsterdam
Banz AT	Federal Gazette, Official Part
BIM	Building Information Modelling
BMVI	Federal Ministry of Transport and Digital Infrastructure
FTIP	Federal Transport Infrastructure Plan
CDNI	Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways
CESNI	Comité Européen pour l'Élaboration de Standards dans le Domaine de Navigation Intérieure
CO ₂	Carbon dioxide
ELWIS	Electronic Waterway Information Service of the German Federal Waterways and Shipping Administration
EU	European Union
GDWS	Federal Waterways and Shipping Agency
IWA/IWP engines	Engines exclusively used in inland waterway vessels for their propulsion (IWP) or as auxiliary system (IWA)
KLIWAS	Impacts of Climate Change on Waterways and Navigation - Developing Options for Adaptation
CT	Combined transport
bn	Billion
NRE engines	Engines for Non-Road Mobile Machinery
NRMM	Non-Road Mobile Machinery
RIS-COMEX	River Information System Corridor Management Execution
SANDRA	Simulator for Advanced Navigation Duisburg – Research and Application
SPC	ShortSeaShipping Inland Waterway Promotion Center
TEN-T	Trans-European Transport Network
VEMAGS	Procedural Management for the Transport of Abnormal Loads
VEMM	Procedure for the Assessment of the Admissibility of the Installation of Marinised Engines
VOC	Volatile organic compounds
WSV	Federal Waterways and Shipping Administration
CCNR	Central Commission for the Navigation of the Rhine

A. Foreword

From a young age, we are used to seeing ships on our rivers and canals. But only rarely do we reflect on how important a role inland waterway transport plays. Time and again, it helps us achieve our successes as a leading nation in logistics and export. And as an effective and efficient alternative to HGVs, the system of ports, vessels and waterways can make a crucial contribution towards transporting more goods while at the same time relieving the pressure on our roads. Thus, we emit less CO₂, less NO_x and less particulate matter. In short: environmentally friendly and climate-friendly logistics are inconceivable without inland waterway transport.

Therefore, the objective of the Federal Government is to strengthen inland waterway transport and move as many goods as possible by waterway. To this end, we need a high-capacity, clean, modern, safe and efficient system of ports, vessels and waterways. We want to achieve this with the help of the present Inland Waterway Transport Masterplan. Together with the relevant industry players, we have prepared a comprehensive package of measures which we divided into five action areas. First, we are creating infrastructure that meets the needs by investing billions of euros, and we are ensuring that adequate financial, structural and human resources are available. Second, we are moving over to more efficient and lower-emission vessels, for instance by retrofitting diesel engines. Third, we are pushing ahead inland waterway transport 4.0. For this purpose, we are interlinking our ports, digitalizing our locks and automating our vessels as well as cargo handling processes. Fourth, we are shifting even more containers, bulk cargo and heavy goods from the roads to the inland waterways. To increase the awareness of this option among businesses, we are embedding inland waterway transport in the initial and continuing training of the haulage and logistics industries. Fifth - and this topic is absolutely essential for our future - we are looking after new recruits. We are modernizing the initial and continuing training in the industry, improving the attractiveness of the professions and launching a campaign to attract new recruits. In the Masterplan, you can read about these and further measures.



Andreas Scheuer, Member of the German Bundestag
Federal Minister of Transport and Digital Infrastructure

I am convinced that if we manage to implement the Masterplan, inland waterway transport will remain a guarantor for economic success, and we will expand the German quality label “German Shipping” to include an additional short word: Clean German Shipping. This has the potential of becoming a new German export hit.

I would like to thank everyone involved in developing the Masterplan for their intensive and constructive cooperation and hope you will enjoy reading it.

Yours,
Andreas Scheuer, Member of the German Bundestag
Federal Minister of Transport
and Digital Infrastructure

B. Introduction and background

Germany enjoys a leading position in the world as a centre for logistics. The decisive reason for this is its geographical location but also infrastructure that meets the needs, qualified service enterprises and a high level of expertise. As a result of the intensive global competition, the logistics sector is under constant pressure to optimize its operations. Comprehensive connectivity, innovative concepts and business models that include the possibilities digitalization offers, platforms that cut across businesses and transport modes but also sustainability and shaping the future of the work environment are challenges of the present.

In Germany, the traffic in terms of passenger and tonne kilometres is expected to increase significantly by 2030. In particular, the amount of freight moved will increase by 38 % compared with 2010. The expected traffic growth places high demands on all transport modes. To succeed in the European and international competition of logistics centres, optimum use must be made of the capacities of the different modes of transport.

Inland waterway transport is an important link in German and European logistics chains. The amount of freight it moves will increase by approx. 23 % in the time between 2010 (approx. 62 billion tonne kilometres) and 2030. The objective is to increase inland waterway transport's share of the freight moved in the modal split to 12 %. The basis of these data and calculations is the compendium "Transport in Figures", which has been the standard reference work for transport statistics in Germany for more than 40 years.

Unlike other transport modes, the waterways have spare capacity. Inland navigation is a reliable and flexible means of transport. It has special strengths, for example when it comes to the transport of dangerous goods.

Inland navigation is not only important for transport in Germany and Europe but also for environmental policy, since it still is the most environmentally friendly mode of transport in terms of the volume of freight moved. Such considerations should not only focus on emissions (where there is need for action) but also on topics such as noise as well as energy-related and economic factors.

Moreover, inland waterway transport is of economic and social importance, which we often only realise in

the event of shortages. Thus, last year's low water period highlighted the dependence of logistics and the security of supply of German key industries on a functioning inland waterway mode. Apart from the Rhine, which is the waterway with by far the highest traffic volume, the canal network, for instance, is also of great importance for the efficient functioning of the German economy. To prevent a significant decrease in prosperity in Germany, e.g. as a result of investment relocation or job losses, competitiveness, network stability and the robustness of the entire waterway system must be enhanced.

Efficient infrastructure, environmentally friendly and modern inland waterway vessels, an optimum integration of inland waterway transport into the multimodal logistics chain, qualified staff as well as the use of digital services are basic prerequisites for a competitive waterway mode.

To provide an efficient and sustainable infrastructure for the growing volume of freight moved, the Federal Government is investing into all modes of transport. The FTIP 2030 provides a comprehensive description of the Federal Government's infrastructure planning for the period to 2030. Of the 2030 Federal Transport Infrastructure Plan's total level of investment (269.6 billion euros), which, in addition to upgrading and new construction projects, also comprises capital maintenance investment and investment in replacement infrastructure as well as other investment in the transport modes, the waterways account for 24.5 billion euros (9.1 %). The setting of the investment priorities is based on the guiding principle of "giving structural maintenance precedence over upgrading and new construction". The expected above-average increase in the need for investment in replacement infrastructure for the physical structures on the federal waterways is due to their age structure. Around one half of the weirs and around 60 % of the locks were constructed before 1950, and around 10 % (weirs) to 20 % (locks) before 1900.

Most man-made waterways were constructed for the transport of heavy bulk cargoes in the 19th and in the first half of the 20th century. Locks, bridges and other technical installations along these canals were geared towards the carriage of bulk cargoes, whose transport was a priority at that time. In recent years, economic changes, such as the decrease in coal mining and the increase in the volume of

containers handled, have influenced the transport of goods on the waterways. The size of the ships has also changed, meaning that the infrastructure (e.g. locks) can only be used to a limited extent.

With the help of digitalization, traffic can be controlled efficiently and emissions can be reduced, thus improving environmental protection. The **Action Plan for “Digitalization and Artificial Intelligence in Mobility”** of the Federal Ministry of Transport and Digital Infrastructure presents extensive measures and projects for achieving these objectives. The Federal Ministry of Transport and Digital Infrastructure supports the aim of a digital paper flow – a data track that accompanies the physical transport at the digital level and that is available to all logistics partners and authorities involved in the transport chain. Like many other economic sectors, inland waterway transport, too, is undergoing a digital transformation process. Electronic communication and interconnection affect processes and supply chains and have an impact on the working conditions in businesses.

Against the background of the onward march of digitalization in related logistics sectors (e.g. in sea ports),

inland waterway transport will have to increasingly embrace digital technologies if it wants to be afforded the same degree of consideration in the planning of supply chains also in the future. As a result of the increasing interlinking of ships with other modes of transport, efficient transport management systems are becoming more and more important. With the appropriate software, journeys and routes can be planned, and the current status can be communicated to the customer electronically. Moreover, transport management systems include components for a better management and control of the goods.

The inland waterway transport sector in Germany is characterized by some large enterprises, cooperatives and numerous small and medium-sized enterprises, the majority of which are private ship owners (one to two vessels). With a view to the development on the job market, the age structure and the training situation, the entire waterway system will face major challenges in the years ahead. What has to be done is to kindle the interest of potential trainees and to offer them interesting and innovative training in attractive professions. The increasing digitalization in the transport sector as well as



Mannheim container port

the technological development offer many opportunities in this regard.

The 2050 Climate Action Plan defines the climate change policy principles and objectives of the Federal Government and implements the Paris climate agreement in Germany. The aim is to become largely greenhouse gas neutral by 2050. In order to provide a framework, milestones and reduction targets that are to be achieved by 2030 have been defined for all sectors. The minimum objective to be achieved is to reduce greenhouse gas emissions by at least 55 % against 1990 levels by 2030. For the transport sector, CO₂ emissions are to be reduced by 42 to 40 % against the baseline year 1990 by 2030.

The waterway system industry is committed to a lasting transformation of the transport system and to climate change mitigation, and it sees the potential to improve the environmental friendliness of the fleet and to further reduce the burden on the roads by shifting traffic to the waterways.

Sea ports and inland ports are major trimodal transshipment and industrial sites. To boost the sea and inland ports and thus also the competitiveness of the entire logistics sector, the Federal Government has developed the **2015 National Strategy for Sea and Inland Ports** as strategic guidance for ports policy.

Moreover, inland waterway transport in Germany also has to be considered from a European point of view. Our waterways are part of the trans-European transport networks, the enterprises face competition and the rules for inland waterway transport are increasingly shaped within the European framework. A strong German commitment in the European bodies and the river commissions for the waterway system will remain an important and challenging task.

In terms of its use in city and regional logistics, for example for the supply of metropolitan regions, inland waterway transport has so far been regarded more from a visionary point of view in Germany. In view of the growing burden caused by road traffic, cities and regions are increasingly looking for alternative approaches to transport. Successful examples from other European cities (e.g. Utrecht, Paris

or the Belgian Watertruck+ project) prove that combined transport incorporating inland waterway transport can contribute to minimizing emissions and reducing the burden on the infrastructure. What is needed to make this happen are logistics strategies that take into account innovative ship designs for smaller shipments, new assistance systems for navigation, e.g. for mooring and unmooring or loading and unloading, as well as innovative human resources concepts for operating these ships (e.g. one-man business).

All these aspects of the inland waterway mode as part of the logistics chain were included and all relevant players were asked to provide their input. Thus, it was ensured that the entire waterway system was considered. Accordingly, the industry was broadly represented. The participants included, among others, representatives from various associations as well as representatives from inland waterway transport companies, the ports, the construction industry, shippers, the shipbuilding industry, engine manufacturers and representatives from research institutions.

Five working groups were set up, and they dealt with the following action areas: infrastructure, environmental protection and climate change mitigation, digitalization, the waterway system in the multimodal transport chain and the need for skilled labour. These topics complement one another, and they are interlinked. On this basis, the Federal Ministry of Transport and Digital Infrastructure has prepared measures and coordinated them with the sector.

The federal states are familiar with the basic features of the Masterplan and had the opportunity to make their contribution.

In addition, further relevant strategies, publications and masterplans of the Federal Ministry of Transport and Digital Infrastructure were taken into account in the preparation of this Masterplan, such as the 2015 National Strategy for the Sea and Inland Ports, the 2030 Innovation Programme, the Rail Freight Masterplan as well as the Federal Ministry of Transport and Digital Infrastructure's strategies in the field of digitalization.

C. Action areas and measures

In the following, measures for the action areas infrastructure, improving the environmental friendliness and structure of the fleet, digitalization, strengthening inland waterway transport in the multimodal transport chain and guaranteeing sufficient numbers of skilled workers are described. Moreover, measures which are directly related to the Masterplan and whose implementation is already underway or has already been completed are outlined. To make the measures easier to understand, they are accompanied by explanations stemming from the working group discussions.

I. Provision of infrastructure that meets the needs

1. Implementation of the 2030 Federal Transport Infrastructure Plan

The 2030 Federal Transport Infrastructure Plan (FTIP 2030) is valid for the planning horizon from 2016 to 2030 and comprises necessary capital maintenance investment and investment in replacement infrastructure as well as upgrading and new construction projects on the road, rail and waterway networks for which the Federal Government is responsible. The FTIP 2030 focuses investment in upgrading and new construction on unblocking bottlenecks and thereby optimising the flow of traffic on the overall network. With these measures, the target level aimed for as well as the degree of implementation are to be increased compared with previous federal transport infrastructure plans. The objective of the prioritization strategy developed by the Federal Ministry of Transport and Digital Infrastructure is to use the available financial resources in a manner that is as economically efficient and need-focused as possible. From the perspective of the sector, setting priorities and making changes to the classification of different infrastructure measures on the federal inland waterways requires greater transparency.

The state of the waterway infrastructure is characterized by many years of underinvestment. While, in the past, this was predominantly due to insufficient investment, planning resources have proved to be the limiting factor in recent years, which meant that it was not possible to spend all funds despite the constraints on funding. Currently, various

measures are being carried out to accelerate planning and construction and to thus increase investment turnover. This includes creating additional planning staff posts in the Federal Waterways and Shipping Administration. In the years 2014 to 2018, a total of 278.5 posts – predominately for engineers – and, in financial year 2019, another 161 posts were approved by parliament. Filling these vacancies quickly and filling vacant existing posts is difficult due to demographic change and a shortage of skilled workers. Enhancing its own planning capacities alone is not sufficient for the required rapid increase in investment turnover.

As a result of limited resources in particular in the field of planning staff, infrastructure measures on the federal waterways have to be prioritized. The criteria on which the prioritization is based and the connection to the network categorization of the federal waterways published with the FTIP 2030 were explained as part of the work to develop the Masterplan.

Medium-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will implement the waterway projects listed in the FTIP and the Federal Waterways Upgrading Act in accordance with technical and transport-related priorities, and it will increase the targets aimed for as well as the degree of implementation. This is done with the objective of achieving a reliable and efficient waterway infrastructure and in accordance with the introduced prioritization as defined by the established criteria of “giving structural maintenance precedence over new construction”, “state and systemic relevance” as well as “benefit-cost factor”.
- With the Framework Investment Plan, the **Federal Ministry of Transport and Digital Infrastructure** will present the prioritization of infrastructure measures on the federal waterways in a transparent manner.
- **The Federal Ministry of Transport and Digital Infrastructure** will take action to ensure that the Federal Waterways and Shipping Administration is staffed in line with its needs (e.g. measures to increase the

attractiveness of the employer, expansion of flexible work models, use of innovative human resources development instruments, establishment of a demography-oriented personnel management).

- When developing the Masterplan, the idea of a “2050 Network Development Plan” was discussed. This suggestion will be pursued further in the implementation of the Inland Waterway Transport Masterplan and the results may feed into the long-term planning for the development of waterway infrastructure.
- The **Federal Ministry of Transport and Digital Infrastructure** will prioritize investment in infrastructure measures in accordance with the guiding principle of “giving structural maintenance precedence over construction and upgrading”.

By way of a speedy implementation of the waterway infrastructure measures enshrined in the FTIP 2030, the transport conditions for the waterway mode will be

improved for industrial sites in the catchment area of large federal waterways. A current example of this is the “Optimization of the fairways on the Middle Rhine to enable greater laden draughts”. This measure is primarily useful for transport at normal low water to medium water levels. We will join forces with industry to present an action programme to enhance the reliability of the Rhine as a transport route, since this is the only way to safeguard the industrial sites, e.g. for chemicals and steel, in Germany in the long term. If the prerequisites are fulfilled, the usual plan approval procedure could be replaced by a “measures act” to accelerate the implementation of such selected projects. The measures could first be identified in the required preliminary act.

Short term measure:

To allow for a faster implementation of priority measures for the removal of bottlenecks (VB-E), the **Federal Ministry of Transport and Digital Infrastructure** will launch the necessary preliminary act which identifies projects



Construction of the lock at Minden

for subsequent measures acts. This also includes the optimization of the fairways on the Middle Rhine to enable greater laden draughts.

More than half of the total freight moved on inland waterways in Germany is transported on the waterways in North Rhine-Westphalia. The Ruhr region canals are among the most frequented German shipping canals. With its shipping canals, the Ruhr is a priority policy area.

Short term measure:

At the regional waterway conference in the Ruhr on 28 May 2019, the **Federal Ministry of Transport and Digital Infrastructure** will discuss the requirements to be met by waterway infrastructure and the expectations towards the latter with the Ruhr waterway users, identify priorities and organize support for the priority infrastructure measures in the Ruhr.

2. Challenges of climate change

As part of the German Strategy for Adaptation to Climate Change (DAS), the Federal Government is systematically preparing, also with a view to the federal waterways, for risks and effects of climate change in Germany and is developing suitable adaptation options. The Federal Government's activities have been accompanied continuously for more than ten years by wide-ranging and systematically promoted climate change research on all modes of transport (e.g. KLIWAS) to ensure resilience to climate change effects as well as a sustainable usability of transport infrastructure.

In 2015, the Federal Ministry of Transport and Digital Infrastructure's alliance of departmental research establishments ("Federal Ministry of Transport and Digital Infrastructure's Network of Experts") was tasked with doing further research on all modes of transport on the vulnerabilities of transport and infrastructure caused by climate change as well as with developing options for adaptation.

Measure already initiated:

The **Federal Ministry of Transport and Digital Infrastructure's** Network of Experts will continue its research activities.

Medium-term measure:

The **Federal Ministry of Transport and Digital Infrastructure** will continue to pursue the transfer and further development of the products, datasets and research findings, e.g. from the Network of Experts, to the "basic service for climate and water" within the framework of the German Strategy for Adaptation to Climate Change.

3. Continuation of the dialogue on faster and better planning and construction

In 2013, the Federal Ministry of Transport and Digital Infrastructure created the "Construction of Major Projects Reform Commission". Its function was to develop concrete recommendations for action to improve true-cost pricing, cost transparency, efficiency and on-schedule project delivery in large-scale projects and to strengthen the citizens' confidence in public-sector clients. For the practical implementation of the Reform Commission's recommendations, the Federal Ministry of Transport and Digital Infrastructure initiated pilot projects on Building Information Modelling (BIM) for the early and continuous performance of risk management and for cooperative project partnerships. BIM is regarded as a cooperative work method which makes it possible, based on digital models of a building, to consistently collect, manage and exchange, for further processing, by way of transparent communication between those involved, information and data relevant to its lifecycle (planning, execution and management). The target set by the Road Map for Digital Design and Construction is to apply BIM on a regular basis to all construction projects to be newly planned in the remit of the Federal Ministry of Transport and Digital Infrastructure from the end of 2020 onwards.

The Federal Ministry of Transport and Digital Infrastructure pursues an overall strategy to increase investment in the federal waterways. The increase in investment turnover is to be achieved, among other things,

by involving third parties in client tasks to a greater extent, thereby boosting the Federal Waterways and Shipping Administration's own planning resources. A further option for accelerating the implementation of construction measures is seen in the combined award of the planning and construction of infrastructure measures (so-called PB model). With the PB model, responsibility for the execution planning is fully transferred to the contractor. The planning stages "preliminary planning of the construction project" up to "obtaining construction go-ahead", however, stay with the contracting authority.

Measure already initiated:

The Federal Ministry of Transport and Digital Infrastructure is currently examining, within the framework of pilot projects, under which conditions and in which way BIM will be used in the planning and execution of major public projects along the federal waterways from the end of 2020 onwards.

Short term measures:

- The Federal Ministry of Transport and Digital Infrastructure will continue the implementation of the overall strategy for increasing investment in the federal waterways (e.g. pilot projects in accordance with the PB model, enhancing standardization).
- The Federal Ministry of Transport and Digital Infrastructure is committed to the optimization of the cooperation between the public sector and the private construction industry (culture of partnership in construction).
- The Federal Ministry of Transport and Digital Infrastructure and the Federal Waterways and Shipping Administration will intensify the use of suitable instruments for resolving disputes in the event of conflicts between contracting authorities and contractors.
- The Federal Ministry of Transport and Digital Infrastructure is in favour of permitting contractor's alternatives, bonus-malus arrangements as well as

the award of larger lots within the framework of the applicable award rules.

- The Federal Ministry of Transport and Digital Infrastructure is considering the establishment of a Task Force in the Federal Waterways and Shipping Administration to accelerate, for instance, repair work on system-critical infrastructure and to accelerate contract implementation as well as the processing of supplements.
- The German construction industry, together with the Federal Waterways and Shipping Administration, seeks to improve and accelerate the processing of supplements in a spirit of partnership. Qualified and detailed planning reduces the volume of supplements significantly. The German construction industry has moreover agreed to reduce the number of supplements without merit.

Medium-term measure:

The Federal Ministry of Transport and Digital Infrastructure and the Federal Waterways and Shipping Agency are examining the decision-making hierarchy within the Federal Waterways and Shipping Administration.

4. Assistance for the resolution of conflicts of use regarding inland port areas

Port infrastructure measures are a federal state and local authority responsibility. There is an increasing number of conflicts of use between the interests of the inland ports and competing interests of others, for example in the field of tourism, "waterfront housing" or environmental protection and nature conservation. The evolution of the inland ports from transshipment hubs to logistics hubs requires logistics space in the inland ports and their surroundings. The inland ports sector moreover complains about increasing difficulties in dealing with environmental legislation.

The inland waterway transport sector is also greatly interested in equipping berths in ports in line with the needs. Berths for inland waterway vessels are necessary to comply with the rest periods, to change the crew and

to bridge waiting times in connection with loading or unloading dates. The reduction or a lack of berths can disrupt these processes significantly.

Short term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will continue the dialogue with the federal states and local authorities regarding spatial, land use and development planning and work towards the concerns of the ports and the shipbuilding industry being given higher priority.
- In the dialogue with the federal states and local authorities, the **Federal Ministry of Transport and Digital Infrastructure** will advocate maintaining and providing an adequate number of berths for inland waterway vessels in periurban areas and propose the creation of a berth register.

5. Degassing of inland waterway vessels

What is increasingly considered a problem is the required degassing of inland waterway vessels. Every year, great quantities of liquid cargoes are transported, among others volatile organic compounds (VOC) (e.g. petrol, blended fuels, benzene or acetone) and environmentally hazardous substances. After unloading the cargo, gases remain in the cargo tanks that have to be removed to clean the vessel for the next cargo (degassing). In Germany, it is currently prohibited to degas naphtha, petrol and blended fuels. In the future, this ban is to be expanded to many other products by way of an amendment to the International Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways of 9 September 1996 (hereinafter referred to as CDNI). The gases have to be disposed of at special extraction facilities (degassing). There are no such facilities in Germany. The federal state authorities monitor the proper degassing.

Short-term measure:

The Federal Ministry of Transport and Digital Infrastructure will discuss the issue of the degassing of inland waterway vessels with the federal states.

Medium-term measure:

Regarding the issue of degassing, the **Federal Ministry of Transport and Digital Infrastructure** will transpose the provisions of CDNI into national law, thereby making it obligatory for industry to make available appropriate facilities.

6. Making available shore-side electricity systems in line with the needs

While ships are berthed in ports, electricity and heating for their own consumption are generated with the help of on-board diesel engines. The shore-side supply of electricity makes sense from an ecological point of view, but it is normally not economically viable. Among others, this applies to the grid-based supply of electricity due to mark-ups in accordance with the Combined Heat and Power Generation Act and surcharges in accordance with the Renewable Energy Sources Act.

At the political level, the subject of the shore-side supply of electricity is supported, among other things, by the coalition agreement for the 19th parliamentary term. Moreover, there are corresponding initiatives at the European level. Together with the member states of the CCNR, Germany introduced a framework regulation for the Rhine that requires vessels to cover their entire electricity needs exclusively through a shore-side electricity connection. In order to ensure that the shipping sector is properly informed and to ensure uniform marking, a new sign was created. On the Rhine, the regulation entered into force on 1 June 2018. It is intended to also apply it on the Moselle, the Danube and the waterways within the scope of application of the Traffic Regulations for Inland Waterways. The decision-making competence for the appropriate marking of berths taking into account the individual local circumstances then lies with the competent authorities.

The provision of shore-side electricity involves high investment costs, both on the shore side and on-board the ships.

Measures already initiated:

- The **Federal Ministry of Transport and Digital Infrastructure** is preparing a strategy for the promotion of environmentally friendly on-board and shore-side electricity supply for sea-going ships and inland waterway vessels.
- The **Federal Waterways and Shipping Administration** is currently carrying out a pilot project for the deployment of shore-side electric filling stations for inland waterway vessels in the Western German canal network for the **Federal Ministry of Transport and Digital Infrastructure**.

Short-term measures:

- In a dialogue with the federal states, the **Federal Ministry of Transport and Digital Infrastructure** will push for the provision, in line with the needs, of shore-side electricity systems at inland waterway vessel berths and propose the creation of a shore-side electricity register.
- Moreover, the **Federal Ministry of Transport and Digital Infrastructure** will work towards improving the competitiveness of using shore-side electricity.

7. Abolition of charges for the use of inland waterways

As a measure to enhance the competitiveness of the waterways, the Federal Government has agreed, in the coalition agreement for the 19th parliamentary term, to abolish the charges for the use of inland waterways (except on the Kiel Canal).

Measures already implemented:

- The **Federal Ministry of Transport and Digital Infrastructure** abolished shipping charges as from

1 January 2019. The Kiel Canal and – due to an international agreement with France and Luxembourg – the Moselle are excepted from the abolition.

- The **Federal Ministry of Transport and Digital Infrastructure** has initiated talks with France and Luxembourg to abolish the mandatory charges on the Moselle.

II. Measures for a more environmentally friendly and competitive fleet

The German inland waterway vessel fleet is very old. The average age of the cargo ships is 45.6 years (tank vessels: 23.7 years, dry-cargo vessels 63.1 years) and that of passenger ships is 48.3 years. The number of cargo ships has been declining for many years. While there were still 3,355 cargo ships in 1993, their number shrunk by 42.7 % to 1,982 ships in 2017.

1. Evolution of the Financial Assistance Programme for the Sustainable Modernization of Inland Waterway Vessels

Since 2015, the Guidelines on Grants for Inland Waterway Transport Operators for the Sustainable Modernization of Inland Waterway Vessels (Financial Assistance Programme for the Sustainable Modernization of Inland Waterway Vessels) have been pursuing the goal of reducing the pollutant, noise and greenhouse gas emissions from inland navigation vessels and enhancing the latter's energy efficiency and safety. The Federal Government's objective is to continue and expand the promotion of environmentally friendly inland waterway vessels. The situation described under no. 2 below has to be taken into account in doing so.

Measures already implemented:

- The **Federal Ministry of Transport and Digital Infrastructure** is continuing the Assistance Programme for the Sustainable Modernisation of Inland Waterway Vessels beyond 31 December 2018 until 31 December 2019.

- The Federal Ministry of Transport and Digital Infrastructure has arranged for the evaluation of the Assistance Programme for the Sustainable Modernisation of Inland Waterway Vessels which was in force until 31 December 2018.

Short-term measures:

- The Federal Ministry of Transport and Digital Infrastructure will prepare, by 1 January 2020, technology neutral funding guidelines which will take into account environmental, safety and energy aspects of inland waterway transport. The Ministry advocates providing an appropriate level of financial assistance and fleshing it out in line with the needs.
- The Federal Ministry of Transport and Digital Infrastructure will evaluate the applicability of existing financial assistance programmes to inland waterway transport and intensify the dialogue between the ministries to improve the dovetailing of existing financial assistance programmes (e.g. for alternative propulsion systems and fuels).

2. Support of technological innovations

In the inland waterway transport sector, there currently is uncertainty as a result of a lack of availability of inland waterway vessel engines of categories IWA and IWP that fulfil the European requirements of the NRMM Regulation. To relax the situation in the short term, the Federal Ministry of Transport and Digital Infrastructure has laid down national rules, with the Procedure for the Assessment of the Admissibility of the Installation of Marinised Engines (VEMM), for installing engines that do not comply with the engine categories IWA and IWP of Regulation (EU) 2016/1628 (NRE engines up to 560 kw and HGV Euro VI engines). The Federal Ministry of Transport and Digital Infrastructure moreover continues to support the introduction of alternative propulsion systems within the framework of the current Financial Assistance Programme for the Sustainable Modernisation of Inland Waterway Vessels. The engine manufacturers have been asked to offer, as soon as possible, inland waterway vessel engines of categories IWP and IWA that meet or outperform the threshold values of the NRMM Regulation.



Different vessel sizes

Measures already implemented/initiated:

- **The Federal Ministry of Transport and Digital Infrastructure** has prepared national rules for the evaluation of the permissibility of the installation of marinised engines. The Procedure for the Assessment of the Admissibility of the Installation of Marinised Engines (VEMM) was promulgated in the Federal Gazette on 20 December 2018 (Federal Gazette, Official Part, 20 December 2018 B7).
- **The Federal Ministry of Transport and Digital Infrastructure** is promoting environmentally friendly propulsion systems as part of the Assistance Programme for the Sustainable Modernisation of Inland Waterway Vessels.
- **The Federal Waterways and Shipping Administration** will play a leading role by using alternative propulsion technologies for their watercraft and retrofitting them with suitable environmentally friendly propulsion systems.

Short-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** is advocating a closer cooperation of the competent bodies in the development of rules for alternative propulsion systems and fuels as well as for automated and autonomous shipping.
- **The Federal Ministry of Transport and Digital Infrastructure** is advocating international rules for marinised engines in the European Committee for drawing up standards in the field of inland navigation (“CESNI”).
- **The Federal Ministry of Transport and Digital Infrastructure** will enter into a dialogue with the federal states and local authorities about a differentiated structure of port charges for particularly environmentally friendly inland waterway vessels.

3. Development of a concept for the future structure of the fleet

In order to optimize the performance of inland waterway transport in international competition, the fleet structure and, e.g., the need for smaller ships in canal transport have to be analysed more closely.

Short-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will commission a scientific study to evaluate the needs (if appropriate, also new construction and/or “old for new arrangement”), the technical options and the economic feasibility as well as the required amount of funding for smaller inland waterway vessels and for vessels with an optimized design (“shallow draught vessels”). Subsequently, it will be examined whether financial assistance programmes of the Federal Government can be made use of and/or dovetailed.
- **The Federal Ministry of Transport and Digital Infrastructure** will have talks with the relevant banks to identify vessel financing options.
- **The inland ports sector** will examine the possibility of reducing port charges to improve competitiveness.

4. Optimization of energy efficiency and emissions

The emissions of all modes of transport are being discussed in public with a view to the Federal Government’s climate change targets. The focus in these discussions is also on inland waterway vessels. It is difficult for the inland waterway transport sector to provide evidence of energy efficiency improvements. There is a lack of usable real-word data and uniform framework conditions. Consequently, procedures and instruments for measuring emissions while the ship is in operation have to be developed to serve as an objective basis for a balanced environmental policy discussion.

Measures already initiated:

- **The Federal Ministry of Transport and Digital Infrastructure** has commissioned a scientific study which deals with the question of whether the introduction of an Energy Efficiency Design Index (EEDI) and of a correlating Energy Efficiency Operability Index (EEOI) in inland waterway transport is practicable and how it could be implemented.
- In mid-2018, the **Federal Waterways and Shipping Administration** commissioned the Federal Institute of Hydrology (BfG) to carry out a project entitled “Identification and assessment of the air pollutant emissions and immissions caused by navigation on federal waterways” (project duration: 3 years).
- **The Federal Ministry of Transport and Digital Infrastructure** is working on integrating new sustainable propulsion technologies into the European regulatory framework (which has already begun in the case of the fuel cell, for instance).

5. Intensification of research and development in inland waterway transport

Research projects are of great importance for the technical evolution of inland waterway transport. Test vessels are needed for such projects. It is difficult to find inland waterway transport operators who are willing to make available their vessels for research projects. For the trialling and approval of innovations, amendments to the Regulations on the Safety of Vessels in Inland Waterway Transport (Inland Waterway Vessel (Survey and Certification) Regulations) might be necessary.

Medium-term measures:

- **The inland waterway transport sector** will identify further measures to increase the energy efficiency of the existing fleet.
- **The Federal Ministry of Transport and Digital Infrastructure** will – if appropriate, together with

other departments – determine the necessity and, if appropriate, the focus of a research programme geared specifically to inland waterway transport.

- **The Federal Ministry of Transport and Digital Infrastructure** will examine the possibility of making the vessels of the Federal Waterways and Shipping Administration available for pilot projects and consider the option of building or making available a research vessel as a platform to trial innovations in inland waterway transport.
- **The Federal Ministry of Transport and Digital Infrastructure** will push for an innovation-friendly design and application of the relevant regulations in the trialling and approval of innovations.

III. Measures to address the digital challenges

1. Identification of further need for digitalization

In freight transport and logistics, digitalization has established itself predominately for the road and rail modes in recent years. Digitalizing inland waterway transport and waterways is mainly a European task which is jointly progressed by the Member States within the framework of various EU projects. The Federal Republic of Germany is heavily involved in these projects.

With a volume of around 26 million euros, RIS-COMEX is the largest TEN-T project of the EU for the digitalization of waterways in Europe. In the context of RIS-COMEX, the waterway administrations of the Member States involved in the respective TEN-T corridors ensure a seamless exchange of data for navigation, traffic management and logistics planning.

In the future, inland waterway transport users are to be able to obtain up-to-date infrastructure data for route planning (e.g. fairway depth, number of locks, opening hours of the locks, etc.) from a one stop shop. The cross-border flow of registration data is also planned.

The waterway operators will exchange traffic data within the framework of RIS-COMEX to allow for better transport

planning (e.g. lock planning). RIS-COMEX also is to improve the integration of inland waterway transport into digital logistics chains. In the future, inland waterway boatmen are to be able to share data with relevance for their customers, such as the ship's position, the arrival time, journey and cargo data, with their logistics partners via a protected system. The decision as to which data to share is to lie with the vessel operator. Setting up the services is expected to take until 2021. The Member States will decide which services they will offer along their corridor. Here, the specific framework conditions of the individual corridor will be taken into account.

At the same time, a legal framework is to be established which allows for uniform digital cargo documentation throughout the EU, since almost all cross-border transport operations within the EU currently still require the use of paper documents. Digitalization offers great opportunities for optimizing and automating this exchange of information and thus enhancing the efficiency of transport operations. An impact assessment by the European Commission has shown that there are two major obstacles for the further digitalization of transport chains in Europe:

The first obstacle is the fragmented legal framework. The regulations on when and in which form authorities are permitted to accept electronic documents still vary from one European country to another. A second obstacle are the many unconnected, and in some cases incompatible, IT systems for electronic transport information and data exchange, which are present both in the communication between businesses and authorities and in the exchange between different businesses. The EU Commission seeks to address these problems with the proposal for a Directive on the harmonisation of electronic transport information (COM (2018) 279 Final).

Short-term measure:

The trade associations will initiate a "project on the participation of the waterway system in the world of digital transport" to improve the competitiveness of inland waterway transport in the logistics chain.

Medium-term measure:

The inland waterway transport and inland ports associations will push forward, by concerted action, the digital integration of inland water transport in the intermodal and synchromodal logistics chain.

2. Optimization of locking processes

In freight logistics, reliability and on-schedule delivery is of great importance in the selection of the mode of transport. Inland waterway transport operators are therefore highly interested in increasing the reliability of locking operations. The Federal Waterway and Shipping Administration's electronic waterway information service (ELWIS) makes available data on the accessibility and operating hours of the locks on inland waterways. The reliability of locking operations is to continue to improve.

Short-term measures:

- The Federal Ministry of Transport and Digital Infrastructure will increase the number of lock control centres.
- The Federal Ministry of Transport and Digital Infrastructure will consider improving locking times and lock management, for example by extending the operating hours of locks (24/7 operation).

Medium-term measures:

- The Federal Ministry of Transport and Digital Infrastructure is considering the implementation of a system for the digital reservation of locks (slot management).
- The Federal Ministry of Transport and Digital Infrastructure supports the optimization of the conditions for inland waterway vessels at locks by way of digital processes.



Control Centre

3. Implementation of new technologies

The Federal Waterways and Shipping Administration informs and supports shipping to facilitate smooth and safe transport operations on the waterways. To this end, the traffic service centres of the Federal Waterways and Shipping Administration are in direct contact with shipping with the help of the Automatic Identification System (AIS). AIS and radar stations receive traffic data and transmit them to the traffic service centres. The Federal Waterways and Shipping Administration installs and operates shore-side AIS infrastructure. To increase safety in inland waterway transport, AIS coverage of the waterways of network categories A, B and C is aimed for.

Short-term measure:

The Federal Ministry of Transport and Digital Infrastructure will provide AIS coverage for the waterways of network categories A, B and C.

The European inland waterways are classified to promote a uniform inland waterway network. The basis for the classification are the physical dimensions of agreed vessel types. The assignment of the federal inland waterways for general traffic to the waterway categories is updated

annually based on local changes, in particular those resulting from the upgrading of waterways. The Federal Waterways and Shipping Administration is currently making available to the users electronic waterway charts for inland waterways of category IV and higher. Inland waterways of categories I to III have not been recorded in electronic waterway charts.

Medium-term measure:

The Federal Ministry of Transport and Digital Infrastructure aims to create electronic waterway charts for almost all inland waterways of category III.

4. Establishment of digital platforms and their evolution

The Federal Waterways and Shipping Administration's electronic waterway information service (ELWIS) already makes available comprehensive information for inland waterway transport. In particular, it is possible to retrieve water level and traffic information as well as waterway infrastructure information and traffic statistics. An expansion of water body information to include, for instance, information on current velocity and a longer-term water level forecast (currently: four-day water level

forecast) could significantly facilitate the journey duration planning of the users.

Short-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will expand the electronic waterway charts available in ELWIS.
- **The Federal Ministry of Transport and Digital Infrastructure** will examine, together with its competent executive agencies, the possibility of making available longer-term forecasts (e.g. water level forecasts) in ELWIS.
- **The Federal Ministry of Transport and Digital Infrastructure** will optimize, together with its competent executive agencies, the water body information in the ELWIS information system.

require. In the case of such events, the respective traffic control centres of the Federal Waterways and Shipping Administration simultaneously inform the inland waterway crews about the condition of the waterways in the area. The electronic reporting of container vessels and inland tank vessels on the Rhine is already mandatory. The expansion of NaMIB to all waterways enhances the safety and efficiency of the traffic on the waterways.

Medium-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** seeks to also introduce the Reporting and Information System (NaMIB) on inland waterways on which it is not yet available.
- **The Federal Ministry of Transport and Digital Infrastructure** is examining the introduction of mandatory reporting for all inland waterway vessels.

5. Improvement of network coverage

For the inland waterways to remain a competitive mode of transport, it must be ensured that they are provided with appropriate mobile communications coverage to permit their participation in the technological development in transport and logistics.

Medium-term measure:

The Federal Ministry of Transport and Digital Infrastructure will push for 5G mobile communications access along all waterways that are important for inland waterway transport.

7. Automated and connected navigation, including autonomous navigation

New processes in the field of automated and connected navigation – including autonomous navigation – can help the inland waterway transport industry to operate at an optimum level and to enhance the competitiveness of inland waterway transport. In addition to uninterrupted broadband communication, large amounts of data have to be made available on digital platforms for this purpose. There are already various research and development projects that deal with automated and connected navigation. To do practice-oriented research in these innovative fields, digital test beds have to be created on suitable waterways.

6. Evolution of the Reporting and Information System for Inland Waterway Transport

In the event of emergencies and accidents, the national Reporting and Information System for Inland Waterway Transport of the Federal Waterways and Shipping Administration (NaMIB), which was set up in 2010, provides the responsible rescue services with the information they

Measure already implemented:

In the federal budget 2019, the **Federal Ministry of Transport and Digital Infrastructure** has earmarked budget funds for the creation of digital test beds in ports, on waterways and on railway lines.

Short-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** supports the creation of digital test beds in the inland waterway sector to promote digitalization in inland waterway transport and in particular automated and connected navigation.
- **The Federal Ministry of Transport and Digital Infrastructure** will develop guidelines on the funding of digital test beds in ports and on waterways.

Medium-term measure:

In cooperation with the other Member States of the Central Commission for the Navigation of the Rhine, the **Federal Ministry of Transport and Digital Infrastructure** is developing specific rules for shipping as required for automated and autonomous navigation.

The Federal Government has been funding the new construction and upgrading of combined transport (CT) terminals operated by private undertakings since 1998. CT is a special form of intermodal freight transport which involves moving standardized loading units (containers, swap bodies or HGV semi-trailers) by rail or waterway over longer distances. Here, the loading unit changes the transport mode along with the goods. An HGV is only used for a short distance. The inland waterway sector sees a further need for funding in this regard.

Medium-term measure:

The Federal Ministry of Transport and Digital Infrastructure is examining possibilities for optimizing the promotion of combined transport as well as funding options for regular container transport operations by inland waterway vessel.

IV. Measures to strengthen inland waterway transport within multimodal transport chains

1. Strengthening container transport by inland waterway vessel

The inland waterway transport sector is complaining that inland container vessels are at a disadvantage when it comes to their handling at sea port terminals. Both the German container sea ports and the sea ports of Amsterdam, Rotterdam and Antwerp (ARA sea ports) are working to improve process planning for inland container vessels in the entire port.

Short-term measure:

The Federal Ministry of Transport and Digital Infrastructure is pushing for the improvement of process planning for inland waterway vessels in sea ports and is supporting innovative process planning systems in German sea ports, e.g. as part of the financial assistance programme entitled “Innovative Port Technologies (IHATEC)”.

2. Strengthening bulk cargo transport by inland waterway vessel

The transport of bulk cargoes is the core business of inland waterway transport. According to the sector, this core business could be strengthened by expanding the so-called 44-tonne rule that applies to CT. In road haulage, the permissible total weight of 40 tonnes for HGV can be increased by 4 additional tonnes for HGV used for initial and terminal hauls to or from the nearest suitable CT transshipment terminal. Expanding this rule to cover certain bulk cargoes might improve the integration of the inland waterways into the multimodal transport chain. Interesting cargo types for a shift to the inland waterways whose initial and terminal hauls take place by HGV would be, in particular, break-bulk such as steel or aluminium coils, bundled aluminium or steel products, bagged cargo in big bags (fertilizer, cement, etc.) as well as timber products. However, expanding the 44-tonne rule also means a higher burden on the road infrastructure, in particular on the bridges. Furthermore, it is unclear whether such an arrangement might trigger shift-back effects in the field of CT.

Short-term measures:

- The **Federal Ministry of Transport and Digital Infrastructure** will commission a scientific study regarding the impact of an expansion of the 44-tonne rule to bulk cargoes in the initial and terminal hauls to and from inland ports that takes into account the interlinking of modes of transport.
- If the outcome of the scientific study is positive, the **Federal Ministry of Transport and Digital Infrastructure** will consider a field trial with an expanded 44-tonne rule for bulk cargoes to verify the advantages of such a measure for inland waterway transport and examine potential side effects.

One option to reduce the costs of bulk cargo handling in inland ports could be the development of more modern and efficient transshipment terminals. In this way, the

loading and unloading times of inland waterway vessels when they are handling bulk cargo in inland ports could be shortened and the costs of the overall transport chain could be reduced.

Medium-term measure:

The **Federal Ministry of Transport and Digital Infrastructure** will initiate research projects on modern and efficient transshipment terminals in the field of break-bulk and bulk cargo and consider implementation measures.

3. Strengthening the transport of abnormal loads by inland waterway vessel

In the discussions on the preparation of the Masterplan, the transport of abnormal loads, among other things, was identified as an interesting market segment for inland



Handling of an abnormal load at the Weser transshipment facility Hann. Münden

waterway transport. The majority of transport operations takes place on the roads. Given their dimensions, inland waterway vessels are predestined for the transport of abnormal loads. However, inland waterway transport also has to be perceived as an alternative by the contracting industrial enterprise and/or by the transport and logistics enterprises.

Special movements (abnormal loads) on the roads are generally subject to approval in Germany. For the whole of Germany, the processing takes place by means of an electronic application and approval procedure ("Procedural Management for the Transport of Abnormal Loads" - VEMAGS). On 18/19 October 2018, the Conference of Ministers of Transport decided that VEMAGS, after successful completion of trial operations under real-world conditions, would switch to regular operations and that the overall system as well as the individual modules would be evolved. Currently, inland waterway transport is not taken into account in the VEMAGS system.

What is important, however, is that the waterway option is "visible" for potential clients already before the application for the approval of a special movement via VEMAGS. In order to identify and evaluate possible routes across all modes of transport when planning transport operations, a route planner is needed that identifies and uses existing digital networks of the waterways, rail and roads and their respective transition points. A routable digital federal waterways transport network already exists.

Short-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will enter into a dialogue with the federal states to achieve an optimization of the approval procedure for a better integration of inland waterway transport into the transport chain.
- **The Federal Ministry of Transport and Digital Infrastructure** will make the routable digital federal waterways transport network available for use in the VEMAGS system.

- **The inland ports sector** will create a database with current data on its capacities in terms of abnormal loads handling and scheduled abnormal loads services and make it available for use in the VEMAGS system.

Medium-term measure:

The Federal Ministry of Transport and Digital Infrastructure will consider regulatory measures in support of prioritizing special movements by waterway.

Reliable routes for abnormal loads on the roads from and to inland ports are an important prerequisite for shifting more abnormal loads (special movements) to the inland waterways. On 9/10 November 2017, the Conference of Ministers of Transport in Wolfsburg decided that the federal states will specify suitable route segments if necessary also outside the federal motorways as corridors for abnormal loads requiring approval.

Medium-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will enter into talks with the federal states to define reliable routes for abnormal loads from and to the inland ports in all federal states.
- **The inland ports sector** is considering launching an initiative for the continuing training and further education of inland ports personnel in the handling of special movements.

4. Integrating inland waterway transport in the initial and continuing training of the haulage and logistics industries

The waterways are often not considered in the logistics chain because there is a lack of knowledge on the part of the decision-makers of logistics operators regarding the inland waterway vessel as a means of transport. Therefore, new recruits should already be made aware of the waterway transport options during their training. Similarly,

corresponding continuing training and further education measures for forwarding and logistics agents should be offered.

Short-term measures:

- **The inland waterway transport and inland ports associations** will launch an initiative that gives the training regulations for forwarding and logistics agents a stronger focus on inland waterway transport.
- **The Federal Ministry of Transport and Digital Infrastructure** will enter into talks with the federal states to lobby for the inclusion, also in the exams, of training components on the waterway mode in the curricula of forwarding and logistics agents.
- **The inland waterway transport and inland ports associations** will launch a campaign for the continuing training of forwarding and logistics agents.
- **The inland waterway transport and inland ports associations** will launch an initiative for the development of suitable course material for the specific vocational colleges.
- **The ShortSeaShipping Inland Waterway Promotion Center (SPC)** will be involved more closely to highlight the advantages of the waterway mode in the field of initial and continuing training.

V. Measures to guarantee sufficient numbers of skilled workers in inland waterway transport

1. Evolution of the financial assistance programme for the initial and continuing training in inland waterway transport

The number of people employed in inland waterway transport in Germany decreased from 7,713 in 2012 to 6,805 in 2017. The number of inland waterway boatmen subject to social security contributions has been decreasing for

years. In 2017, 4,259 boatmasters for inland waterway and port traffic were registered with the Federal Employment Service as being employed in jobs subject to social security contributions. In terms of age structure, 58.1 % of the boatmasters employed in jobs subject to social security contributions were between 25 and 55 years old and 30.9 % were aged 55 and over.

Inland waterway transport has been suffering from a shortage of skilled workers for many years now. Since as early as 1999, the Federal Ministry of Transport and Digital Infrastructure has been funding the training of inland waterway boatmen and port boatmen. The financial assistance serves both the recruitment of qualified new workers and the further education of German inland waterway transport personnel. To continue counteracting the shortage of skilled workers and to increase the attractiveness of the profession, it is necessary to continue and evolve the financial assistance.

Measures already implemented:

- **The Federal Ministry of Transport and Digital Infrastructure** has extended the Guidelines for the Funding of Initial and Continuing Training in the German Inland Waterway Transport Sector, which entered into force in May 2015, until 31 December 2019.
- **The Federal Ministry of Transport and Digital Infrastructure** has arranged for the evaluation of the Guidelines for the Funding of Initial and Continuing Training in the German Inland Waterway Transport Sector which applied until 31 December 2018.

Short-term measure:

The **Federal Ministry of Transport and Digital Infrastructure** will evolve, by 1 January 2020, the Guidelines for the Funding of Initial and Continuing Training in the German Inland Waterway Transport Sector and will advocate providing an appropriate level of financial assistance and fleshing it out in line with the needs.

2. Launch of a campaign to attract new recruits to the inland waterway transport sector

Finding a trainee for an inland waterway boatman/port boatman or a port logistics specialist training position often fails because the target group is not adequately informed about the profession. To reach potential trainees, the measures for finding new recruits taken so far have to be adapted to the situation on today's job market.

Short-term measures:

- **The inland waterway transport and inland ports associations will launch, within the framework of a collaborative scheme, an advertisement campaign for the training to become an inland waterway boatman or a port boatman.**
- **The sector will launch a coordinated initiative for a strong presence at training and job fairs (e.g. by setting up a focal point). The inland waterway transport and inland ports associations are responsible for the coordination. The use of the recruiting initiative "Hello Future!" and social media for finding new recruits will be intensified.**
- **The Federal Waterways and Shipping Administration and the ShortSeaShipping Promotion Center will contribute to the advertisement campaign of the inland waterway transport and inland ports associations for the training to become an inland waterway boatman or a port boatman.**

3. Further support measures

For the whole of Germany, the education of inland waterway transport trainees takes place in two vocational colleges. As a specialized vocational college for the sector, the Schifferberufskolleg RHEIN (Boatman Training College RHEIN) in Duisburg plays a special role. The general vocational college in Schönebeck (in the federal state of Saxony-Anhalt) also provides instruction within the framework of vocational training in inland waterway transport.

In Duisburg, the Federal Association for German Inland Waterway Transport (BDB) with its training vessel RHEIN operates an institution that offers training in the professions of inland waterway boatman, port logistics specialist and hydraulic engineer. The training vessel RHEIN required considerable modernization and repair measures. Since 2014, the Federal Ministry of Transport and Digital Infrastructure has made available a total of around 2.0 million euros for modernization measures to ensure that course participants can be accommodated adequately. Further modernization measures are planned.

Short-term measure:

The Federal Ministry of Transport and Digital Infrastructure will provide financial assistance for the upcoming modernization of the training vessel RHEIN.

For ten years already, the shallow-water navigation simulator "SANDRA" has been used at the Schifferberufskolleg Duisburg to simulate specific navigation tasks without risk of damage. The use of the shallow-water navigation simulator is an important component of the training to become an inland waterway boatman, in the preparation for the exam to become a boatmaster as well as of continuing training (e.g. in the field of fuel-saving navigation). The simulator's hardware and software are outdated and only partly usable. Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation permits the use of a simulator for the exam to obtain a boatmaster's certificate, a radar licence and certifications for specific routes.

Short-term measure:

The Federal Ministry of Transport and Digital Infrastructure will provide the operator of the SANDRA shallow-water simulator with financial assistance for the purchase of the necessary new hardware and software.



“SANDRA” shallow-water navigation simulator

4. Increasing the attractiveness of the training to become an inland waterway boatman

The three-year training to become an inland waterway boatman provides new recruits with a recognized vocational qualification within the proven dual system. With Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation, qualifications obtained in line with the prerequisites contained therein will be valid for all inland waterways of the EU. In accordance with the Directive, the Ordinance on the vocational training to become an inland waterway boatman is to be amended in line with the requirements of the EU Directive. In this context, it makes sense to better adjust the Ordinance to the varying requirements of potential trainees.

Qualified, technically interested school-leavers should be encouraged to pursue a vocational training by offering them a continuous training programme up to the

qualification of boatmaster. School-leavers who prefer a practical emphasis could be attracted by offering a shorter vocational training to become a junior boatman. This is in accordance with the Directive, which distinguishes between training at operational level (boatman, able boatman, helmsman) and at management level (boatmaster).

Medium-term measures:

- **The Federal Ministry of Transport and Digital Infrastructure** will push for making vocational training in the inland waterway transport sector more attractive (introduction of a dual training programme to become a boatman/boatmaster).
- **The Federal Ministry of Transport and Digital Infrastructure** will examine whether vocational training in inland waterway transport should be shortened for lateral entrants.

D. Looking ahead

A joint effort is required to improve the competitiveness of inland waterway transport in the long term and in a sustainable manner. The mentioned comprehensive and sophisticated measures can only be implemented successfully if all players involved in the Masterplan work together constructively.

List of sources

Bundesanzeiger Verlag GmbH (ed.) (1997): Federal Law Gazette I, p. 2803, Dreiundfünfzigste Verordnung über Ausnahmen von den Vorschriften der Straßenverkehrs-Zulassungs-Ordnung (53. Ausnahmeverordnung zur StVZO).

Bundesanzeiger Verlag GmbH (ed.) (1956): Federal Law Gazette II, p. 1838, Vertrag zwischen der Bundesrepublik Deutschland, der Französischen Republik und dem Großherzogtum Luxemburg über die Schiffbarmachung der Mosel.

Bundesanzeiger Verlag GmbH (ed.) (2018): Federal Law Gazette 2018, Part II, No 7, Neunte Verordnung zur Änderung rhein- und moselschiffahrtspolizeilicher Vorschriften.

Bundesanzeiger Verlag GmbH (ed.) (2018): Federal Law Gazette, Part I, No 33 of 5 October 2018, Verordnung über die Schiffssicherheit in der Binnenschifffahrt (Binnenschiffsuntersuchungsordnung – BinSchUO).

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (ed.) (2016): Klimaschutzplan 2050.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2016): Bundesverkehrswegeplan 2030.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2018): Aktionsplan Digitalisierung und Künstliche Intelligenz in der Mobilität.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2016): Nationales Hafenkonzzept für die See- und Binnenhäfen 2015.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2011): Investitionsrahmenplan 2011 – 2015 für die Verkehrsinfrastruktur des Bundes (IRP).

Federal Ministry of Transport and Digital Infrastructure (ed.) (2015): KLIWAS Auswirkungen des Klimawandels auf Wasserstraßen und Schifffahrt in Deutschland (KLIWAS) - final report of the Federal Ministry of Transport and Digital Infrastructure.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (ed.) (2011): Aktionsplan Anpassung der Deutschen Anpassungsstrategie an den Klimawandel.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2015): Endbericht Reformkommission Bau von Großprojekten.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2015): Stufenplan Digitales Planen und Bauen.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2017): Masterplan Schienengüterverkehr.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2018): Bekanntmachung des Prüfverfahrens "Verfahren zur Prüfung der Zulässigkeit des Einbaus von marinisierten Motoren (VEMM)".

Federal Ministry of Transport and Digital Infrastructure (ed.) (2016): Förderrichtlinie Innovative Hafentechnologien (IHATEC).

Federal Ministry of Transport and Digital Infrastructure (ed.) (2017): Richtlinie zur Förderung von Umschlaganlagen des Kombinierten Verkehrs nicht bundeseigener Unternehmen.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2018): Richtlinie zur Förderung der Aus- und Weiterbildung in der deutschen Binnenschifffahrt.

Federal Ministry of Transport and Digital Infrastructure (ed.) (2018): Richtlinie über Zuwendungen für Binnenschifffahrtsunternehmen zur nachhaltigen Modernisierung von Binnenschiffen (Förderprogramm nachhaltige Modernisierung von Binnenschiffen).

European Union (ed.) (2016): Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC.

European Union (ed.) (2017): Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation and repealing Council Directives 91/672/EEC and 96/50/EC.

European Commission (ed.) (2018): COM (2018) 279 final, Proposal for a Regulation of the European Parliament and of the Council on electronic freight transport information.

RIS COMEX Project Consortium (ed.) (2019): Website on RIS-COMEX (<http://www.riscomex.eu>) – as at: 1 April 2019.

Secrétariat de la CDNI (ed.) (1996): International Convention on the Collection, Deposit and Reception of Waste Generated during Navigation on the Rhine and Other Inland Waterways.

Springer Fachmedien München GmbH (ed.) (2019): Website of the Hallo, Zukunft! training initiative (<https://www.hallo-ausbildung.de>), as at: 1 April 2019.

Federal Statistical Office (ed.) (various editions): Güterverkehrsstatistik der Binnenschifffahrt, Fachserie 8, Reihe 4.

Publication data

Published by

Federal Ministry of Transport and Digital Infrastructure (BMVI)
Invalidenstr. 44
10115 Berlin

As at

May 2019

Layout | Print

Federal Ministry of Transport and Digital Infrastructure
Division Z 32

Picture credits

Cover picture: © Otto Durst - stock.adobe.com
Page 4: <https://www.andreas-scheuer.de/presse/>
Pages 6, 9, 14, 18, 21: Federal Waterways and Shipping Administration (WSV)
Page 25: Schiffer-Berufskolleg RHEIN

This brochure is part of the Federal Government's public relations work.
It is issued free of charge and may not be sold.

