Interreg
Danube Transnational Programme
DBS Gateway Region

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Roadmap
towards the DBS Gateway Region

Final Report

Vienna, October 2018

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Authors	Christina Narval
Contributors	All partners of the project
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1 Importance of Action – Why a Roadmap?

1.1 Main challenges

With the enlargement of the EU the borders were opened to reunite the historical Danube region. Economic development and the emergence of new markets led to raising transport flows mainly using roads. High traffic volumes not only restrain economic development again, but have negative effects on the regions, too.

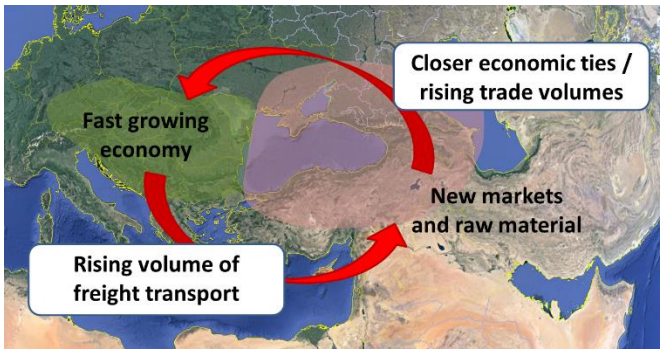
The main objective of the project is to support the Danube-Black Sea region to become an attractive gateway region for environmental-friendly modes of transport preferably maritime and inland waterway transport between Central Europe and the Black Sea, the Caspian region and the Far East (DBS Gateway Region) by facilitating the cooperation between ports, regions and other key actors. The joint effort shall improve accessibility of both the ports and the regions and strengthen interoperability between maritime and inland waterways as well as with their hinterland. Together with raising the awareness of the possibilities of intermodal transport, this will lead to shifting existing and attracting new cargo flows to environmentally friendly transport systems.

At present, aging infrastructure and inefficient, non-transparent intermodal services limit the potential of the water transport system. The multitude of private companies in a fragmented market cannot be expected to be the promoters of an intermodal network system that leads to higher efficiency at the macro-level rather than the level of the single firm. The project is built upon the belief that the cooperation of public authorities, ports and their related associations is the key success factor in order to raise quality, reliability and efficiency of the waterway transport system.

Cooperation in itself will not yet lead to the envisaged results. It needs to be elevated on a well-informed, well-prepared, well-focused and well-supported level. The specific objectives of the project accommodate this fact: The project aims at creating a basis for cooperation between the relevant stakeholders in order to be able to work together towards the development of the DBS Gateway Region. Through increased attractiveness of the waterway transport system, it aims at providing the preconditions for the region to take over the envisaged role as DBS Gateway Region. In order to be able to further develop and actively promote the DBS Gateway Region beyond the lifetime of the project, the project aims at facilitating long-term cooperation of all key actors within an institutionalised Cooperation Platform.

1.2 Danube-Black Sea (DBS) Gateway Region

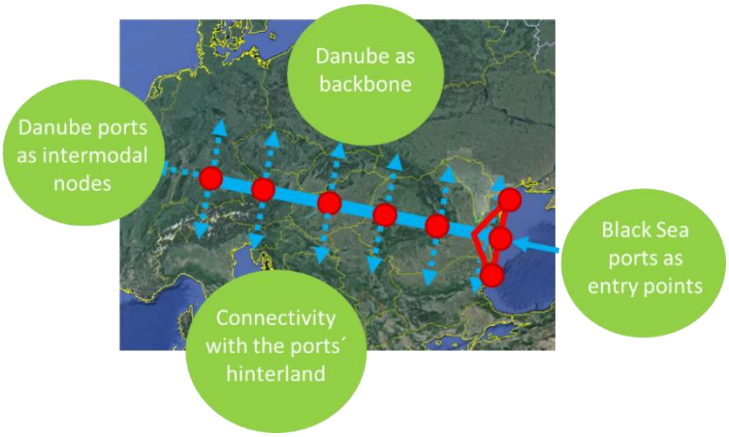
Danube region consists of eight countries with fast growing economies, which is bordered by new emerging markets. Thus, the region has potential to become a very important gateway for sustainable and environmentally-friendly waterway freight transport between Central Europe, the Caspian region and the Far East.



The current level of infrastructure development and logistics performance of the environmentally sustainable transport modes in the regions, however, is not sufficient to take over the envisaged global role

and rising transport demands. This way, the growing demand will inevitably result in higher traffic by road, which will at its turn restrain economic development again and will have negative effects on the regions.

The DBS Gateway Region project aims at preparing and promoting the Danube-Black Sea Region as the gateway for sustainable and environmentally-friendly freight transport between Central Europe and the Black Sea, the Caspian region and the Far East.



The DBS Gateway Region consists of the Western Black Sea ports as entry points, the Danube as a backbone for inland waterway connection towards Central Europe, Danube ports as intermodal nodes and efficient connections between the ports and their hinterland.

To achieve the main project objective 10 financing partners and 20 strategic partners from 10 counties, namely Austria, Bulgaria, Croatia, Germany (Bavaria), Hungary, Moldova, Romania, Serbia, Slovakia, and Ukraine, joint forces to establish cooperation network for:

- Exchanging information, ideas, capacity building etc.
- Establishing joint voice for joint interests and
- Better develop inter-connectivity throughout the whole transport chain (inter-modality to the last mile).

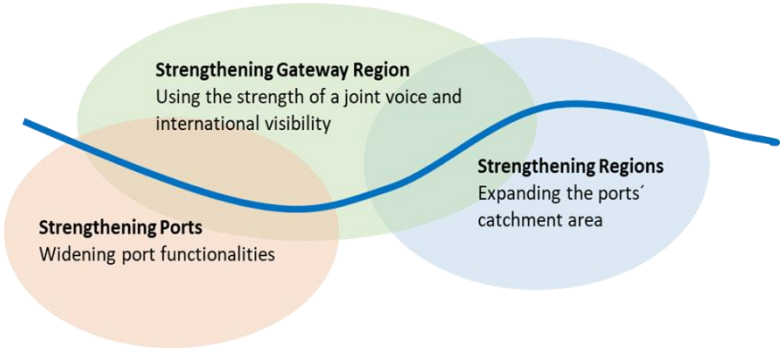
1.3 Objectives – Roadmap supporting the Joint Vision 2040

The Roadmap consists of measures suitable to reach the Joint Vision 2040 that was developed within the project in a prior step (see document “Joint Vision 2040 for the DBS Gateway Region”, WP3 Activity 3.3). This makes the Roadmap an important instrument for future cooperation towards increasing the attractiveness of the DBS Gateway Region.

The Joint Vision 2040 is understood as an aspirational description of what the DBS Gateway Region would like to accomplish in the mid-term and long-term future. It gives a jointly agreed common direction and serves as a clear guide for choosing current and future action.

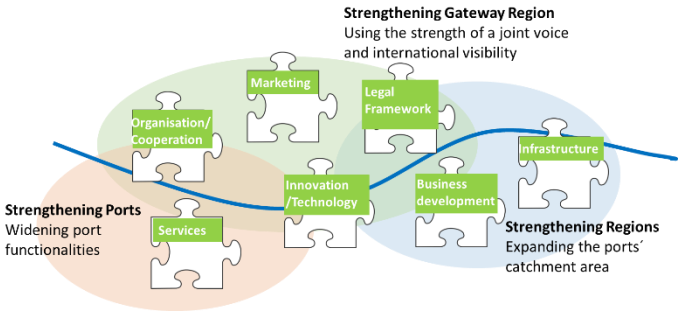
The Joint Vision builds upon three pillars that reflect the basic assumptions and intentions of the partnership in a joint Mission Statement:

- **Strengthening the ports**
  Widening port functionalities
- **Strengthening the regions**
  Expanding the ports´ catchment area
- **Strengthening the whole DBS Gateway Region**
  Using the strength of a joint voice and international visibility



In order to reach these goals the Joint Vision defined seven fields of intervention within which future action should be bundled:

- Legal Framework
- Infrastructure
- Services
- Organisation/Cooperation
- Marketing
- Research/Innovation/Technology
- Danube-affine business development



These fields of intervention directly link with the Roadmap. All pieces of the puzzle are filled with suitable measures in order to reach the Joint Vision´s mission.

2 Roadmap within the project "DBS Gateway Region"

2.1 Structure of the project

About 60 experts from Central and East European Countries came together on 22 March 2017 at the Best Western Hotel Expo in Sofia, Bulgaria, to participate at the kick-off of the recently started project "DBS (Danube-Black Sea) Gateway Region" dealing with the regional and transport development in the Danube - Black Sea region towards a Transnational Multiport Gateway Region.

The main goal of the project is to support environmentally-friendly transport systems and accessibility of the regions in the whole Danube-Black Sea area.

The project builds upon three specific objectives:

- **Create a basis for cooperation** between the relevant stakeholders in order to be able to work together towards the development of the DBS Gateway Region
  Increased knowledge about similar challenges and joint market potentials, the agreement on a joint vision, fields of joint action and identification of needed learning interactions will have an immediate effect on the quality of future cooperation.
- **Increase the attractiveness of the waterway transport system** in the Danube-Black Sea region in order to be able to take over the envisaged role as DBS Gateway Region for environmentally-friendly transport
  This will mean creating preconditions for investments in intermodal infrastructure and recommending innovative measures for services along the whole logistics chain suitable to increase the connectivity between Black Sea and Danube ports and their respective hinterland.
- **Facilitate long-term cooperation** of all key actors within an institutionalised Cooperation Platform in order to be able to further develop and actively promote the DBS Gateway Region beyond the lifetime of the project
  Legitimised by a jointly agreed agenda this platform shall ensure sustainability of the taken actions through know-how transfer, trainings and monitoring of the implementation of joint projects.

Started in the beginning of 2017, the project has a lifetime all through 2018 with a final conference in June 2019 in Lower Austria where the results of the project will be presented. During the project´s lifetime several partner meetings and workshops are held for all partners to bring in their input, views and arguments.

The project is co-financed by the framework of EU´s Danube Transnational Programme within which ten financing partners and additional 20 associated strategic partners from all Danube riparian countries work together. The partnership not only includes ports and their related associations, but also national, regional and local authorities to widen the perspective from port infrastructure to hinterland connections. Ports are seen as important hubs and their accessibility to and from the region as essential success factor. Ports provide the experience and competence of offered services, logistics and cargo management. Cities, regions and ministries are competent to integrate recommendations of the project into their local, regional and national policies and thus play an important role for implementation.

The partnership consists of the following financing partners:

- Regional Government of Lower Austria, AT
- Urban Innovation Vienna (UIV), AT

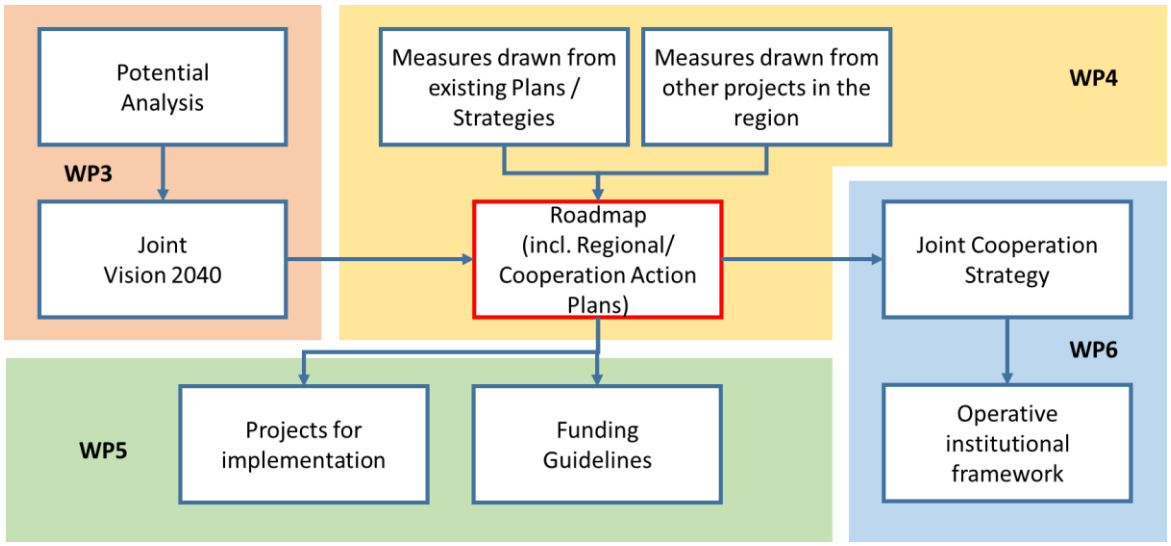
- Public Ports Bratislava, SK
- Freeport of Budapest Logistics, HU
- Port Authority Vukovar, HR
- University of Novi Sad, RS
- Bulgarian Ports Infrastructure Company, BG
- Municipality of Burgas, BG
- Municipality of Varna, BG
- Municipality of Galati, RO

The partnership consists of the following associated strategic partners:

- Bayernhafen Group, DE
- Ecoplus. The Business Agency of Lower Austria, AT
- Port of Vienna, AT
- Municipality of Vienna, AT
- Austrian Association of Cities and Towns, AT
- Austrian Ministry of Transport, Innovation and Technology, AT
- Working Community of Danube Regions, AT
- Bratislava Self-governing region, SK
- Hungarian Federation of Danube Ports, HU
- Association of Hungarian Logistics Service Centres, HU
- Hungarian Ministry of Development, HU
- Port of Vukovar Ltd, HR
- Croatian Ministry of Maritime Affaires, Transport and Infrastructure, HR
- Autonomous Province of Vojvodina, RS
- Bulgarian Ministry of Transport, Information Technology and Communication, BG
- Port of Varna, BG
- Port of Novi Sad, RS
- River Administration of the Lower Danube Galati, RO
- Izmail Sea Ports Authority, UA

2.2 Position of the Roadmap within the project

The project started in 2017 with a potential analysis, finding the strengths and weaknesses, opportunities and threats for the Danube-Black Sea region to become a transnational multiport gateway region for environmentally-friendly freight transport. Understanding where we stand today opened the creative energy of the partners to develop a clear vision for the year 2040 declaring where the region sees itself in the mid-term and long-term future.



All partners, together with other relevant stakeholders, developed this Roadmap showing how to get to what is envisaged in the Joint Vision 2040. As there are already several local, regional and national strategies and plans that support inland waterway transport, all existing and relevant measures were included into the Roadmap. Additionally, new measures were added from the point of view of the development of the DBS Gateway region. The Roadmap is the tool for the DBS Gateway Region to develop itself from where it stands today to where the partners would like to see it in their Joint Vision 2040.

In order to bring the recommended measures from the Roadmap towards implementation, a funding guideline will lead the way towards financial support. In a next step, measures with high priority will be worked out in further detail.

With all these tools and information in place, a Cooperation Platform will be founded that serves as the transmitter between the involved stakeholders and keep efforts going after the end of the project lifetime. The Cooperation Platform will support the partners in their efforts and monitor the implementation of measures from the Roadmap.

2.3 Development Process

The **Roadmap** was developed by all partners, financing partners as well as associated strategic partners. They provided input from local, regional and national plans and strategies and developed new measures necessary to build up the DBS Gateway Region. Each partner invited a wider circle of stakeholders to regional workshops in which they discussed the current situation and necessary steps towards the DBS Gateway Region. In the partner meeting on May 17 and 18, 2018, the Roadmap was presented, discussed and approved by the SCOM.

The Roadmap also consists of several Regional Action Plans and a Cooperation Action Plan within which a more detailed analysis brakes down measures into concrete steps towards implementation:

The **Regional Action Plans (RAPs)** were developed by each partner of the respective port region. Together with the relevant ASPs and other stakeholders approximately ten most pressing measures were selected from the Roadmap. These measures were then translated to regional level and worked out in detail so that concrete steps lead to practical implementation.

The **Cooperation Action Plan (CAP)** addresses measures of the Roadmap that will not work on regional level but need to be implemented for the whole DBS Gateway Region. These measures were selected by the whole partnership and worked out in the same way as the Regional Action Plans.

The RAPs and CAP was presented in Novi Sad on November 13, 2018, and approved by the SCOM.

3 Roadmap

The Joint Vision 2040 (see chapter 1.3) is understood as an aspirational description of what the DBS Gateway Region would like to accomplish in the mid-term and long-term future. It gives a jointly agreed common direction and serves as a clear guide for choosing current and future action.

The Roadmap contains measures suitable to reach the Joint Vision 2040. This makes the Roadmap an important instrument for future cooperation towards increasing the attractiveness of the DBS Gateway Region.

3.1 Development of measures for the Roadmap

For the Roadmap existing plans and strategies etc. at all administrative and sectoral levels were screened in the search for measures relevant to support the Joint Vision 2040.

Administrative levels:

- EU level
- Transnational level (other transnational projects and working communities etc.)
- National level
- Regional level
- Local level

Sectoral levels:

- Transport sector
- Economic sector
- Port internal documents

With a multitude of already existing measures and recommendations there is already a lot ongoing in the region. Many of these measures are well on the way being implemented. However, there are others stranded at the level of general commitment.

Types of measures and stages of development of the Roadmap:

Roadmap	
Existing measures	Measures that are already on the way being implemented
	Measures that need speeding up
New measures	Measures adapted from other regions (inspiration of best practices)
	Completely new measures

At the same time, as these plans were not developed under the big picture of the DBS Gateway Region, there was still a gab to bridge between existing measures and the objectives set in the Joint Vision 2040. This is why in many cases additional measures were developed in order to be able to sufficiently support the partners´ goals: In the first step, measures were added through inspiration of measures existing in other

countries/regions/cities or other sectors that have proven successful (best practices). Only in the last step, completely new measures were developed where needed.

3.2 Overview of fields of interventions

The Roadmap provides concrete measures towards the DBS Gateway Region for all seven fields of intervention described in the Joint Vision 2040 (see chapter 1.3).

3.2.1 Legal Framework

The Danube river flows through ten different countries with ten different legal frameworks. At EU level, this problem was detected and several directives put into place to tackle it. But again, these directives were implemented differently in each country. In order to work as a continuous transport line these legislation need to be harmonised. The non-EU country Serbia adds to the challenge.

Measures focus on the following topics that were seen as most pressing by the partnership:

1. Paperwork is big in the shipping industry, especially in the light of different legal frameworks. This inefficient habit slows down the whole transport system. If harmonisation of legal frameworks is difficult and matter of long-term convergence, the Roadmap suggests a parallel development. It includes measures leading to the region-wide use of electronic documents in international shipping that will speed up the clearance process at borders. The UN brought up this topic already in the year 2008, releasing a convention on electronic documentation. However, the convention is not yet ratified by most countries!

2. Like other environmentally-friendly transport systems, incentives are needed in order to increase inland waterway (IWW) use. Incentives can work in many different ways addressing either the shipping companies or the industry:
    - An environmental bonus / malus-system can influence the modal split in favour of IWW, addressing industry and freight forwarders.
    - Incentives can also help the digital evolution in the DBS Gateway Region and encourage ships to use digital equipment and stick to the timetable (check-in at ports etc.).

3.2.2 Infrastructure

Infrastructural needs are already well known and represented in a multitude of plans and strategies. All Danube riparian countries developed national projects that await their implementation. The task of the Roadmap was to categorise them and facilitate an overview addressing the following most important topics:

1. The Danube-Black Sea region is situated at the crossroads of the Rhine-Danube Corridor and the Orient-East-Med Corridor. In order to serve as an efficient gateway region the transport system needs to improve in a comprehensive way.
    - Measures assuring the Danube navigability throughout the whole length of the river are an essential backbone.
    - In order to ensure a secure and reliable transport system, additionally, parallel routes need to be developed that can serve as back-up in case of low water or ice on the Danube river.

2. The Danube river is seen as the backbone corridor. However, origin and destination of transported goods are rarely found in the river port itself. This is why the project emphasises the importance of efficient interconnections with the ports´ hinterland.
    - The ports need to develop into transport hubs with efficient connections between IWW and other modes of transport. This includes city logistic and other innovative models.
    - The Sea ports Burgas and Varna are not located by the Danube river. In order to integrate them into the transnational transport system, the development of high-performance connections between these two ports and the Danube river are essential.

3. There are several other projects ongoing in the region, the most important one being the New Silk Road. Efforts have to be bundled to connect the DBS Gateway Region with those projects to widen the geographical coverage accessing new markets.

3.2.3 Services

Ports are important intermodal hubs. Mostly cargo does not have neither its origin nor its destination in the port. Connection to the hinterland and thus distribution of cargo is at the heart of the ports´ service (see 3.2.2 Infrastructure). Additionally, the Roadmap suggests ports to transform into logistic centres with a large variety of new services at place that add value to the products (packaging etc.) or ships (maintenance, cleaning, mending etc.).

This is why the Roadmap focusses on the following topics:

1. All ports along the Danube river will widening their functionalities with additional services. Each port focussed on its main target groups adding missing equipment and profiles.

2. Infrastructural needs are already addressed in chapter 3.2.2. However, we believe that existing interlinks between different modes of transport can be used in a more efficient way. Cooperation between the service providers will lead to better organisation in the intermodal nodes. Again, using digital information can help.
    - Digital information can be used for smooth change of transport modes as all equipment is already waiting and time slots are booked for each arriving ship. This will avoid ships or trucks waiting in line after unforeseen delays or early arrivals.
    - Digital information can equally improve special services provided in the port as it can help prepare the port´s staff and have all necessary equipment in place.

3. In some cases the duplication of similar services is not efficient. Teaming up between ports as well as with other transport providers will lead to joint services. Ports can use synergies working together for specified agendas whilst simultaneously competing for cargo on a general basis (coopetition).
    - Joint offers should be developed along the whole transport chain, including back-up services.
    - Between ports, topics such as fire-fighting and security can be tackled together.

3.2.4 Organisation/Cooperation

In a global world, cooperation is a logical necessity. In order to build up the DBS Gateway Region all relevant stakeholders have to work together towards the same goals. Transnational problems and potentials alike cannot be solved on a local or regional basis alone. Only a well-developed Danube along the whole river line will function as a sustainable and reliable means of transport.

1. Digitalisation can raise efficiency if used in a coordinated way.
    - Only the coordinated exchange of information will lead to the efficient application of databases, such as River Information System (RIS) and port Community System.
    - Coordinated information is needed when organising intermodal connections. Digitalisation is the tool, but coordination is the way to use it in an appropriate way for the benefit of all.
    - Digital platforms can be used to efficiently match offer and demand.

2. Inland waterway is still a lone traveller. Cooperation has to be used to integrate IWW as an equal partner into the whole multimodal transport chain.
    - This is why we have to make IWW visible and available for freight forwarders.
    - Data on IWW has to be added into existing platforms so they can function as missing links and alternative to trucks.

3. Transnational challenges need to be addressed on a transnational level. All stakeholders and relevant institutions shall be organised in a Cooperation Platform, making use of the joint voice to lobby for necessary change, bundling joint efforts to take necessary steps together as well as to use the joint visibility on a global market.

3.2.5 Marketing

The DBS Gateway Region needs one voice in order to be recognised at international level. Similar to the NAPA ports, the DBS Gateway Region shall be marketed as a joint brand with a series of ports ready to handle the specific goods and distributing it to the respective hinterland.

The joint voice will also be needed within the DBS Gateway Region and at EU level in order to lobby for the interests of the Danube transport (e.g. speeding up the implementation of necessary infrastructure projects).

1. There are several ways to make IWW visible for freight forwarders and companies.
    - The sensibility for ecological footprints is already in everybody´s minds. IWW can be an offer for companies with “green” Corporate Identity.
    - IWW is not used to its full potential as it still is this easily forgotten child. In order to raise attention, the Roadmap suggests to integrate IWW into existing data platforms (give no possibility to “forget” about the possibilities of IWW).
    - One of the main arguments raised by freight forwarder for not using Danube shipping is the vague reliability of the Danube navigability. As already mentioned in chapter 3.2.2, the set-up of a cost-efficient and easy to use back-up system is key to hold against this killer phrase. The mere existence of the back-up system itself does not solve the problem yet – it has to become common knowledge for all relevant stakeholders. This is why the Roadmap also suggests the promotion the cooperation of rail and IWW to show the resilience of the Danube transport system.
    - In order to get IWW back into the spotlight, the establishment of a (yearly) Danube logistic award (national and international) is recommended.

2. On the international market, single ports along the Danube are not known and will not be able to compete against global players. Using the experience of NAPA ports, the Roadmap recommends to

create a joint brand for "DBS Gateway Region". This has to go hand in hand with the development of a Common Marketing Strategy that can then be itemised for individual port regions again.

3.2.6 Research/Innovation/Technology

The fleet of Danube barges is aging, ICT tools not used yet to the full potential. Applied research for the implementation of new technology and innovative new approaches shall be facilitated and promoted.

1. The first part focusses on the support of applied research. This includes support for researchers as well as for the cooperation between research institution and companies.
    - In order to follow the path of digitalisation, research in intelligent transport systems are key. New technologies, e.g. block-chain technology with high protection of data privacy, have to be further developed and applications drafted.
    - The argument of environmentally-friendly inland waterway transport is often compromised by the old and not energy efficient fleet used on the Danube. Research in new natural fuelling and modern barges can overcome this threat.

2. The second part concentrates on the uptake of innovation.
    - Mostly, the application of new technology involves investments that shipping companies are not willing to take. Incentives can help to overcome this obstacle and raise the probability of uptake.
    - In very important cases (where security and environment is heavily concerned) outlawing old systems can help.

3.2.7 Danube-affine business development

The ports´ catchment areas can be extended by investing in infrastructure to improve the ports´ accessibility (reaching a bigger geographic catchment area from the port within a certain time) or by facilitating the settlement of Danube-affine businesses in the existing catchment area (more cargo in the existing catchment area). The focus of this field of intervention is the latter: Business development shall be supported at the best directly at the port in order to avoid additional handling and further distribution into the hinterland.

1. The Roadmap suggests to include IWW into regional planning procedures which will ensure early integration of IWW necessities in the regions.
    - Especially the zoning plans are powerful tools to steer regional development. New zoning for business areas preferable at ports, terminals and along railway lines will guarantee short distances and direct connections for transported goods avoiding the difficulty of last mile coverage.
    - In regional planning many different projects aim for different goals. In this respect it is desirable to connect the development of the DBS Gateway Region with other projects in the area. It is for the benefit of all if synergies are used and oppositional development avoided.
    - In order to reduce conflicts, it is recommended to include relevant stakeholders already into the planning process (joint development of business areas).

2. In order to support business settlement in the closer port area, companies should be offered integral services to do so.

- The first step would be the development of a toolbox for business agencies (one-stop-shop for investors) including all information about funding options, incentives, transport options, cooperation opportunities etc. Companies will not make the effort of researching for this information, but served on a silver plate they will find out about the advantages more easily.
- Secondly, efforts should be made to establish a community of relevant cross-sectoral stakeholders. This will strengthen cooperation between relevant stakeholders for transport (ports, direct rail feeder lines) and economy and research (high tech parks, universities).

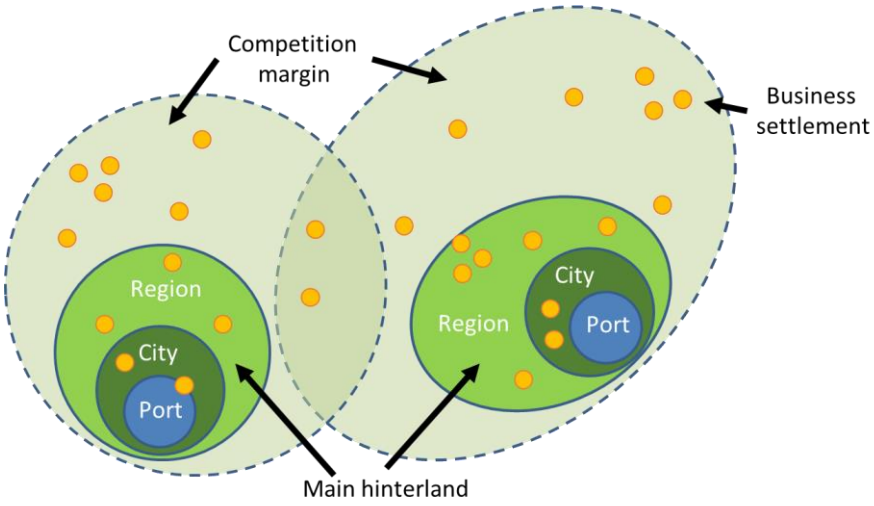
4 Action Plans

The Roadmap includes the comprehensive list of recommended measures necessary to reach the objectives of the Joint Vision 2040 for the development of the DBS Gateway Region. Additionally, the Roadmap consists of a series of **Regional Action Plans (RAPs)** where the most important measures for each participating "Port Region" were developed in further detail.

Additionally to the Action Plans for each Port Region, a separate Action Plan for the Cooperation Platform was developed where all measures are included for which no other existing responsible institution could be identified. This **Cooperation Platform Action Plan (CAP)** mostly included those measures necessary on the transnational level keeping the whole system of the DBS Gateway Region together.

4.1 Definition of "Port Region"

A port region is defined as the port and its respective hinterland. The hinterland describes the origin and destination of the cargo transported via the specific port. The main hinterland is exclusively related to the port. The competition margin may overlap with other ports (e.g. divided because of specialisation on individual cargo types etc.).



Graph: Port hinterland concept, INWAPO

The ports´ hinterland may differ substantially from each other in terms of geographic area (large or small geographic area) and amount of cargo (dense or disperse economic settlement). Following this logic, the hinterland can be expanded either by improving the port´s accessibility (upgrading of infrastructure) or by intensifying efforts for business settlement within the existing hinterland.

Port Region		**Expansion of Port Region**
Geographic area	⇉	Improvement of accessibility
Economic density		Further business settlement

4.1.1 Regional Action Plans

The main focus for the Regional Action Plans is laid on measures that contribute to the *main hinterland*. In order to match the Port Region with responsible institutions addressed by the Regional Action Plans, it is

assumed that in most cases the main hinterland of each Port Region overlaps with the administrative province. In some cases, the administrative province already included parts of the *competition margin*. Here, both levels of hinterland are addressed in the RAP. Relevant measures were coordinated with the competing port and linked to one another.

In other cases, even though the administrative province matches the main hinterland, the *competition margin* still has to be included in order to accurately reflect the port´s reality. Here, the RAP has to go a bit further outside the province´s borders and address additional relevant institutions.

This means each Regional Action Plan can include measures addressing the following responsible institutions:

- Port operation and port authority
- City/Municipality
- Region/Province
- Other regional institutions, if applicable
- Additional relevant institutions outside the administrative province´s borders, if applicable

The Roadmap includes nine Regional Action Plans for the following Port Regions:

- Port of Bratislava and Komárno Region
- Port of Budapest Region
- Port of Vukovar Region
- Port of Galati Region
- Port of Novi Sad Region
- Port of Burgas Regioon
- Port of Varna Region
- Bulgarian Inland Waterway Ports Region
- Port of Vienna and Lower Austria Region

4.1.2 Cooperation Action Plan

The Cooperation Action Plan (CAP) addresses the whole multiport DBS Gateway Region applying the same concept of catchment area as for single port regions. The institution responsible for implementation of the CAP is the newly to be founded Cooperation Platform (see WP6 in chapter 2.2).

The Cooperation Platform will involve all relevant institutions into the implementation process. It will steer the process and monitor the outcomes:

- National governments and ministries
- EU directorates and other relevant EU institutions
- Advocacy organisations

4.2 Selection of measures for the Action Plans

The Roadmap provides a comprehensive list of measures necessary to build up the DBS Gateway Region. It consists of two types of measures: measures that were taken from already existing plans and strategies as well as newly developed measures.

The Action Plans take a selection of measures that were rated most important for the respective port region and develop them further into concrete steps for action. For measures that are already well on the way being implemented no further action is required. Those are not included in the Action Plans. But even measures already included in existing plans or strategies are often delayed in implementation for certain reasons. This can range from lack of political commitment and sense of urgency to lack of necessary financial resources for implementation. Those measures can be included in the Action Plans when rated high priority and identify what the respective Port Region can do in order to support the speeding up of the relevant measure. On the other hand, new measures need a clear path towards implementation. Here, necessary steps from where we are today to where we would like to be in 2040 (Joint Vision) are outlined in the Action Plans.

The Action Plans include the following measures taken from the Roadmap:

Roadmap			**Action Plan**
Existing measures	Measures that are already on the way being implemented		NOT included
	Measures that need speeding up	⇒	Most important measures included
New measures	Measures taken from other regions	⇒	Most important measures included
	Completely new measures	⇒	Most important measures included
	= comprehensive list		**= max. 10 measures / RAP**

The selection of measures chosen for each Action Plan was done by the respective project partner of the corresponding Port Region. The whole partnership discussed the chosen measures and approved them according to their relevance in contributing to the whole system of setting up the DBS Gateway Region.

Measures in the Action Plans are developed in further detail as shown in the table below:

Recommendation No. **Name taken from the Roadmap (so the measure can be tracked down and put into perspective of the whole picture).**	
Description	Short verbal description of what is intended by the measure (objective, needed action)
Beneficiaries	Who is benefitting from this measure and why?
Responsible institution	Who is responsible for implementing the recommended action?
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • *This is what the responsible institution has to do as preparation* • *These are the stakeholders the responsible institution has to involve* • *This is what the responsible institution has to do first, second, third*

	• *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable)*
Horizon for implementation	Taken from the Roadmap and further specified if possible
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

4.3 Regional Action Plan (RAP) for Port of Vienna and Lower Austria Region

4.3.1 Definition of the Port Region

The Port Region of the port of Vienna is not easily defined. It varies greatly for the different goods and secondary transport modes. In the first place the port (blue circle in the graph below) serves as urban hub for city logistics in the greater area of Vienna (orange circle). This refers mainly to the automotive sector, central warehouse logistics and construction site deliveries.

Additionally, the port´s hinterland reaches out to the whole Eastern region of Austria, mainly described as Lower Austria (green circles) where it competes with other ports such as Krems and Enns.

4.3.2 Description of specific target groups

The Regional Action Plan Lower Austria/Vienna addresses the following institutions responsible for implementing the recommended action:

- Regional Government of Lower Austria and Vienna
- Business agencies of Lower Austria and Vienna
- Single Port Authorities (port of Vienna, port of Krems, port of Enns)
- Ministry of Transport (BMVIT) and Ministry for Education, Science and Research (for topics not only relevant on regional level)

In order to achieve the best outcome and ownership of the implemented measures the following additional institutions will be involved in the process:

- Ministry of Finance (BMF)
- Local authorities of relevant municipalities
- Wien Holding, infrastructure operators (ASFINAG, ÖBB, Via Donau)
- Port authorities (representing also the companies at ports)
- Chamber of Commerce and their relevant departments (integration of the needs of the beneficiaries)
- Potential shippers
- High and heavy logistic service provider (Felbermayr, Prangl, others)
- Working Community of Danube Regions (ARGE Donauländer)
- Logistics networks (BVL, VNL, others)
- Associations and initiatives (IGÖD, prodanube)
- Relevant departments of universities and colleges of higher education, other educational facilities (e.g. “Berufsschulen”, HAK, specific types of HTL) and (private) Business schools and courses
- Other institutions having relevant information on IWT and ports

The main beneficiaries of the measures described in the RAP are:

- Ports and companies located at ports (including Danube logistic and industries)
- Public administration
- Logistic service provider
- Shippers
- IT-developer
- Road users and operators (less high and heavy goods transports on roads)
- Industry
- Regional governments
- Existing initiatives, platform and network organisations
- Business agencies of Lower Austria and Vienna

4.3.3 Overview of recommended measures

Within the Port Region Lower Austria/Vienna as well as for the whole Austrian part along the Danube a considerable number of measures to improve technical and organisational preconditions of the Danube river as an adequate transport mode have been developed, tested and implemented during the last 10 to 20 years.

The Austrian Ministry for Transport (BMVIT) together with Via Donau were in charge of most of these activities. In addition to these already implemented measures many measures are still in the pipeline or already addressed in national and regional master plans:

- Especially Infrastructure measures that have not been realised yet are identified and defined. In this area there is no need for further development of measures – only a need for further implementation of the well-known plans is needed.
- The same is true regarding river information systems in Austria. The system is well developed, further needs are identified and "on the table".
- Via Donau is developing additional information systems
- Different (in most cases not linked) discussion platforms are existing
- Ports develop new business models to gain additional transhipments.

It is not necessary to include these existing actions and measures once again in the Regional Action Plan for the Port Region Lower Austria/Vienna. All the measures to be selected for the RAP focus on a better connection of existing actions, single measures and solutions as well as on a better information flow to the customers that should/could use these existing offers and information.

Moreover surrounding measures that can help to foster the use of existing offers and information are relevant for the RAP.

An additional focus that is not addressed in the RAP but in the cooperation action plan (CAP) is the exchange of information and the connection of similar measures as well as the cooperation between the different port regions. The CAP covers important measures that help to increase the usage of regional offers and therefore increase the overall usage of the Danube transport infrastructure are suggested. Some of the measures within the RAP can strongly profit from the measures of the CAP.

Finally 10 measures derived from the roadmap have been selected for the RAP based on the above described framework:

- B010: Strengthening cooperation between local and relevant stakeholders (port authorities and business) on urban planning development (setting up cooperation platforms, public consultations, etc.)
- B012: Developing a toolbox for supporting shippers and their logistic providers in their strategic and operational planning for increasing the share of multimodal transport (specific focus on IWW)
- B019: Joint development (by ports and potential partners) of a business model for the trans-shipment of Heavy Goods (e.g. wind power plants)
- B011: further development of regional business funding with specific funding options for companies located at ports
- B020: Establish regional information and service agencies including a network of all these agencies in the DBS-region to support regional and local shippers and logistics and establishment of an exchange platform (online, regularly events) between ports, infrastructure providers (Via Donau, rail, road) and transport operators (rail, road) and logisticians in Austria and set up a cooperation platform for relevant associations (clusters, NGO'S)

- L039: Include (all relevant aspects of) IWT transport solutions in all logistics education (from apprenticeship to university)
- L036: Set up of a Danube logistic qualification and education series for the management (especially for public operators of ports)
- L055: National funding for IWW operation (similar to funding of freight trains operation (CT and single load) - it has to be ensured that price for shippers is reduced due to funding for operators; Funding of private sector for implementing and operating container services (similar funding as for CT-Trains)
- M002 + M006: Increase active information on IWT and ports to logistic sector by using existing information from via donau (see homepage) and an exchange of information between DBSGR-partners + Inform shippers that have a "green" CI and marketing strategy about ecological food step of different transport options and the advantage of IWW
- M020: Provide a Best Practice Tool Box with successfully implemented Danube logistic solutions

These measures are described in detail in the next chapter. They partly interact with each other. Needed or suggested interaction is described directly in the tables in the next chapter. Main interactions are:

- B010 (Strengthening cooperation between local and relevant stakeholders on urban planning development): this cooperation should be managed and organised by the network platform (measure B020).
- Education material developed for L039 (Include IWT transport solutions in all logistics education) can be partly used also for L040 (Danube logistic qualification and education series for the management).
- Connection of the two suggested tool boxes (B012 - toolbox for supporting shippers and their logistic providers and B020 - Best Practice Tool Box with successfully implemented Danube logistic solutions): either include the content of both toolboxes within one overall toolbox or establish interlinks between supporting tools and best practises showing possible implementation of these or similar supporting tools.

4.3.4 Description of recommended measures

Recommendation B010 **Strengthening cooperation between local and relevant stakeholders (port authorities and business) on urban planning development (setting up cooperation platforms, public consultations, etc.)**	
Description	Set up a regional dialogue forum with relevant stakeholders from the business (ports and companies at ports or with potential connection to ports) and the (urban and spatial) planning community to ensure regularly exchange of developments within both sectors and to ensure the integration of the needs of ports and ports business into urban and regional planning activities. The forum should be integrated in an existing forum (e.g. Danube Business Talks) to reduce number of events and ensure participation of relevant stakeholders. The forum should be organised and coordinated by the network platform (see measure No. B020).
Beneficiaries	Who is benefitting from this measure and why?

	• Ports and companies located at ports (including Danube logistic and industries) by integrating their needs in regional and local planning activities • Public administration are enabled to use public budget target oriented specific for Danube logistics and ports Objectives of the measure • Target oriented regional and local planning in terms of port development • One yearly exchange forum integrated in an existing forum (e.g. Danube Business Talks) • Institutionalisation of public consultations with respect to all public planning activities (zoning map, regional plans etc.)
Responsible institution	Who is responsible for implementing the recommended action? • Government of Lower Austria and Vienna (principal settings and regional planning) Which other institutions should be involved? • City administration (Enns+Ennsdorf, Krems, Vienna) (city planning, zoning map), • Business Agency of Lower Austria, Wien Holding, infrastructure operators (ASFINAG, ÖBB, Via Donau) • Port authorities (representing also the companies at ports)
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation – steps for implementation ○ Definition of responsible persons at administrative level (Government of Lower Austria and Vienna, Cities) ○ Definition of exchange process and organisational structure ○ Preparation of a guideline with content of necessary exchange information regarding different public planning actions ○ Contact setting to existing forum (e.g. Danube Business Talks) ○ Development of a general Agenda of the yearly exchange (e.g. at the Danube business talks) • These are the stakeholders the responsible institution has to involve ○ City administrations (Enns+Ennsdorf, Krems, Vienna) (city planning, zoning map), ○ Business Agency of Lower Austria ○ Wien Holding ○ Infrastructure operators (ASFINAG, ÖBB, Via Donau) ○ Port authorities (representing also the companies at ports) ○ Selected companies at ports if necessary

	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ This measure is a running process with no specific finalisation date.
	  ○ Control of successfully implementation of the developed process into running public planning activities
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable)→ which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ Regularly reporting of local planning authorities to government of Lower Austria and Vienna
	  ○ Annual review meeting of all involved public authorities
	  ○ Annual questionnaire with ports and companies at ports regarding their satisfaction with the development of public planning activities

Horizon for implementation	Medium term – until about 2021 if necessary works start right after the presentation of this RAP

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ External mandate for preparing the process and guideline: about EUR 20.000,--
	• Operation (yearly costs)
	  ○ Internal administration efforts
	  ○ Yearly evaluation (report, review meeting, questionnaire): about EUR 15.000,--
	  ○ Organisation of yearly participation at existing forum (e.g. Danube Business Talk): about EUR 5.000,--
	• Lower Austria-Budget (RU7) and sponsoring of private companies at existing forum

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • This measure has been integrated to the road map from Romania. • The Romanian measure is based on the Galati Multimodal Platform-MULTILOG project developed by a partnership between Port Authority and Private operator. • The measure is not yet implemented but a detailed design and a CBA are existing. • Existing results and developments can be used for the develop of the cooperation in in Lower Austria and Vienna.

Recommendation B012 **Developing a toolbox for supporting shippers and their logistic providers in their strategic and operational planning for increasing the share of multimodal transport (specific focus on IWW)**	
Description	Development of a toolbox for shippers and logistic sector (especially for the transport planning and decision makers of the shippers and the logisticians) in order to be able to integrate IWT into the supply chain and transport chain planning processes. This ensures that the possibilities of IWT are considered within these planning processes. This is a main precondition that IWT is used on much more cases then this happens at the moment. The use of relevant information provided by Via Donau on its website and tools like the handbook of Danube Navigation and further publications is essential for the process of development of this target-oriented toolbox in order to minimize efforts and double actions.
Beneficiaries	Who is benefitting from this measure and why? • Logistic service provider • Shippers • Ports • IT-developer (can use the result for the development of a corresponding IT-tool) Objectives of the measure • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • BMVIT, that tenders the development of such a tool for freight transport (this is a topic not only relevant for the port region Lower Austria/Vienna) Which other institutions should be involved? • Via Donau (use of tools that are already existing) • Chamber of commerce and their relevant departments (integration of the needs of the beneficiaries)

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps for implementation
	  ○ Definition of needs
	  ○ Set up terms of reference for the tender
	  ○ Tender procedure
	• These are the stakeholders the responsible institution has to involve
	  ○ Via Donau (use of tools that are already existing)
	  ○ Chamber of commerce and their relevant departments
	  ○ Representatives of Lower Austria and Vienna
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented

	○ testing of the developed toolbox prototype by potential toolbox users and their business (transport) cases • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number uses cases of the toolbox per year ○ Increase of transport volume and modal share of IWT (yearly recording)
Horizon for implementation	Short to Medium term – until about 2020 if necessary works start right after the presentation of this RAP
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Depending on the technical specification of the tool ○ Costs for tendering (technical specification): EUR 5.000,-- ○ Costs for tool development: EUR 50.000,-- • Operation (yearly costs) ○ None for BMVIT (is not toolbox user or operator)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other -

Recommendation B019 **Joint development (by ports and potential partners) of a business model for the trans-shipment of Heavy Goods (e.g. wind power plants)**	
Description	High and Heavy goods are potential transports to be handled on the Danube. The realisation of such transports on the Danube fails in many cases due to a lack of ports´ specific trans-shipment facilities as well as a lack of specific services offered by the ports. A joint development of business models for handling and transport of high and heavy goods elaborated by both the shippers and the ports is necessary to enable such transports on the Danube. Ports should act as initiating partner in this joint business development process. The existing cooperation between port of Vienna and Felbermayr in terms of high and heavy goods can function as a role model.
Beneficiaries	Who is benefitting from this measure and why? • Ports • Shippers of high and heavy goods • Road users and operators (less high and heavy goods transports on roads) Objectives of the measure • Reduction of high and heavy goods transports on roads

Responsible institution	Who is responsible for implementing the recommended action? • Single Port authorities Which other institutions should be involved? • Potential shippers • High and heavy logistic service provide (Felbermayr, Prangl, others), Via Donau (and its "high and heavy initiative")

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps of implementation
	  ○ analysis of infrastructure (accessibility and port internal) and trans-shipment facilities
	  ○ analysis of infrastructure and facility needs for specific high and heavy goods
	  ○ gap analysis (land side infrastructure bottlenecks, port infrastructure and facility bottlenecks)
	  ○ cooperative solution approach to define projects for overcoming the gaps per port
	• These are the stakeholders the responsible institution has to involve
	  ○ Potential shippers
	  ○ High and heavy logistic service provide
	  ○ Via Donau
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Finalisation of the cooperative business model
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable)→ which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ Number of operated high and heavy transports per year
	  ○ Cost reduction for shippers and/or logistic service providers
	  ○ Questionnaire regarding satisfaction of shippers and/or logistic service providers

Horizon for implementation	Short term within 2019 -2020 – first similar activities (Wien Hafen / Felbermayr) are existing and can be used and rolled out

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ External gap analysis and market analysis for high hand heavy transports per port: about EUR 40.000,--
	• Operation (yearly costs)
	  ○ Non (best case: reduction of transport costs)

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

	• Measure is not adopted from other country, but Wiener Hafen and Felbermayr have developed such solutions already. • If possible, this solution can be used as an example for others.

Recommendation B011 **Further development of regional business funding with specific funding options for companies located at ports**	
Description	Adapt existing regional funding criteria for business (more target-oriented funding of new business settlements): increase funding for companies settling at or near ports (especially for companies with Danube affine transport goods) to set an incentive scheme for settling at or near ports and to use Danube as a transport mode. Funding should (could) be connected with a specific share of Danube transports (like "Anschlussbahnförderung"). Funding of settlement at other locations should be reduced (cost neutral change of funding practice).
Beneficiaries	Who is benefitting from this measure and why? • Ports • Companies settling at ports Objectives of the measure • Increase settlement of Danube transport affine companies at ports • Increase of IWT transport volume share • Prohibit settlement of Danube transport affine companies far away from ports • Increase transparency of (indirect) business funding in connection with new settlements
Responsible institution	Who is responsible for implementing the recommended action? • Government of Lower Austria (WST3) and Vienna Which other institutions should be involved? • Business agencies of Lower Austria and Vienna • Local authorities of municipalities

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps of implementation
	  ○ Screening of current (direct and indirect) funding schemes in Lower Austria and Vienna and its municipalities
	  ○ Development of a new / adaption of existing funding program at regional level
	  ○ Development of a controlling system of indirect funding by municipalities
	• These are the stakeholders the responsible institution has to involve

	○ Business agencies of Lower Austria and Vienna ○ Local authorities of municipalities • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Change of funding schemes • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Integration of criteria "port specific settlement" into the existing evaluation systems for the funding ○ Number of new settlements at ports ○ Increase of transport volume and modal share of IWT (yearly recording)
Horizon for implementation	Medium term – until about 2022/2023, political discussion might even take longer term since a change of a funding scheme is a rather precarious issue
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs): ○ Internal administration efforts • Operation (yearly costs): ○ non (if change of funding scheme is budget neutral as suggested)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • Measure is not adopted from other country, but similar change procedure has been implemented for funding of private house building in Lower Austria – this change of Lower Austria funding scheme for private house building (energy consumption as one main funding criterion) can be a good guidance.

Recommendation B020 **Establish regional information and service agencies including a network of all these agencies in the DBS-region to support regional and local shippers and logistics** **Establishment of an exchange platform (online, regularly events) between ports, infrastructure providers (Via Donau, rail, road) and transport operators (rail, road) and logisticians in Austria** **set up a cooperation platform for relevant associations (clusters, NGO'S)**	
Description	A regional cooperation platform is founded and established as part of a DBS-GR platform network. This platform functions as a regional stakeholder platform for all relevant players as well as a connecting facility to all other regional platforms established within the DBS-GR. The platform is based on three strategic pillars: information,

	communication and projects. With regularly events (see for example measure No B010 which should be organised by this regional dialogue forum) on a regional and on an inter-regional level information exchange as well as promotion and assistance of regional and inter-regional cooperation is ensured. One scenario in Austria could be to use already existing initiatives or platforms as a vehicle. This eases and shortens the implementation, gains synergies and reduces costs. The main aim should be to establish an umbrella organisation integrating all relevant existing initiatives, platform and network organisations.
Beneficiaries	Who is benefitting from this measure and why? • Industry • Logistic service providers • Ports • Regional governments • Existing initiatives, platform and network organisations Objectives of the measure • Improve stakeholder exchange • Increase efficiency of existing activities • Create synergies between exiting initiatives, platforms and networks • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • BMVIT (e.g. department for logistics and general transport planning) Which other institutions should be involved? • Regional governments of Lower Austria and Vienna • ARGE Donauländer • Logistics networks (BVL, VNL, others) • Pro Danube (Austria + international) • IGÖD • Via Donau

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps of implementation
	  ○ Screening of relevant initiatives, platform and network organisations
	  ○ Development of Strategy, concept and action plan (complementing the existing content of screened initiatives, platform and network orgainsations)
	  ○ Set up of an adequate communication mix
	  ○ Definition and set up of organisational structure of the new umbrella organsiation

	○ establishment of an advisory board (representing all relevant network organisations) • These are the stakeholders the responsible institution has to involve ○ Which other institutions should be involved? ○ Regional governments of Lower Austria and Vienna ○ ARGE Donauländer ○ Logistics networks (BVL, VNL, others) ○ Pro Danube (Austria + international) ○ IGÖD ○ Via Donau ○ + additional initiatives, platform and network organisations to be screened • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Umbrella platform kick-off event • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Regularly (yearly) check of satisfaction of integrated initiatives, platform and network organisations ○ Number of joint activities per year
Horizon for implementation	Medium term – until 2021
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ External contract for preparation work (screening, organisational and communicational development): about EUR 40.000,-- ○ Internal efforts to set up and accompany the process • Operation (yearly costs) ○ About one person year ○ Non personnel cost for marketing and communication (including representation and participation at events, website etc.): EUR 15.000,-- (or more depending on the intensity)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other -

Recommendation L039
Include (all relevant aspects of) IWT transport solutions in all logistics education (from apprenticeship to university)

Description	The planning of transport chains and logistic solutions by taking all relevant existing transport options into account is only possible if planners and decision makers (regarding transport) are aware of all exiting solutions and their possibilities and requirements. To reach a broad knowledge it is recommended to include inland waterway transport and its specific needs, possibilities and requirements at all educations levels. Specific focus has to be set at all logistic educations. This starts with apprenticeship (of different professions like scheduler) and ends with relevant courses at universities (logistics, supply chain management, transport planning and economics). To provide relevant basics it is necessary to include basic information also at all school education levels. Since there have been already some trials to increase broad logistic education at all education levels it has to be clarified why these trials failed.
Beneficiaries	Who is benefitting from this measure and why? • Ports • IWT-logistic service providers Objectives of the measure • Increase knowledge regarding IWT • Increase usage of IWT transport solutions • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • Ministry for Education, Science and Research Which other institutions should be involved? • Chamber of commerce • Relevant departments of universities and colleges of higher education • Other educational facilities (e.g. “Berufsschulen”, HAK, specific types of HTL) • Other (private) Business schools and courses

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps of implementation
	  ○ develoment of an educational plan per education line
	  ○ Development of education material
	  ○ Definition of profile for lecturers of the new education content
	  ○ Integration of new courses into the ETCS scheme of universities and colleges of higher education
	  ○ Marketing activities for the knew education schemes at universities and colleges of higher education
	• These are the stakeholders the responsible institution has to involve
	  ○ Chamber of commerce

	○ Relevant departments of universities and colleges of higher education ○ Other educational facilities (e.g. "Berufsschulen", HAK) ○ Other (private) Business schools and courses • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Establishment of the new lectures within the relevant fields of study ○ Evaluation of number of students entering the new lectures • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number of ETCS with thematic relevance for ITC established ○ Number of students passed relevant fields of study including the new IWT-lectures
Horizon for implementation	until about 2021/2022 – the setup of an new education line has a specific procedure time for implementation, to reach the final implementation with in about 2 to 4 years it is necessary to start the procedure right after the presentation of this RAP
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Internal administration efforts within the ministry ○ External study developing the setting of the content for different logistic education levels (about EUR 40.000,--) ○ External: Development of education material (about EUR 15.000,--) • Operation (yearly costs) of an additional course at university level ○ Depends on the number of ETCS to be provided at the different relevant educational establishments leading to specific hours of lectures per year. ○ Assumptions: 1 hour per week at 15 educational establishments in Austria 30 weeks, including set up time): ca. EUR 35.000,--
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other -

Recommendation L036 **Set up of a Danube logistic qualification and education series for the management (especially for public operators of ports)**

Description	Regarding General managers of public operated ports who are in charge of performance and development of ports´ business very often cannot cover the wide range of required logistic skills. This circumstance might reduce the awareness regarding logistics needs and potential for business development towards IWT on the Danube river. Managers at the ports should be the key drivers of business development process for the ports and the Danube itself. This measure sets up a target-oriented qualification programme for port managers regarding logistics and business development. This includes relevant skills that have to be trained as well as suitable education configurations. One relevant configuration is a kind of personal logistic training for managers. Classical education solutions (like seminars or similar) are in most cases not an adequate solution and would not reach high acceptance by the managers. A personal training enables the trainer to meet the managers where they are regarding their personal logistic knowledge. Besides the programme should also include a module covering the aspect of networking and exchange of experience between international participants.
Beneficiaries	Who is benefitting from this measure and why? • Ports • IWT logistic service provider (ports are developed for IWT and not primarily as industrial real estate provider) Objectives of the measure • Increase of logistic know how of port management • Increase of relevance of IWT at ports • Increase of well-functioning IWT services at ports • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • Port owners Which other institutions should be involved? • Public owned companies representing the ports owner (e.g. Wien Holding, ecoplus)

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps for implementation
	  ○ Discussion with port managers on this intention
	  ○ Evaluation of knowledge gaps of the managers
	  ○ Selection of individual education methods (in coordination with the managers)
	  ○ Selection of possible trainers
	• These are the stakeholders the responsible institution has to involve
	  ○ Public owned companies representing the ports owner (e.g. Wien Holding, ecoplus)

	○ Port managers to be trained • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Collect education protocols of the first eductaion round with all port managers in the port region (task of the trainers to produce such protokolls) ○ Set up of an eduction plan for the future (after the first education round) • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number of managers trained (including training hours) per year ○ Increase of IWT specific actions at ports based on education content
Horizon for implementation	Short Term, the time plan of the managers is the most critical time issue regarding this measure
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Non • Operation (yearly costs) ○ About 5 -15 individual training hours per manager per year (depending on the existing level); about EUR 200,- per hour (all incl.).
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

Recommendation L055 **National funding for IWW operation (similar to funding of freight trains operation (CT and single load) - it has to be ensured that price for shippers is reduced due to funding for operators** **Funding of private sector for implementing and operating container services (similar funding as for CT-Trains)**	
Description	Rail freight operation of single wagon load and combined transported gets national funding in Austria. The funding is based on European funding principles (difference of external costs between transport modes and difference of costs for infrastructure use between modes). A similar funding could be launched for Inland Waterway transport operation. Respective calculations have to be done to present the differences and to get the notification of the funding system from the European commission.
Beneficiaries	Who is benefitting from this measure and why?

	• IWT logistic service provider (can offer their IWT services to lower prices) • Shippers (get IWT service offers for lower prices) Objectives of the measure • Reduce transport costs on IWT • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • BMVIT Which other institutions should be involved? • BMF

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps for implementation
	  ○ Conduct a study on transport operating costs, infrastructure user costs and external costs of transport for IWT and freight road transport (existing study for Rail can be used partly)
	  ○ Develop a funding scheme
	  ○ Notification of the funding scheme on EU-level (European commission)
	  ○ Install a funding authority (as for rail: SCHIG)
	  ○ Secure budget for funding (discussion Ministry of Finance and BMVIT)
	• These are the stakeholders the responsible institution has to involve
	  ○ BMF
	  ○ SCHIG (knowledge transfer)
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Set up of funding contracts
	  ○ Secure budget
	  ○ Launch of information and promotion of funding scheme
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ Funding payments per year and per tkm on IWT
	  ○ Change of IWT-share
	  ○ Number of additional regular IWT-services

Horizon for implementation	Medium to long term – budget negotiation and notification procedure needs some time (and this has to be done after finalisation of the external study for calculating the cost differences)
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs)

	○ Internal administration efforts within the ministries ○ External study calculating the relevant cost differences between IWT and road transport (basis for notification on European level) (about EUR 40.000,--) • Operation (yearly costs) ○ Funding budget depending on calculated funding level per tkm and number of tkm eligible for funding and maximum yearly funding budget negotiated between BMVIT and BMF. Estimation: about 15 - 20 EUR per 1.000 tkm (result of the study for the rail funding) and 1.100 Mio. tkm (in Austria) of IWT transports with origin or destination in Austria.
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other -

Recommendation M002 + M006 **Increase active information on IWT and ports to logistic sector by using existing information from via donau (see homepage) and an exchange of information between DBSGR-partners.** **+** **Inform shippers that have a "green" CI and marketing strategy about ecological food step of different transport options and the advantage of IWW**	
Description	In Austria a lot of information regarding the Danube, its transportation specifications and transport possibilities as well as its opportunities and possibilities is existing. Most of this information is collected, managed and provided by Via Donau. The transportation of this existing information to companies (shippers and logistic sector) in order to increase awareness of the possibilities of this transport mode has to be done on a more active way. This set of measures ("Via Donau Information Package") aims at supporting the information management activities of Via Donau by local and regional governments and their business agencies. Special focus should be drawn to an information exchange between DBS-GR partners and an information transfer especially to companies that have a "green" Corporate Identity and marketing strategy but do not focus on green transport solutions yet.
Beneficiaries	Who is benefitting from this measure and why? • Logistic sector (by getting additional structured information helping to increase their portfolio and options) • IWT logistic service providers (are able to present their transport offers to a broader community in a structured and effective way) • Port operators (are able to present their transport offers to a broader community in a structured and effective way)

	• Shipper (getting the possibility to learn about IWT options and include these options in their transport decision process). Objectives of the measure • Increase visibility of IWT and its logistic options • Increase visibility of eco friendliness of IWT to companies with respective company strategies and mission statements • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • Business agencies of Lower Austria and Vienna Which other institutions should be involved? • Governments of Lower Austria and Vienna • Via Donau • BMVIT • Chamber of Commerce • Other institutions having relevant information on IWT and ports
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation – steps for implementation ○ Analyse and structure all relevant existing information at Via Donau and other information sources ○ Analyse logistic and transport sector to identify those that can use the structured information ○ Analyse shippers and their mission statemets, CI and similar regarding a green background ○ Development of a strategy to transport the structured information to those contact points (within the transport, logistic and industry sectors) that can need this information and can use it for their logistic and transport planning • These are the stakeholders the responsible institution has to involve ○ Governments of Lower Austria and Vienna ○ Via Donau ○ BMVIT ○ Chamber of Commerce ○ Other institutions having relevant information on IWT and ports • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Execute the developed strategy (direct contacting to inform on IWT and port options by the help of structured information portfolio • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are

	useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number of yearly direct contacts ○ Number of successful new IWT transport solutions per year ○ Change of IWT-share
Horizon for implementation	Short term – main information exist, first active information activities can start within one year. Improvement of information material and action can be fixed in parallel with starting activities
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Internal: efforts of Business agencies of Lower Austria and Vienna to set up the necessary analysis (data and information check, company screening) ○ External study: Analyse and structure all relevant existing information (about EUR 30.000,--) ○ Internal or external: screening of companies based on the set up (external: about EUR 20.000,--) • Operation (yearly costs) ○ Internal: efforts of Business agencies of Lower Austria and Vienna for regularly active direct information of screened companies (costs of one contact procedure: about one working day) ○ Internal: efforts to regularly (one time a year) maintain the information and screen the companies (about 5 working days a year) ○ Both steps can also be done by external support.
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

Recommendation M020 **Provide a Best Practice Tool Box with successfully implemented Danube logistic solutions**	
Description	A part of the information package (see measures M002 + M006 - Via Donau Information Package) should be a collection of best practice of freight transport solutions already implemented on the Danube or on other European Inland Waterways. This collection should not be a simple collection but an easy to use tool box where requests can be made based on different criteria so that companies searching for transport solutions can easily find best practices that fit to their needs. An example for such a best practice toolbox is the best practice tool for smart urban logistic solutions. The toolbox could also include solutions that failed to be able to learn from bad practices. This is only useful if reasons for the failure are known and can be included in the tool box.

Beneficiaries	Who is benefitting from this measure and why? • Ports (can promote such solutions with a structured best practice tool box) • Logistic sector (can find new logistic options that have been already successfully implemented) • Business agencies of Lower Austria and Vienna (that can integrate the information on best practice in their active information on IWT and ports to logistic sector – see M002) Objectives of the measure • Increase awareness on already existing and successfully implemented IWT solutions • Promote possible solutions • Learn from others • Increase of IWT transport volume share
Responsible institution	Who is responsible for implementing the recommended action? • BMVIT Which other institutions should be involved? • Via Donau • Governments of Lower Austria and Vienna • Business agencies of Lower Austria and Vienna

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation – steps for implementation
	  ○ Set up terms of reference for the tender
	  ○ Tender procedure
	  ○ Do yearly up dates of the toolbox
	  ○ Include toolbox in the following measures of the RAP: B012 (toolbox for supporting shippers and their logistic providers), L039 + L036 (education), M002+M006 (active information)
	• These are the stakeholders the responsible institution has to involve
	  ○ Via Donau
	  ○ Governments of Lower Austria and Vienna
	  ○ Business agencies of Lower Austria and Vienna
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Ensure the public availability and appearance of the Best Practice toolbox (own homepage, part of an existing homepage?)
	  ○ Create and implement a promotion strategy for spreading the toolbox in the logistic community together with the involved stakeholders
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are

	useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number of page views per month/per year ○ Number of promotion activities for the tool box per year
Horizon for implementation	Short term (2 years) - start of tender procedure after RAP-presentation is necessary to have a tool box within the next 2 years.
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ External: cost for the production of the toolbox: about EUR 50.000,-- (including preparation for the integration in an internal platform and a flexible structure and use of the toolbox) ○ Internal cost for tender procedure and for starting promotion activities (about 10 days) • Operation (yearly costs) ○ Internal: running costs for promotion activities (3 to 5 days per year) ○ External: yearly update of the tool box content (service treaty): about EUR 5.000,-- per year
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

4.4 Regional Action Plan (RAP) for Port of Bratislava and Komárno Region

4.4.1 Definition of the Port Region

The public port of Bratislava serves as passenger and cargo port. The cargo port consists of 2 parts: Winter port and Pálenisko. There are 2 basins in Winter port, the North one and the South one. In Pálensiko there is one cargo basin. The passenger port as well as the cargo port stretch on the left bank of the river Danube despite the fact that the right bank is also the port area.

From the geographic and international point of view the public port of Bratislava is strategically located. It is situated at the intersection of trans-European routes of road, rail and waterway traffic. The first route connects the Baltic with the Adriatic see, the second one links the North Europe with the Middle East and the Eastern Mediterranean. A third route flows directly through the public port of Bratislava, i.e. the Danube waterway, which is also part of the Rhine-Main-Danube Canal.

The port enables direct connection to motorway and the main cargo railway station. It has therefore a good location for use of multimodal transport. The utilization of transhipment capacity has declined in the past years due to unstable navigability of the river, obsolete transhipment technologies, low efficiency of utility network and deteriorating conditions of the port infrastructure. One of the main obstacles for the development of the port presents the untraditional situation regarding property rights, which is a result of the privatisation process. 100 % owner of the port's land including part of the deck edge is the company designated by law, Verejné prístavy, a.s.. However, the whole port infrastructure, transhipment technology or the majority of buildings and stocks are owned and managed by the private company Slovenská plavba a

prístavy, a.s. (SPaP, a.s.), which is also the major operator within the port. The unfavourable situation regarding property rights is reflected in low competition and deteriorating quality of provided services.

One of the disadvantages of the location of the public port of Bratislava is however its close distance from the city centre, which is currently experiencing a construction boom, mainly in the close neighbourhood of the port. This fact eventually hinders the port's development. At the same time there is a protected area within NATURA 2000 south from the port.

The public port of Bratislava has direct road and rail connection to economic and industrial regions of Slovakia as well as neighbour countries: the Czech Republic, Hungary and Austria.

The Slovak economy is an export oriented country, whose exports consist mainly of machines, equipment and electrical equipment, vehicles and transport equipment, base metal and articles of base metal, rubber and plastics and articles from rubber and plastics. The import consists mainly of machines, equipment and electrical equipment, vehicles and transport equipment, raw materials and basic metals. The following goods are mainly transported to and from the public port of Bratislava: cereals, salt, coal and lignite, liquid refined petroleum products, nitrogen compounds and fertilizers, other construction materials, manufactures, basic iron and steel and ferro alloys and products of the first processing of iron and steel, tubes, pipes, hollow profiles and related fittings, boilers, hardware, weapons and other fabricated metal and products, electric machinery and apparatus, automotive industry products, household and municipal waste, containers and swap bodies in service.

The automotive industry dominates the Slovak economy with the increasing trend in production of vehicles, which will be further stimulated by the coming of automotive company Range Rover/Jaguar in the near future. Nowadays, there are following automotive manufacturing companies active on the Slovak market: PSA Peugeot Citroen Slovakia, Kia Motors Slovakia a Volkswagen Slovakia. Apart from these companies there is also a strong supplier base for the automotive industry. The most important export markets are Germany, the UK and China. Components for automotive industry are mainly imported from Germany, Czech Republic, South Korea, France and Poland.

Significant volumes regarding export consist also of electronic equipment and electronic devices. Products such as monitors, projectors, and TVs are exported to Germany, the UK, the Netherlands, France, Poland and Italy. Phones are exported to Czech Republic, Poland, Austria, Switzerland and Romania. In machinery area we produce and export data-processing machines, transmission shafts, ball or roller bearings, heating boilers, that are mainly exported to Germany, the Czech Republic, Italy and Poland.

From mineral fuels the Slovak republic exports petroleum oils and gases. Another important export product are iron and steel products, constructions, tubes and pipes of iron. Import of mineral fuels is the second most important import segment. From this category bolts and bolt nuts are also imported.

From the point of utilisation of inland waterway transport it is mainly appropriate for transportation of vehicles, machinery products, mineral fuels and iron and steel products. The water traffic offers huge potential for transport of agriculture products, crude oil and petroleum products, iron ore, metal scraps, etc.

From the territorial structure of foreign trade of the Slovak republic the public port of Bratislava has huge potential in case of its modernization from the perspective of utilisation of water transport. Favourable

coincidence is also the fact that majority of Slovak export-oriented companies are located within the multimodal road corridor between Bratislava and Žilina, which makes public port of Bratislava ideal place for transhipment of goods to road or rail transport. A necessary prerequisite is the assurance of optimal navigability of the Danube river, acceptable conditions for transhipment of goods and commodities and extensive modernisation of the port infrastructure.

4.4.2 Description of specific target groups

The Regional Action Plan Lower Austria/Vienna addresses the Verejné prístavy, a.s. responsible for implementing the recommended action.

In order to achieve the best outcome and ownership of the implemented measures the following additional institutions will be involved in the process:

- SPaP, a.s. (infrastructure provider)
- Ministry of Transport and Construction of SR
- Bratislava city

- Slovak Water-Management Enterprise
- Security and emergency forces, including the police and fire departments
- City of Komárno (municipality)

The main beneficiaries of the measures described in the RAP are:

- Verejné prístavy, a.s.
- Carriers and shipping companies
- Port of Bratislava and Komárno
- Shipping and forwarding companies, logistic companies and other actors
- Carriers and vessels
- General Public
- Port tenants
- Transport users from production and wholesale industry, major industries of the region
- Bratislava and Komárno city

4.4.3 Overview of recommended measures

Obsolesce of transhipment technology, low efficiency of utility networks and untraditional situation regarding property rights in the public port of Bratislava and Komárno contribute to declining utilisation of transhipment capacity. The main intention of the measures is therefore the modernization of the public ports of Bratislava and Komárno with the aim to provide secure, modern and environmentally friendly port services. The measures include modernization of public ports, construction of back-up facilities, engineering facilities or modern LNG and intermodal terminal and they are based on key documents of the Slovak republic regarding the development of transport and transport infrastructure such as Stratégia rozvoja Verejného prístavu Bratislava (Strategic plan of the development of the public port of Bratislava) a Strategický plán rozvoja dopravy SR do roku 2030 – Fáza II (Strategic Transport Development Plan of the Slovak Republic up to 2030 – Phase II).

Selected measures have a common aim, which is the modernization of public ports of Bratislava and Komárno. However, the measures were formulated separately in order to clearly define the most important challenges and concrete steps necessary for their implementation and for making the implementation process more effective.

The implementation of the analysed measures will have a significant effect towards:

- increase of the attractiveness and efficiency of the ports
- improvement of the quality of provided services
- better connection of floating facilities and vessels
- safe berthing and anchoring of vessels
- improvement of background services for vessels
- better security through implementation of monitoring system and other safety measure
- better connection of the port with the motorway and railway through the construction of an intermodal terminal
- possibility to use alternative sources of energy through the construction of an LNG terminal

- decrease of emissions and negative impact on the environment
- improvement of cross border cooperation
- reducing of negative impact from the port activity on the cities, in which they are located.

4.4.4 Description of recommended measures

Recommendation I227 **Construction of engineering facilities in public port Bratislava.**	
Description	The public port of Bratislava is the most important port in Slovakia. However the infrastructure and superstructure are obsolete, which hampers the competitiveness of the port. There is also a lack of area allowing to connect floating devices and vessels to engineering facilities. These problems are mainly caused by property rights related issues. Verejné prístavy, a.s. owns the land in the port, but does not own or manage port infrastructure and superstructure (including the engineering facilities). It is therefore the aim of Verejné prístavy, a.s. to construct engineering facilities. The proposed construction will be firstly assessed from technical, economic and environmental aspects and therefore a technical and economic study will be prepared and an environmental impact of the project will take place. The proposed construction works will comprise water, electricity, gas, sewerage and telecommunication services at the port berthing locations.
Beneficiaries	*Who is benefitting from this measure and why?* Verejné prístavy, a.s. will increase the attractiveness and efficiency of the port since the technical condition and port services will improve. Construction of engineering facilities in public port Bratislava will contribute to provision of better and more comfortable port services for export and import oriented companies as well as logistic companies. *Objectives of the measure* The aim of this action is the construction of engineering facilities (water, electricity, gas, sewerage and telecommunication services) at the port berthing locations in order to connect floating facilities and vessels in the area of the public port Bratislava and so provide better service in order to stimulate demand for port services.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* SPaP, a.s. (infrastructure provider), Ministry of Transport and Construction of SR
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Within the preparatory phase the economic and technical studies have to be elaborated. Depending on the location of the

	engineering facilities, there is a chance, that Verejné prístavy, a.s. will need to settle property rights with the owner of the infrastructure (SPaP a.s.), who manages the engineering facilities in the public port of Bratislava. Once it will be solved, the necessary building permits for construction phase have to be obtained. Subsequently the public procurement process for the constructor will be launched. • *These are the stakeholders the responsible institution has to involve* Water, electric energy providers, eventually SVP, SPaP, a.s. • *This is what the responsible institution has to do first, second, third* Firstly, a demand analysis and technical solutions will be elaborated to estimate the customer demand for port services in the public port of Bratislava. Secondly, an Environmental Impact Assessment (EIA) will be prepared to review the project impact on the environment. Thirdly, a Cost-Benefit Analysis (CBA) will assess the economic and social aspects of project. Fourthly, feasibility study and technical study will provide detailed technical solutions for the implementation of the project. Based on the results of the prepared feasibility study and technical and economic studies, the project documentation will be prepared and then the construction of engineering facilities will commence in the public port of Bratislava comprising water, electricity, gas, sewerage and telecommunication services. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* For successful implementation of the project all the steps from the preparatory phase have to be completed and the construction of engineering facilities has to be finished. • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* Collecting the data regarding the number of vessels served in the public port of Bratislava to analyze the impact of the project on the demand for port services.
Horizon for implementation	medium term Completion: 12.2022

Budget	• *Implementation (non-recurring costs)* -500 000,00 € inclusive elaboration of studies. Cost of construction will be calculated based on the outcome of the studies. • *Operation (yearly costs)* - 40 000 €
Good practice example	*In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other* Modernization of the port of Oltenița includes the reconstruction of utilities networks (water, electricity, sewage system). https://www.danube-navigation.eu/projects/rehabilitation-and-development-of-the-oltenia-port-infrastructure-phase-2 The construction of infrastructure in the port of Osijek covers the construction of storm-water and sanitary sewage system, construction of roads, rail tracks, lighting and electricity supply. https://www.danube-navigation.eu/projects/construction-of-intermodal-infrastructure-in-the-port-of-osijek Reconstruction of the port of Vukovar includes the construction of banks, road and rail as well as communal infrastructure. https://www.danube-navigation.eu/projects/new-port-east-reconstruction-of-the-port-of-vukovar

Recommendation I228 **Intermodal terminal in the public port Bratislava.**	
Description	Based on the fact that the attractiveness of a port for freight transport is influenced by the existence and accessibility to an intermodal terminal, Verejné prístavy, a.s. decided to construct an intermodal terminal in the public port of Bratislava, which will connect water transport to rail and road transport. The building of an intermodal terminal will include the construction of railway infrastructure, crane runways, roads, handling and hard standings, transshipment facilities and other equipment, buildings and other facilities. In order to build an intermodal terminal, firstly it is necessary to prepare all of the relevant economic, technical and environmental studies and the necessary project documentation.
Beneficiaries	*Who is benefitting from this measure and why?* Verejné prístavy, a.s. will maximize its efficiency once the intermodal terminal is built, by increasing the attractiveness of the port and its connectivity to other modes of transport. The building of an intermodal terminal has the potential to increase the demand from existing clients, such as Slovnaft, and also to attract new customers, e.g. logistic and shipping companies.

	The intermodal terminal will help to decrease standstill time of vehicles for logistic companies. *Objectives of the measure* The aim of the project is the construction of technical infrastructure for intermodal transportation, such as railway infrastructure, crane runways, roads, handling and hard standings, transshipment facilities and other equipment, building, services and other facilities in order to reflect requirements of the AGTC and the AGC Agreement. The proposed terminal is designed in a way to be sufficient for transit traffic between Europe and Asia (55 000 IPJ market potential) and within the regional logistic network (270 000 IPJ market potential).
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* Bratislava city, Slovak Water-Management Enterprise, SPaP, a.s.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Within the preparatory phase the economic and technical studies will have to be elaborated. One of the key steps in the preparatory phase will be settlement of property rights with the SPaP, a.s. that owns and manages infrastructure and superstructure in the location of Pálenisko where the construction of LNG terminal is planned. Subsequently the public procurement process can start. • *These are the stakeholders the responsible institution has to involve* The city of Bratislava, Slovak Water-Management Enterprise, SPaP, a.s., ŽSR (Railways of the Slovak Republic) • *This is what the responsible institution has to do first, second, third* Construction of the LNG terminal will be based on prepared technical, economic and environmental studies. In 2010 ŽSR prepared the feasibility study where solutions were assessed in terms of their impact on the environment (EIA) (https://www.enviroportal.sk/sk/eia/detail/verejny-terminal-intermodalnej-prepravy-bratislava-palenisko). Subsequently it will be necessary to elaborate technical study that will develop detailed technical solutions of the most convenient alternative. Based on the results of the prepared technical, environmental and economic studies, the project documentation will be prepared.

	Before the construction starts it will be necessary to settle property rights with the company SPaP, a.s., as the company manages and owns all the infrastructure and superstructure in the proposed location of LNG terminal in Pálenisko. The last step will be the construction phase, which will comprise reconstruction and completion of railway lines, crane runways, roads connecting transshipment area of the terminal with the storage capacities, operating and fixed areas, new buildings such as the administrative building with special checkpoint area for vehicles, objects, transshipment facilities, other equipment and civil engineering facilities. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* For successful implementation of the project all the steps listed above have to be completed. • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* The success of implementation can be judged according to the following: number of IPJ/year or standstill time of vehicles, utilization of port services or amount of transloaded goods.
Horizon for implementation	long term
Budget	• *Implementation (non-recurring costs)* – 75 708 000 EUR VAT included • *Operation (yearly costs)*
Good practice example	*In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other* Bulgaria plans to build the Ruse Region Intermodal Terminal on Danube river. http://www.ffbh.bg/en/news/bulgaria-to-start-building-intermodal-terminal-in-ruse-in-2016-opens-a-river-shipping-information-centre-on-the-danube-river There is already one intermodal terminal I Bulgaria: Sofia–Yana intermodal terminal. https://www.railwaypro.com/wp/sofia%E2%80%93yana-intermodal-terminal/

Recommendation I229 **Modernization of infrastructure in cargo port BA and completion of bollards in cargo port.**	
Description	The public port of Bratislava is the biggest port in Slovakia with good international location. However, for the past 20 years its development was profoundly underinvested, which can be seen, inter alia, in deteriorating infrastructure. In order to reflect the current requirements regarding port services and infrastructure the modernization process of the port was recommended within the strategic Master Plan of the port of Bratislava. One of the aims of the modernization process is to ensure safe berthing and anchoring of ships. Within this measure the modernization of infrastructure in the cargo port of Bratislava is proposed together with the completion of bollards.
Beneficiaries	*Who is benefitting from this measure and why?* • Carriers and shipping companies, since the conditions for anchoring and berthing of ships will improve. • Port itself, since more ships means more business for the port. *Objectives of the measure* The aim of the measure is the modernization of public port of Bratislava with the focus on the infrastructure of the cargo port of Bratislava including the completion of bollards in order to connect floating facilities and vessels.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* SPaP, a.s. (owner of the port infrastructure)
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Verejné prístavy, a.s. will have to settle the issue of property rights in the port, since the port infrastructure is not owned and managed by it. Within the preparatory phase the necessary studies have to be elaborated and permits have to be obtained. Subsequently the public procurement process for the constructor can begin. • *These are the stakeholders the responsible institution has to involve* SPaP, a.s. • *This is what the responsible institution has to do first, second, third* Firstly the necessary studies have to be prepared, assessing the possibilities of the modernization of public port of Bratislava including completion of bollards. The studies will be assessing economic, technical and environmental aspects – these include

	the feasibility study, the Cost-Benefit Analysis (CBA), the Environmental Impact Assessment (EIA). Secondly, a detailed technical study will be prepared, describing the technical solution chosen within the modernization. Thirdly, the question of property rights needs to be settled and all the necessary permits have to be obtained. Fourthly, the modernization process of the infrastructure in the cargo port of Bratislava will begin, including the completion of bollards. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* The preparatory phase has to be fully completed and the ground work has to be finished. • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* No. of cargo vessels using the port services, life span of bollards
Horizon for implementation	Long term Completion: 12.2022
Budget	• *Implementation (non-recurring costs)* – approx. 3 mil. € for elaboration of studies (2,5 mil. € for elaboration of the feasibility study) and 57 mil. € for construction • *Operation (yearly costs)* – 10 000 €
Good practice example	Port of Esbjerg in Denmark has lately undergone reconstruction including the installation of new bollards. http://www.portstrategy.com/press-releases/2018/involvement-in-port-of-esbjergs-new-east-port-area

Recommendation I230 **Modernization and completion of the port quays and hard standings.**	
Description	The public port of Bratislava is the biggest port in Slovakia with good international location. However, for the past 20 years its development was profoundly underinvested, which can be seen, inter alia, in deteriorating infrastructure. In order to reflect the current requirements regarding port services and infrastructure the modernization process of the port was recommended within the strategic Master Plan of the port of Bratislava. One of the aims of the modernization process is to ensure safe berthing and anchoring of ships. This measure therefore proposes the modernization and completion of the port quays and hard standings.
Beneficiaries	*Who is benefitting from this measure and why?*

	Carriers, shipping companies, logistic companies and other actors will enjoy safer and more accessible anchoring of their ships via the construction of new port quays and hard standings. *Objectives of the measure* The aim of the measure is the modernization of public port of Bratislava with the focus on modernization and completion of port quays and hard standings, in order to ensure safe and accessible berthing and anchoring of ships.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* SPaP, a.s.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Verejné prístavy, a.s. will have to settle the issue of property rights in the port, since the port infrastructure is not owned and managed by it. Within the preparatory phase the necessary studies have to be elaborated and permits have to be obtained. Subsequently the public procurement process for the constructor can begin. • *These are the stakeholders the responsible institution has to involve* SPaP, a.s. • *This is what the responsible institution has to do first, second, third* Firstly the necessary studies have to be prepared, assessing the possibilities of the modernization of public port of Bratislava including completion of port quays and hard standings. The studies will be assessing economic, technical and environmental aspects – these include the feasibility study, the Cost-Benefit Analysis (CBA), the Environmental Impact Assessment (EIA). Secondly, a detailed technical study will be prepared, describing the technical solution chosen within the modernization. Thirdly, the question of property rights needs to be settled and all the necessary permits have to be obtained. Fourthly, the modernization process of modernization and completion of the port quays and hard standings will begin. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* The preparatory phase has to be fully completed and the ground work has to be finished.

	• *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* No. of vessels using the port services
Horizon for implementation	Long term Completion: 12.2020
Budget	Implementation (non-recurring costs) – approx. 3 mil. € for elaboration of studies (2,5 mil. € for elaboration of the feasibility study) and 36 mil. € for construction *Operation (yearly costs)* – 10 000 €
Good practice example	The Port of Regensburg (DE) has to deal with the restoration of the quay wall as well. https://ec.europa.eu/transport/sites/transport/files/rhine-danube_study_annexes_0.pdf https://ec.europa.eu/transport/sites/transport/files/2nd_workplan_rd_0.pdf The Drobeta Turnu Severin port is modernizing its infrastructure through hydro-technical construction works to rehabilitate the vertical quays and construct new quays. https://www.danube-navigation.eu/projects/modernization-of-the-drobeta-turnu-severin-port-infrastructure Modernization of port infrastructure in Calafat port mainly comprises the rehabilitation and adaption of quays. https://www.danube-navigation.eu/projects/modernization-of-the-calafat-port-infrastructure Modernization of the Oltenița port infrastructure includes extension of the vertical quay. https://www.danube-navigation.eu/projects/rehabilitation-and-development-of-the-oltenia-port-infrastructure-phase-2 Work planned for the rehabilitation and modernization of the port of Cernavodă embraces modernization of vertical quays, rehabilitation of the stone-lined quays for vessels and modernization of concrete platforms. https://www.danube-navigation.eu/projects/modernization-of-the-cernavoda-port-infrastructure

Recommendation S021
Building up facilities for vessels in a public port of Bratislava.

Description	As there are no public facilities in public ports providing ecological services related to the collection of ship-generated waste, refueling and providing of drinking water for vessels, the Master Plan of the port of Bratislava formulated a clear strategy for the construction of facilities, which contribute to creation and maintenance of an environmentally-friendly public port. This measure therefore comprises the construction of port facilities for the collection of waste generated by vessels, facilities for refueling of vessels and also facilities for providing of drinking water for vessels.
Beneficiaries	*Who is benefitting from this measure and why?* • Carriers and vessels, since the measure introduces facilities for collection of their waste, facilities for their refueling and also facilities for providing them with drinking water. • Public as a whole, since the measure contributes to the protection of environment. *Objectives of the measure* The purpose of the measure is the construction of waste collection facilities, facilities for refueling of vessels and also facilities for providing of drinking water for vessels in the public port of Bratislava with the aim to provide better services to vessels and carriers, while at the same time protecting the environment.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* SPaP, a.s.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Verejné prístavy, a.s. will have to settle the issue of property rights in the port, since the port infrastructure is not owned and managed by it. Within the preparatory phase the necessary studies have to be elaborated and permits have to be obtained. Subsequently the public procurement process for the constructor can begin. • *These are the stakeholders the responsible institution has to involve* SPaP, a.s., • *This is what the responsible institution has to do first, second, third* Firstly the necessary studies have to be prepared, assessing the economic, technical and environmental aspects – these include the feasibility study, which will assess the necessary capacity, the most suitable localization and the technology of stationary waste collection, drainage and refueling possibilities for vessels;

	possibly the Cost-Benefit Analysis (CBA) and also the Environmental Impact Assessment (EIA), which will evaluate the environmental aspects of the project. Secondly a detailed technical study will describe the technical solution for collecting, transporting, storing, cleaning and removing of the adapted waste, technical aspects for the solution for refueling of vessels and the need for additional services for vessels. Thirdly, the question of property rights needs to be settled and all the necessary permits have to be obtained. Fourthly, the construction process of the waste collection and the background services (refueling and provision of drinking water) for vessels in the public port of Bratislava will commence. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* The preparatory as well as the construction phase have to be completed. • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* no. of vessels using the background services in the public port of Bratislava, amount of waste collected, amount of fuel refueled
Horizon for implementation	medium term Completion: 12.2021
Budget	• *Implementation (non-recurring costs)* – 415 106,8 € inclusive elaboration of studies. Cost of construction will be calculated based on the outcome of the studies. • *Operation (yearly costs)* – 30 000 €
Good practice example	The port of Vienna can be used as an example in implementing successful waste collection system. https://www.icpdr.org/main/publications/sustainable-transport-policy-work-port-vienna The CODENAV project aimed to increase the quality of the ship-generated waste collection and processing services. https://www.danube-navigation.eu/projects/codenav-system-for-ship-generated-waste-collection-and-processing-in-the-maritime-danube-ports The port of Constanta will construct a new state of the art on-shore waste collection and treatment facility within the project for

	modernization of its infrastructure. https://www.danube-navigation.eu/projects/protect-upgrade-of-infrastructure-and-environmental-protection-in-constana-port

Recommendation S022 **Security and protection of ports.**	
Description	In order to insure the highest possible security of public ports of Bratislava and Komárno and timely detection of fire and to avoid any water contamination, Verejné prístavy, a.s. would like to implement the emergency monitoring system and additional emergency measures in the area of public ports of Bratislava and Komárno. Insufficient level of security protection of the ports was proved in the past on several critical occasions. This recommendations therefore include the elaboration of the technical and economic study, installation of the monitoring system in the area of the public ports and implementation of the emergency measures. The recommendation directly follows the already implemented recommendation regarding the elaboration of the Security project and the Emergency plan.
Beneficiaries	*Who is benefitting from this measure and why?* Port tenants, shipping and forwarding companies will benefit from improved monitoring of the ports and increased protection. *Objectives of the measure* The aim of the recommendation is installation of the monitoring system in the area of the public ports of Bratislava and Komárno, and implementation of emergency measures in order to ensure the protection of the public ports areas and the adjacent part of the Danube River stream to avoid emergency situations that may occur in the defined area due to natural disasters or the handling of hazardous substances.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* Security and emergency forces, including the police and fire departments, city of Bratislava

Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?*
	• *This is what the responsible institution has to do as preparation*
	  ○ Analyze critical variables and identify vulnerabilities regarding safety and security in the port area.
	  ○ Inform port users and port tenants about the development of the plans and possible resulting changes.
	• *These are the stakeholders the responsible institution has to involve*

	Port tenants and port users (carriers, shipping companies, etc.), security and emergency forces. • *This is what the responsible institution has to do first, second, third* Firstly, persons responsible for security and emergency have to be identified and all vulnerabilities regarding safety and security within the port area have to be analyzed. Secondly, the technical and economic study will be elaborated concerning the implementation of the monitoring system and the emergency measures with aim to decrease emergency response time. Thirdly, in the area of the public ports there will be installed the monitoring system that can quickly detect an emergency situation and notify responsible security and emergency forces. Within this step there will be emergency measure implemented. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* ○ Identify critical variables and vulnerabilities ○ Elaboration of the technical and economic study, installation of the monitoring system and implementation of the emergency measures • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* Schedule fake emergency situations in order to evaluate the functioning of the monitoring system and knowledge of the employees.
Horizon for implementation	long term Completion: 12.2022
Budget	• *Implementation (non-recurring costs)* – 440 400 € for the preparation of studies. Cost of construction will be calculated based on the outcome of the studies. • *Operation (yearly costs)* – updating of the plan (yearly costs)
Good practice example	n.a.

Recommendation S023 **Construction of the LNG Terminal in public port of Bratislava.**	
Description	With the aim of contributing to modernization and higher ecological state of the public port of Bratislava through the support of the use of alternative fuels, the aim of this recommendation is the construction of an LNG terminal whose economic, environmental and technical aspects

	will stem from the results of a completed feasibility study, cost-benefit analysis, environmental impact assessment and a detailed technical study.
Beneficiaries	*Who is benefitting from this measure and why?* • The public port will be equipped with an LNG terminal and therefore it will broaden the services it provides. • Shipping companies, transport users from production and wholesale industry, major industries of the region can use LNG as alternative source of energy. • The public will benefit from reduction of air emissions. *Objectives of the measure* The main purpose of the recommendation is the construction of an LNG terminal in the public port of Bratislava with the aim of modernizing the services offered by the port and the creation of infrastructure for alternative fuels in order to decrease the negative impact on the environment.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* Ministry of Transport and Construction of the SR, SPaP, a.s.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Within the preparatory phase the economic, environmental and technical studies have to be elaborated. Property rights within the area of the port have to be settled. Building permits for the construction of the terminal have to be obtained. Subsequently the public procurement process can be start in accordance with the national law act. 343/2015. • *These are the stakeholders the responsible institution has to involve* Ministry of Transport and Construction of the SR, environmental and technical experts, SPaP, a.s. • *This is what the responsible institution has to do first, second, third* Firstly the necessary economic, environmental and technical studies have to be prepared. These will include the feasibility study, which will analyze all the technologies for liquefaction, storage and fueling of natural gas available on the market and recommend the most appropriate one. The feasibility study will be followed by the Cost-Benefit Analysis (CBA), which. Will evaluate the economic and social costs and benefits of the project. Simultaneously the Environmental Impact Assessment

	(EIA) will be prepared and it will evaluate the environmental aspects of building the LNG terminal. After that the technical study will specify the necessary technological details of the project. Secondly, all the necessary permits have to be obtained, primarily the construction permit. The third step will be the construction of the LNG terminal in the public port of Bratislava. • *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* The necessary studies and project documentations have to be completed and the new LNG terminal has to be in operation (construction completed). • *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* ○ utilization of LNG terminal ○ no. of trucks refueled per day
Horizon for implementation	
Budget	• *Implementation (non-recurring costs)* – 686 856,8 € - inclusive elaboration of studies. Cost of construction will be calculated based on the outcome of the studies. • *Operation (yearly costs)*
Good practice example	In 2017 first LNG filling station in Austria was opened at the port of Enns on the Danube river. https://www.ngvglobal.com/blog/austria-opens-first-many-planned-lng-filling-stations-0926 https://www.lngworldnews.com/austria-gets-first-lng-filling-station/ LDS - LNG Power Train For Danube Inland Navigation project is undertaking activities such as design and installation of a concept of an LNG tank technology for inland waterway vessels or development of a concept for LNG refueling infrastructure for the Danube waterway vessels and for the supply on their typical routes. https://www.danube-navigation.eu/projects/lds-lng-power-train-for-danube-inland-navigation

Recommendation I231 **Modernization of public port of Komárno.**

Description	The public port of Komárno is the second most important port in Slovakia. It represents the starting point of the Vážska waterway. However the cargo port suffers from the lack of services it provides. Other problem is the unusual situation regarding the property rights within the public port of Komárno. The port of Komárno is located in the center of the city and a walking distance from the residential area, which is one of the reasons for its slow modernization and development and it is also one of the main reasons for the intention of the city relocate the port to a new location. The modernization of the port of Komárno intends to bridge missing links, remove bottlenecks, improve cross border cooperation and enhance intermodal operability. As a first phase of the modernization of the port of Komárno, a Master Plan of the Komárno port will be elaborated consisting of the analytical and strategic part dealing with port's structure, relations, utilization, demand analysis, development models and assessment of financial, socio economic and environmental aspects, has to be completed.
Beneficiaries	*Who is benefitting from this measure and why?* • Carriers, shipping and logistic companies, since the port of Komárno will increase its capacity and utilization. There will be better connection to the railway line and motorway. The relocated port will meet current environmental standards. • Komárno city will benefits from decreased noise and dust from the port. Historical landmarks in the city declared as world heritage will be more protected due to modernization of port. Last but not least the increased utilization of the port will have positive socio-economic impact on the region. *Objectives of the measure* The main objective of the project is the modernization of the public port of Komárno in order to bridge missing links, remove bottlenecks, enhance rail and road interoperability and reduce negative impacts of the port operation on the city of Komárno.
Responsible institution	*Who is responsible for implementing the recommended action?* Verejné prístavy, a.s. *Which other institutions should be involved?* • City of Komárno (municipality) • The Steering Committee which will ensure that the project fulfills the objectives on time and within budgetary limits. • Joint Working Group consisting of Slovak and Hungarian side.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* • *This is what the responsible institution has to do as preparation* Within the preparatory phase the economic and technical studies will have to be elaborated and the project

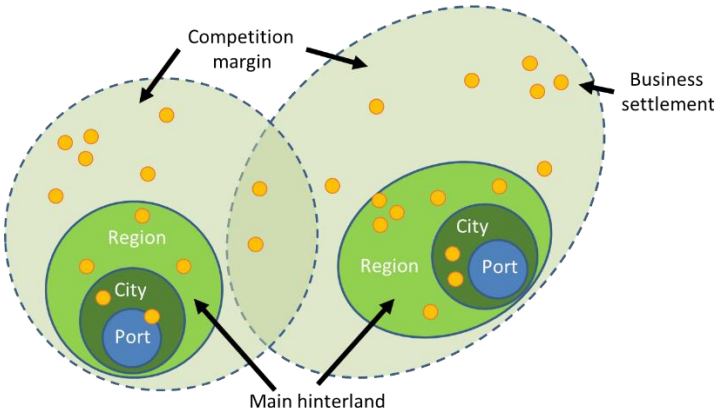
documentation has to completed, which includes cooperation with the Hungarian Mahart PassNave. Verejné prístavy, a.s. will have to settle the property rights not only within the port of Komárno but in case of relocation of the port also within Veľký Harčáš, where the new port should be constructed. The Geological and Hydrological surveys will need to be conducted. Building permits for construction phase have to be obtained. Public procurement for the modernization of the port has to be completed.

- *These are the stakeholders the responsible institution has to involve*
  Ministry of Transport and Development of SR, Verejné prístavy, a.s., Ministry of National Development of Hungary, SPaP, a.s., Mahart PassNave, local authorities, City of Komárno.
- *This is what the responsible institution has to do first, second, third*
  1. The first phase of the project will involve the elaboration of relevant studies, particularly the Master plan for the port of Komárno and a Feasibility study concerning the modernization of the port or eventually building of a new port and the logistic center in Veľký Harčáš and a close cooperation with the Hungarian authorities. The feasibility study will assess the different alternatives for building the new port and specify the preferred one. Next, the CBA of the proposed alternative together with an EIA will be completed.
  2. Secondly, a detailed technical documentation will be prepared and all necessary permits have to be obtained.
     The last phase of the project will be the modernization of the public port of Komárno.
- *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented*
  The preparatory phase has to be successfully completed and the port has to be modernized. This means that the feasibility of building a new port has to be analyzed and all necessary economic, environmental and technical studies completed, property rights settled, all necessary permits obtained and the modernization phase finished.
- *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?*

	no. of vessels using the services of the new public port of Komárno, units of cargo shipped and transloaded,
Horizon for implementation	long term
Budget	• *Implementation (non-recurring costs)* – 673 100 € allocated for the elaboration of the studies. Cost of construction will be calculated based on the outcome of the studies. • *Operation (yearly costs)*
Good practice example	The port of Riga is also dealing with the relocation of the bulk cargo port from the city center to Krievu Sala island in order to reduce level of coal dust, noise and road congestion in the city center. http://ec.europa.eu/regional_policy/en/projects/latvia/rigas-port-cargo-operations-to-be-moved-away-from-city-centre http://www.rop.lv/en/news/337-riga-city-council-approves-port-relocation-from-the-city-center-to-krievu-island.html

4.5 Regional Action Plan (RAP) for Port of Budapest Region

4.5.1 Definition of the Port Region



The Port Region of the Freeport of Budapest is the port's hinterland area from which the port's customers are drawn from. More specifically we applied the following approach: „hinterland area is the markets reach of the port, that is, the areas from which cargo originates, as well as the areas where cargo moving through the port is destined. Some ports have hinterlands that extend across many states, while other ports will have smaller hinterlands."

As regards the Freeport of Budapest, cargo originates from and is destined to all over the country. There are big companies operating in the area of the Freeport and besides waterway, most of them have rail and road connections as well.

Besides the **intermodal transport connections** within the port, the **capital centralization** of Hungary also explains the extension of the hinterland area to a broad context. Most of the Danube ports in Hungary have their specific advantages (e.g. suitability for certain cargo types) due to which their market reach might be country-wide.

The main reason to set the hinterland area on a relatively wide scope is that **better transport connections** (on rail, road or even waterway) **are more relevant motivators for shipping** to the Freeport of Budapest than the geographical vicinity of the port itself. For example, a shipping company will more probably choose the Freeport of Budapest if there is a direct highway connection than another company closer to the port, but with no direct transport connection.

Based on the above-mentioned reasoning, in case of Budapest Freeport, the **hinterland area is understood on country level,** i.e. on NUTS0.

4.5.2 Description of specific target groups

Stakeholders

Target groups and the main stakeholders the Freeport of Budapest has to keep good relations with during the port operation, management and future port developments:

Within the port:

- The owner of the Freeport (state property), the holder of property rights is MAHART-Freeport Co. Ltd.
- Port operator companies within the Freeport (e.g. Mahart Container Center, ArcelorMittal, EKOL Logistics, MOL Hungarian Oil and GAS Plc.)
- Other users of the Freeport (shipping companies, railway undertakings, ancillary service providers)

Accessing transport infrastructure, transport links:

- Hungarian Railways (MÁV Zrt.)
- National Infrastructure Developer Plc. (NIF Zrt.)
- Municipality of Csepel (XXI.) district, Municipality of Budapest

Authorities, other institutions:

- Water Directorate with territorial jurisdiction: Central-Transdanubian Water Directorate

- Ministry of National Development, Shipping Department
- Government Office of Budapest Capital, Transport Department
- Associations: Hungarian Federation of Danube Ports – HFIP (involving other Danube ports), Association of Hungarian Logistics Service Centres (MLSZKSZ)
- National Association of Radio Distress-Signalling and Infocommunications (RSOE)

Target group of the proposed measures

Out of the above listed stakeholders, not each of them is directly responsible to implement the recommended RAP measures. Stakeholders to be involved in the implementation of the measures are as follows:

- MAHART-Freeport Co. Ltd.
- Hungarian Railways (MÁV Zrt.)
- National Infrastructure Developer Plc. (NIF Zrt.)
- Municipality of Csepel (XXI.) district, Municipality of Budapest
- Central-Transdanubian Water Directorate
- Ministry of National Development
    - Shipping Department
    - Transport Department, responsible for the implementation of Transport Development Operation Programme
- State Aid Monitoring Office of Hungary
- Hungarian Federation of Danube Ports – HFIP and its port operator members
- National Association of Radio Distress-Signalling and Infocommunications (RSOE)

Main industries and cargo flows within the Freeport of Budapest:

- Containers
- Ro-Ro cargo
- Rail freight
- Waste metal and other metal products
- Fertilizer

4.5.3 Overview of recommended measures

When selecting the 10 strategic measures, the following criteria were taken into consideration:

- Possibility to generate additional cargo volume in IWT and increasing the modal split of IWT;
- Enhancing the investments into port developments;
- Improving the human, IT and technological capacities of Hungarian ports;
- Improving the level of logistics services in Hungarian ports;
- Improving the accessing infrastructure of the Freeport of Budapest on Csepel island.

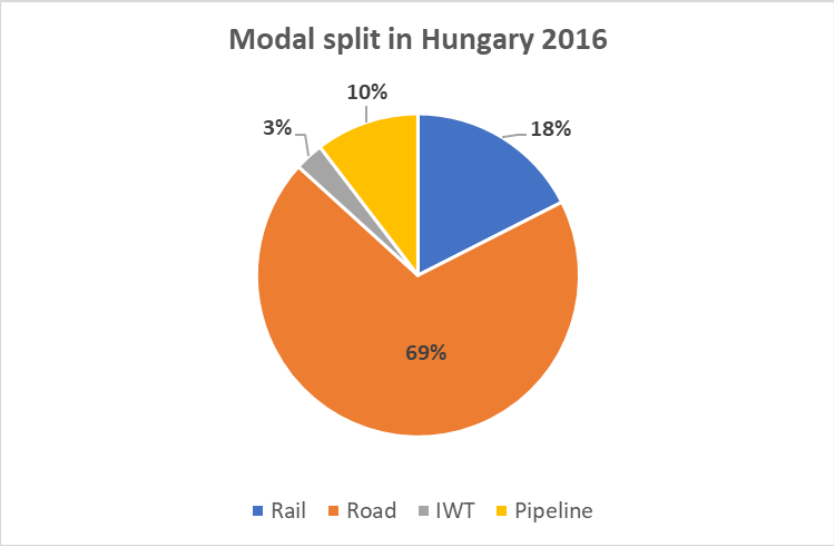
Inter-relations and dependencies between the recommended measures are explained by the following table:

INTER-CONNECTION WITHIN MEASURES	1.	2.	3.	4.	5.	6.	7.	8.	9.	10	Connection between measures
LEGAL FRAME											
1. Harmonisation of the GBER articles				■	■	■	■				The proper application of GBER articles and the eligibility of port superstructure is a precondition of any EU funded port development (infra- and superstructure)
2. Port management studies			■						■		Port management studies have to provide adequate knowledge on the application of financing instruments and the port information systems as well
3. Preferential loan for SMEs in inland navigation		■			■					■	Refundable financing instruments shall be accessible for port operators and port users
INFRASTRUCTURE											
4. Improving the Hungarian Danube section, ensuring 2,5 m water depth	■				■	■	■	■	■	■	In order to increase the overall IWT cargo volume in Hungary, the navigability of the Hungarian Danube section must be improved
5. Intermodal development of Hungarian ports' infrastructure	■		■	■			■		■	■	A new funding scheme for port operators is 1) dependent on the GBER harmonisation, 2) could be combined with refundable subsidy and 3) supplement other major port developments
6. Upgrade the railway link between Budapest Freeport and the core network	■			■				■			The railway construction works to be funded might be entirely/ partly subject to state aid. The end of the Budapest-Belgrade line in Budapest will be connected to the Csepel railway network.
7. Connecting road to TEN-t port in Paks	■			■	■						The road access development of Paks port is also subject to state aid and the navigability of the Danube is also a key aspect of the additional cargo volume.
8. Budapest-Belgrade railroad				■		■					Switching additional freight volume onto waterways is also dependent on the navigability of the Danube. Connection with Measure 6. see above.
COOPERATION											
9. Integrated Port Information System (KIR)		■		■	■						KIR is about to provide IT background related to inland navigation and must be integrated with the intermodal technologies introduced in the Danube ports.
TECHNOLOGY											
10. Biomass based power plant concept in Danube ports			■	■	■						If biomass power plant is stablished in Danube ports, this would require further investments with refundable/ non-refundable subsidies and will also create additional cargo volume on the Danube.

The implementation of the selected measures is expected to have to following impacts on the waterborne transport along the Danube:

1. The harmonization of GBER articles is one **precondition for any EU funded port development** project and also an important tool to **prevent irregularities in the usage of EU funds.**
2. The expansion of the port management studies contributes to **higher level service** provision and higher-level **customer satisfaction, which** attracts capital and direct investment in Danube logistics, ports' and inland waterways' infrastructural development.
3. The modernization of the Hungarian vessel fleet contributes to the **attractiveness of IWT and increasing the share of IWT in the modal split**.
4. Assuring a minimum of **2,5 m draught** would **increase the volume and share of IWT in the modal split** and allow **new products** to be transported **on the Danube.**
5. The launch of a new funding scheme for small-scale developments in Hungarian ports could increase of **intermodal capacities** and the **waterborne transport volume, assure** higher **interoperability with rail transport** as well as increase the **container transport volume.**
6. The construction of the Belgrade-Budapest railroad will **reduce the travel time** between Budapest and Belgrade **to 3,5 hours**, whereas **Asian freight volume** can **be transported** much **faster** and in a **greater volume to the Central and Western European region**.
7. As a result of the connecting road from the M6 highway to the Port of Paks, high **share of the additional shipping demand** of the power plant construction works could be **transported on the Danube**.
8. The construction works of Gubacsi and Galvani bridge as well as the reconstruction of Corvin node in Csepel island could **eliminate the bottleneck** between the core railway network and the Freeport.
9. "KIR project" will have positive impacts on competitiveness of inland waterway transport, modal split, **traffic management, service quality, safety and security**.
10. The **energy biomass value chains** along the River Danube could i**ncrease the share of IWT** in the modal split, while creating **biologistics hubs** at Danube ports.

4.5.4 Description of recommended measures



Source: Hungarian Statistics Office – ksh.hu

Recommendation L006 **Harmonisation of the GBER articles for port developments**	
Description	Since the latest amendment of GBER (General Block Exemption Regulation of state aid subsidies) – the extension to ports and airports in 2017 –funding rules for ports have been significantly modified. Before the publication of the **new GBER article 'Aid for inland ports'**, in the lack of a dedicated GBER article, major port investments form Hungary had been notified individually to the Commission. The new article aims at providing a clear legislation on the public funds for port infrastructure, however, the definitions and the applicability of the aid raises fundamental questions: • what infrastructure elements are exactly part of **'port infrastructure'** in the understanding of the article? • what superstructure elements and equipment are exactly part of **'port superstructure'** in the understanding of the article? • since port superstructure is not, only port infrastructure costs are eligible under this article, **under what article of the GBER are the superstructure elements eligible** for funding? Given the very strict definition of the eligible port infrastructure, port superstructure not eligible under 'Aid for inland ports' could be eligible under the article ,Aid for local infrastructure'. There is an ongoing discussion between the DG Competition and the responsible Ministries of several EU countries on the question. **GBER definitions under 'Aid for inland ports'** In line with the GBER article, the definition of port infrastructure, port superstructures and access infrastructure should be examined. According to GBER **'port infrastructure'** means **infrastructures and facilities for the provision of transport related port services.** The regulation lists the elements that can be described here by way of example only: • *berths used for the mooring of ships, quay walls, jetties and floating pontoon ramps in tidal areas, internal basins, backfills and land reclamation, alternative fuel infrastructure and infrastructure for the collection of ship-generated waste and cargo residues.* According to GBER **'port superstructure'** means surface arrangements (such as for storage), fixed equipment (such as warehouses and terminal buildings) as well as mobile equipment (such as cranes) located in a port for the provision of transport related port services. According to the GBER regulation **'access infrastructure'** means any type of infrastructure necessary to ensure access and entry from land or sea and river by users to a port, or in a port: roads, rail tracks, channels and locks. Infrastructures and superstructures within the territory of a port qualify as port infrastructures or superstructures pursuant to the definitions of GBER only if they are for the provision of transport related port services. **GBER definitions under 'Aid for local infrastructure'**

	According to the regulation of the Article 56 of GBER regarding 'Investment aid for local infrastructures': financing for the construction or upgrade of local infrastructures which concerns infrastructure that contribute at a local level to improving the business and consumer environment and modernising and developing the industrial base shall be compatible with the internal market within the meaning of Article 107(3) of the Treaty and shall be exempt from the notification requirement of Article 108(3) of the Treaty, provided that the conditions laid down in this Article and in Chapter I are fulfilled. **Recommendations** All infrastructure elements located in the territory of the port and not covered by the above definition, which contribute at a local level to improving the business and consumer environment and modernising and developing the industrial base, shall be eligible for aid under the category of 'Aid for local infrastructure'.
Beneficiaries	*Who is benefitting from this measure and why?* Any stakeholder of port operation is benefitting from the measure since the development of ports' infrastructure affects various level of port management: port owners, port managers, port operators, shipping companies and any other user of the concerned Danube ports. *Objectives of the measure* The harmonisation of GBER articles (Aid for inland port vs Aid for local infrastructure) and the application of clear and common definitions within the GBER is one precondition for any EU funded port development project and also an important tool to prevent irregularities in the usage of EU funds.
Responsible institution	*Who is responsible for implementing the recommended action?* The harmonisation of GBER definitions is the responsibility of the DG Competition regulating state aid provisions. Nevertheless, to initiate discussion with the Commission, the establishment of a working group of the concerned countries is recommended. There is already a room for addressing similar questions directly to the DG Competition (responsibility of the Ministries), which member states have already made use of, but these Q&As have not proved to be effective to have the same understanding of the problem. It is necessary that member states work together on a recommendation and initiate a meaningful consultation with the Commission. Responsible institutions of member states are the ***Ministries responsible for managing transport development financial instruments and/ or the respective State Aid Monitoring Offices.*** *Which other institutions should be involved?* In order to create a common and detailed GBER legislation – applicable for any member state - consultation between the Commission and the responsible state aid monitoring offices is desirable.
Steps	The measure shall be initiated by the member states. *These are the stakeholders the responsible institution has to involve*

	State aid monitoring offices of member states and the Managing Authorities managing EU funds for transport development shall be involved. *This is what the responsible institution has to do first, second, third* • DG Commission could initiate a deep discussion with member states to understand the eligibility problems caused by the unclear provisions of the GBER articles. • Agreeing with member states on the common understanding of GBER definitions. • Publishing supplementary provisions for the concerned GBER articles. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Completion of GBER legislation. *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* The use of EU funds under GBER articles 'Aid for inland ports' and ,Aid for local infrastructure' is a clear feedback on the application of the state aid schemes.
Horizon for implementation	The necessary consultations and the completion of the legislation require a minimum of 1 year.
Budget	Since this measure does not have a nature of investment, estimated budget is not explicit. However, it is recommended to assign external experts to facilitate this process: organise at least 2 workshops with other member state representatives and prepare a detailed proposal that can be shared with the DG Competition. Based on this proposal, 2 personal meetings with the DG Competition is desirable (involving member state representatives and the experts). The estimated cost of this process, including expert fees and plane tickets is 40.000 €.
Good practice example	Since there is no experience available for the use of the new GBER article 'Aid for inland ports', good practices have not been identified.

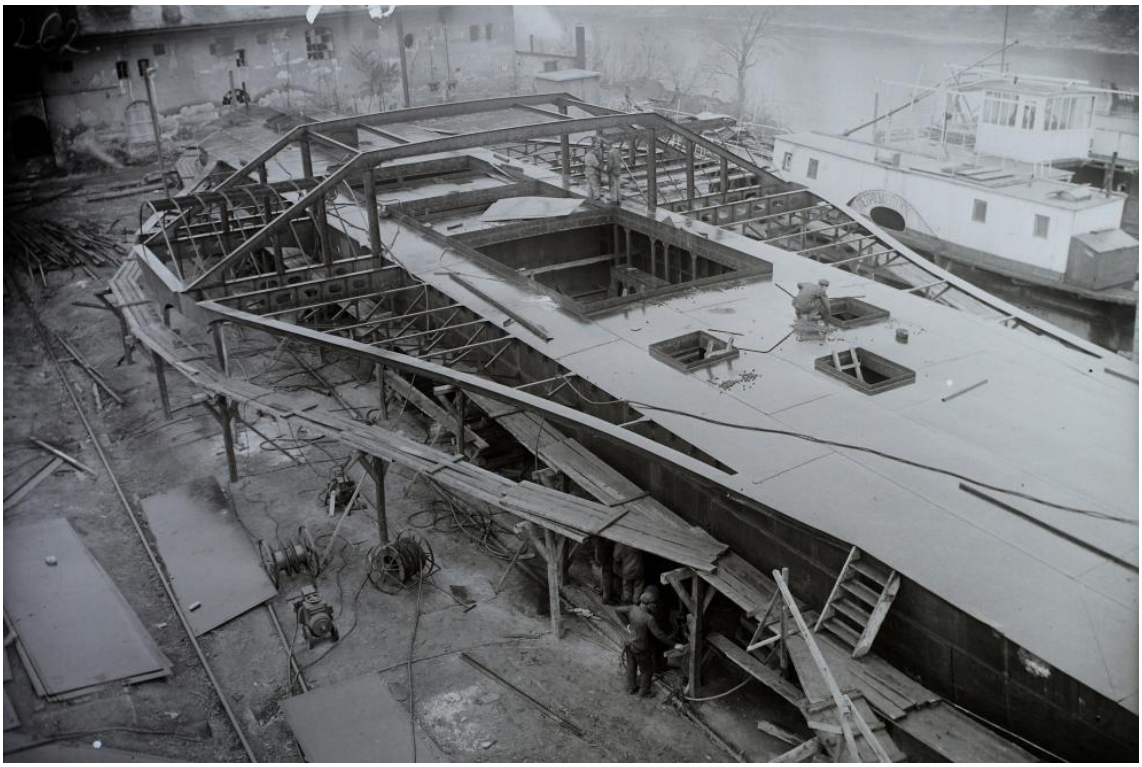
Fresh graduates at University of Dunaújváros, *Source:* uniduna.hu [Accessed 10.05.2018]

Recommendation L040 **Port management studies to be extended**	
Description	Training program, learning materials for port managers and operators were jointly developed and completed by the Hungarian Federation of Danube Ports (HFIP), University of Dunaújváros and Ecotech Nonprofit Zrt. 1.5 years before the program's official launch in October 2016. Training program has two major fields in line with requirements of the faculty: 1) port economics including port and HR management, trade and marketing, general port operation businesses 2) port operations including mechanical competencies, navigation skills, product handling, environment protection, health and safety, foreign language skills There were theoretical and practical courses as well. Theoretical sessions took place at University of Dunaújváros while practical courses were held in the ports of Budapest, Dunaújváros and Baja. Courses were given by experts of HFIP. Ecotech Nonprofit Zrt. guaranteed high-end online learning materials and IT support. Flexible conditions (IT background, block seminars) ensured students to manage both their working life and school, to take part at lessons and exams. Students were delegated by different Danube ports from Hungary: smaller and larger ports, private and state-owned ones regardless of their portfolio, capacities, equipment or the transhipped product. In 1 June 2017, 20 students passed their exams successfully and received certificates.

	The training program received positive feedbacks from professionals and stakeholders from public and private sectors too. HFIP facilitates urgent launch of the second class including students from ministries, consulting companies, other port operators who have not participated before. Also, in the future, the program shall grow internationally and be extended to cover other modes of transportation in case of trimodal ports. The involvement of public bodies is exceptionally important, because ministries act as Management Authorities of the related EU-level and national-level funding programs. It is crucial for the IWT sector officials at the Shipping Authority to be partners and understand the points and importance of Danube logistics. Involvement of external companies, advisors is also important, since their expertise is very useful in the fields of project development and project management. Their core competencies and skills on port management and operations shall be improved to higher levels. Handling road and rail traffic requires special skills and competencies in trimodal ports, therefore the training program should include intermodal traffic management as well. Internationalization of the training program is important to spread Hungarian expertise in inland navigation and port management, generating further cooperation and businesses with other Danube countries. To achieve these objectives mentioned above: • Learning materials and IT background shall be updated; • Stakeholders shall be notified and involved; • Possible guest lecturers shall be invited (especially from abroad); • Licenses for launching the second class shall be approved; • Financial sources shall be dedicated by HFIP, University of Dunaújváros, Ecotech Nonprofit Zrt. and other possible investors.
Beneficiaries	*Who is benefitting from this measure and why?* The entire IWT sector is benefitting from this measure. Higher level service provision results in higher level customer satisfaction and attracts capital and direct investment in Danube logistics, ports' and inland waterways' infrastructural development. *Objectives of the measure* • Harmonizing the level of service provision in port management, port administration and port operations. • Increasing customer satisfaction and attracting new partners, contributing to changes in the modal split shifting towards IWT, reducing the share of road transport
Responsible institution	*Who is responsible for implementing the recommended action?* Hungarian Federation of Danube Ports (HFIP) and Ecotech Nonprofit Zrt. are responsible for implementing the training program.

	University of Dunaújváros, Freeport of Budapest, Baja and Dunaújváros are responsible for ensuring the sites of theoretical and practical sessions. *Which other institutions should be involved?* Ministry of National Development (Shipping Authority and Managing Authority of transport development OP), the General Department of Transport in the Government Office of Budapest as lecturers and students as well.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* • Learning materials to be modernized and updated by experts of HFIP. • Online materials, cloud-based services, conditions for polymedia lectures to be developed by Ecotech Nonprofit Zrt. • Financial sources shall be acquired and dedicated for successful implementation. *These are the stakeholders the responsible institution has to involve* • Ministry of National Development, Shipping Authority • Ministry for National Economics • Consulting companies • Foreign professionals from large ports e.g. ARA ports, NAPA ports *This is what the responsible institution has to do first, second, third* 1. Organizing a consultation to define the baseline and clarify the objectives of the training program for all stakeholders; additionally, press- and summary documents shall be distributed within key stakeholders of special interests. 2. Involving possible implementing bodies to share responsibilities. 3. Estimating costs and time planning (first phase). 4. Targeting potential students from port operator companies. 5. Measuring the effectiveness and profitability of port management, operation and administration services based on statistics and customer satisfaction before launching the program. 6. Estimating costs and time planning (supervising the first phase estimates). 7. Defining locations of the lessons (university or conference halls for lectures and group seminars, ports for practical sessions). 8. Purchasing necessary equipment, software and IT services. 9. Launching the training program. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Measuring 1. Students' satisfaction with available courses 2. Student's satisfaction with lecturers' expertise and preparedness 3. Students' and teachers' satisfaction on technical conditions and IT support 4. Professionals' satisfaction with the level of training program

	5. Government's openness, engagement to support such programs 6. Number of students out of the fresh graduates who can find a job or take the next level in their carrier in the fields of port logistics, operation, management and administration. 7. Number of companies out of all port operators/owners delegating colleagues (students) to the training program *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* 1. Continuously testing students' and teachers' satisfaction with available infrastructure, learning materials and the level of education 2. Closing the training program 3. Measuring the effectiveness and profitability of port management, operation and administration services based on statistics and customer satisfaction a little while after first graduates returned to work.
Horizon for implementation	Horizon for implementation for the first time was to educate practicing port managers and port operators. When launching the second class, representatives from other sectors shall be involved as well. Both first and future second class are targeting Hungarian participants, but the horizon of future classes shall be wider including students from other Danube countries. Considering education fields, the program covered port economics and management and port operations, logistics activities (services in the port) and navigation (services on water). In the future, the program shall include intermodal traffic management as well. Training programs for shipmasters and ship mates shall be jointly developed with port management studies.
Budget	*Implementation (non-recurring costs)* Cost of development of learning materials: EUR 5,500 Alternative costs for port companies due to missing colleagues: EUR 800 *Operation (yearly costs)* Human capacities, wages of teachers, lecturers: EUR 30,000 Cost of ensuring the IT background, polymedia classes, software and cloud-based services for remote access: EUR 25,000 Incomes for financing expenditures: HFIP membership: EUR 3,000/member/year 22 members guarantee EUR 66,000 annually, however, the Association needs to cover its other expenditures as well from this sum.
Good practice example	not relevant

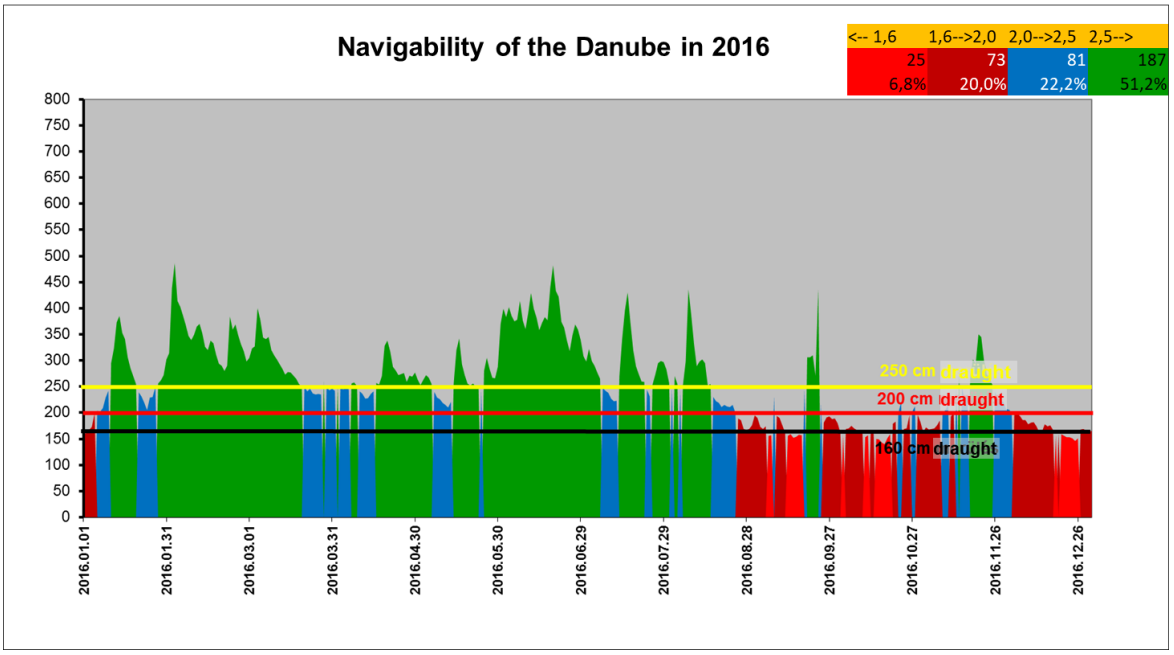


Source: fortepan.hu

Recommendation L050 **Preferential loan for SMEs for vessel construction and development**	
Description	Development of truck fleet of a road haulage company is easily manageable by using bank loans offered for SMEs. Considering inland waterway transport **neither vessel construction and modernization nor port infrastructure development are supported on a market basis**. However, **vessel construction requires higher level of investment**, whereas **financial return** is significantly **slower**. This is also a reason why financial supporting instruments are needed. Comparing the legislative, funding and taxing environment of road, rail and waterborne transport, competitive neutrality of the different transport modes is not guaranteed. Policy makers shall be committed to prefer green logistics and mobility, less polluting modes of transportation and encourage banks and investors to support slowly returning businesses such as waterway transport.
Beneficiaries	*Who is benefitting from this measure and why?* Shipping companies owning old and outdated fleet to be modernized would benefit from this measure the most. They currently have limited financial and funding sources for developing their fleet. *Objectives of the measure* Loans with preferential conditions for vessel construction and development would support shipping companies to upgrade their fleet.

	Shipping companies, freight forwarding companies to have the opportunity to receive loans from banks with lower rates for construction or development of vessels and barges. The modernisation of the Hungarian vessel fleet contributes to the attractiveness of IWT and increasing the share of IWT in the modal split.
Responsible institution	*Who is responsible for implementing the recommended action?* Preferential loan schemes shall be initiated by the Hungarian Government and could be managed by the Hungarian Development Bank (MFB). Commercial banks can also develop and introduce new loan schemes. *Which other institutions should be involved?* Hungarian Government, Hungarian Development Bank, commercial banks
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* 1. Discover the market, needs of market players, potentials of the sector 2. Design the structures and framework of financing vessel construction and development *These are the stakeholders the responsible institution has to involve* 1. Shipping companies e.g. MAHART PassNave 2. Port owners 3. Port operators 4. Hungarian Government, Hungarian Development Bank, commercial banks 5. Ministry of National Development – Shipping Authority 6. General Department of Transport in the Government Office of Budapest *This is what the responsible institution has to do first, second, third* Hungarian Government shall facilitate the process with specific legislation on financing and granting eco-innovative solutions, development of Hungarian vessel fleet. Shipping companies, ports shall provide information on their financial needs, volume of necessary development projects, costs of purchasing, modernizing, upgrading, reconstructing. Authorities shall provide information on how to handle, coordinate such products with long-term return. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Measuring the following indicators: 1. Average age of vessels in the Hungarian fleet 2. Age of the oldest vessel in the Hungarian fleet

	3. Age of the youngest vessel in the Hungarian fleet 4. Number of ships to be constructed by means of preferential loans 5. Number of ships to be reconstructed/modernized by means of preferential loans 6. Port development projects to be implemented thanks to the preferential loans *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* • Monitoring the use of the most popular loan schemes • Rates of return • Short-, mid- and long-term loans: most popular loan schemes
Horizon for implementation	As far as the timeframe of introduction is concerned, since the current budgeting period is coming to its end by 2020 (2021), new financing and funding mechanisms can be introduced.
Budget	• *Implementation (non-recurring costs)* National legislation only regulates the banking system, and preferential loans are not direct financial supports like non-refundable grant schemes. The main goal of introducing refundable finding instruments is to shift from the current funding mechanisms towards a market-based economy development, while preferring environmentally friendly interventions. The amount of subsidy due to the tax incentives could be 2-3 million € altogether. • *Operation (yearly costs)* The operation of the measure shall be provided by the Development Bank and commercial banks. The estimated number of the necessary human resource is ~15 full-time people through 3 years - ~800.000 €
Good practice example	Referring to Western-European practices especially in the Lowlands, it is common and wide spread that ship owners and shipping companies apply for loans in regular trade banks to upgrade their vessels, entire fleets or complete investments in inland ports. Good practice for national financing instrument handling institution: KfW Bank Group in Germany



Source: Hungarian Federation of Danube Ports

Recommendation **Improving the infrastructural conditions of IWW transport on the Hungarian section of the Danube, ensuring 2,5 m water depth** (New measure: Infrastructure/ Ensure reliability and availability of the whole DBS Gateway Region / Navigability waterway Danube; fairway incl. maintenance)	
Description	Danube as a transport corridor is presently underutilized. Though there are numerous EU funded port development projects, they cannot further contribute to the overall waterborne transport volume in lack of the improvement of navigability. There are three low-water sensitive sections on the Danube including the entire Hungarian section i.e. 378 river kilometres with 21 fords, 28 stenosis and 6 sites tend to become icepacks. Hungarian Danube section must be adequately watered, this is a burden for water transport. According to the New Széchenyi Plan (national policy for development) for instance, share of IWT must be raised from 2% in 2010 to 10% by 2030. *Responsibilities* 1. In case of successful lobbying and **engagement** of policy makers, **Hungarian government**'s task exclusively is to **dedicate financial sources** for preparation and construction works. 2. Water Authorities will coordinate the implementation. 3. Water construction companies will complete dredging works and establishing dams and floodgates.
Beneficiaries	*Who is benefitting from this measure and why?*

	The entire cargo and passenger transportation sector on inland waterways including shipping companies, cargo ports, freight forwarders and passenger transporters can benefit from this measure. As an additional impact, overused highways can be relieved from huge traffic as well. *Objectives of the measure* To make IWT more efficient and profitable by assuring a minimum of 2,5 draught. To increase the volume and share of IWT in the modal split and decrease the volume of road transport. To generate bigger turnover in Hungarian cargo ports and widen their portfolio with products currently not transported on the Danube.
Responsible institution	*Who is responsible for implementing the recommended action?* • Hungarian Government, Water Directorates *Which other institutions should be involved?* • Ministries, management authorities of operational programmes • Port owners, port operators, management companies, authorities • Regional and local authorities
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* • Dedicated financial sources are necessary in the frame of the prevailing Transport operational program • Signing responsible actors (Water Directorates, regional authorities) to coordinate implementation • Favouring the environmentally more sustainable waterway and rail transport against road transport • Designing a timeframe for completion *These are the stakeholders the responsible institution has to involve* • Port operators, port owners, port management companies • Regional and local authorities *This is what the responsible institution has to do first, second, third* 1. Mapping, updating critical sections, spots, fords and stenosis where intervention, construction works, dredging is crucial 2. Complete dredging works at the crucial sections 3. Establish water dams and floodgates 4. Measure draught of vessels 5. Maintenance and operation of the renewed waterway infrastructure

	This is what the responsible institution has to do before the recommendation can be considered as successfully implemented • Number of days the Danube is navigable with no interruption on the entire Hungarian section with a minimum of 2,5 m vessel draught: more than 300 days per year • Waterborne transhipment volume on the Danube (including transhipment on the Hungarian section, and transit as well) • Change of road transport volume *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* • Change in the turnover of Hungarian Danube ports • Change of portfolio of Hungarian Danube ports (diversification)
Horizon for implementation	In case dedicated financial sources and clear policy for improving Danube navigability is available, dredging can be completed in 2 years, while the construction of dams and floodgates at critical sections can be executed in 4 years.
Budget	There is no up-to date budget estimate for the optimal technical implementation plan, but the volume of investment for the dams and floodgates and completing dredging works could be over 10 billion €.
Good practice example	Rhine, Maine and even the upper sections of Danube are navigable almost throughout the whole year thanks to frequent dredging and well-developed floodgate and dam-system. These activities, related infrastructure and facilities as an entire regime must be benchmarked on the whole Hungarian Danube section.

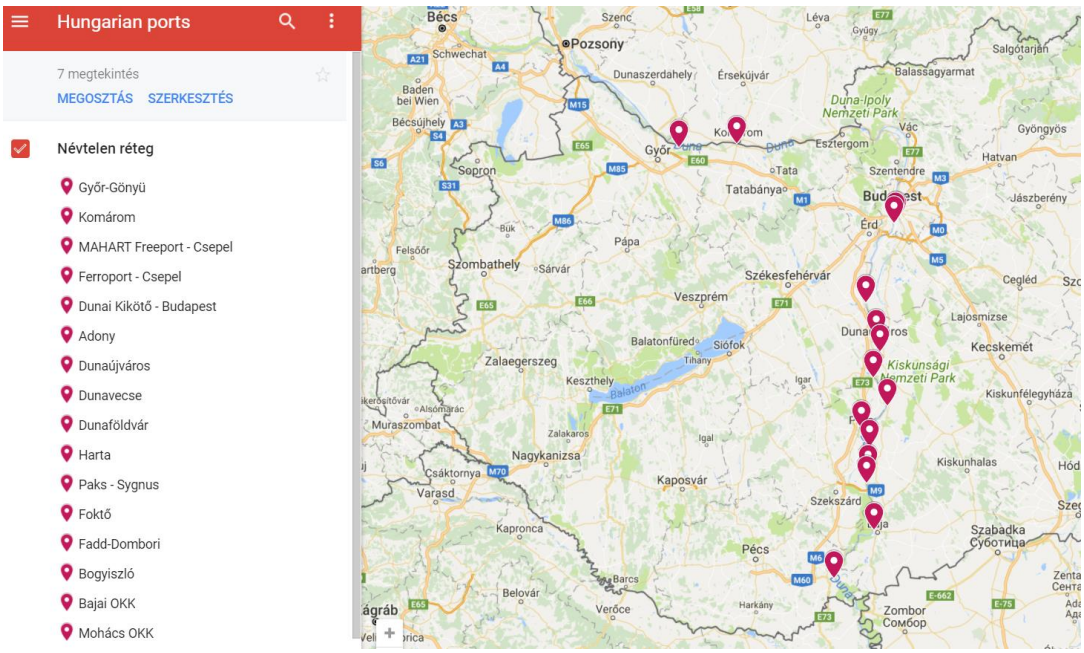
Source: Freeport of Budapest Logistics

Recommendation **Intermodal development of Hungarian ports' infrastructure** (new measure: Infrastructure/ Provide adequate infrastructure within the ports to transform them into intermodal hubs/ Modernization of port infrastructure and equipment; for handling goods, e.g. cranes, storage facilities etc.)	

Description	Intermodal development of Hungarian Danube ports is a comprehensive measure, which aims at increasing the intermodal capacity of the concerned ports.
	In the past years the Transport Development Operational Programmes have provided significant subsidies for Hungarian ports. Within these financing instruments, the bigger TEN-T ports (Győr-Gönyű, Budapest Freeport, Baja and Mohács) received significantly higher level of EU support given their TEN-T status. However, the other Danube ports also have an important role in the overall waterborne freight transport and still planning to invest in the intermodal capacities.
	There is a strong expectation to launch a new grant scheme supporting all Danube ports. The focus of the activities to be granted should the development of intermodal capacities and the related necessary equipment and infrastructure. Intermodality is a key question since these ports are the main intermodal centres of the country:
	• Port facilities and the type of cargo to be handled strongly differ among ports, thus technological developments should be tailored to these characteristics.
	• Since the continuous increase of rail freight is expected, the intermodal solutions connected to rail transport should be a focus too.
	• Container transport has been continuously growing in the past years (3-6% per year), which can also be considered when developing port facilities.
	During the year 2017, altogether 44 port operators handled 5,8 million tonnes of waterborne fright in 55 ports, possessing operational permit.
	Developments to result in and to assist the trimodality of Hungarian Danube ports with special focus on the diversification of intermodal logistics services:
	• Small-scale river walls construction, reconstruction, reinforcement, protection;
	• Cargo handling equipment, including fixed equipment e.g. conveyor belts or portal cranes and mobile equipment.
	• Adequate port infrastructure and equipment for special cargo:
	  ○ Reinforced and or longer quay for heavy/ oversize cargo handling
	  ○ Ro-Ro terminal for rolling cargo
	  ○ Container handling cranes and loaders
	• Increase of storage capacities: warehouses, silos, open storage areas
	• Quay with navigation infrastructure (steps, bollards, landing stages, etc.);
	• Construction, relocation, reinforcement of flood protection dams, embankment structures and ramparts to protect waterside infrastructure developments;

	• Construction of road and outdoor covers, construction/ renovation of substructures attached to quay service railways and cranes; • Establishment of public road connections and links; • Rail links and connections; • Port transport infrastructure development, including parking lots • Installation and modernization of navigation information systems;
Beneficiaries	*Who is benefitting from this measure and why?* Direct beneficiaries of a new funding scheme could be port owners, port managers, port operators and Water Directorates. Indirect beneficiaries are shipping companies and producers of the transhipped cargo. *Objectives of the measure* • Increase of **intermodal capacities** in all of the Danube ports. • Increase of **waterborne transport volume** transhipped in Hungarian ports, higher **interoperability with rail transport** • Increase of **container transport** within waterborne transport volumes
Responsible institution	*Who is responsible for implementing the recommended action?* The new funding scheme shall be initiated by the respective Managing Authority (presently belongs to the Ministry of National Development), but the financing source shall be approved by the Hungarian Government. *Which other institutions should be involved?* Since the funding scheme is subject to state aid, the funding call shall be approved by the State aid Monitoring Office of Hungary as well. The Hungarian Federation of Danube Ports, as the representative of the concerned ports, shall also be involved in the elaboration of the eligible activities and the related conditions.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* Design the draft of the funding scheme and nominate it on the 'yearly development framework' to be approved by the government. *These are the stakeholders the responsible institution has to involve* State Aid Monitoring Office, Hungarian Federation of Danube Ports *This is what the responsible institution has to do first, second, third* 1. Design the draft of the funding call 2. Consultations with the State Aid Monitoring office and HFIP 3. Nominate the scheme in the yearly development framework of the Managing Authority for government approval 4. Launch of the funding instrument *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Measuring the following achievements of the executed projects: • Number of ports where developments have been executed • Number of port operators executing development project • The diversification of logistics service portfolio in Hungarian Danube ports – number of new services provided

	• Number of reconstructed/constructed berths • Length of constructed/ reconstructed rails and roads – within the ports and accessing the ports *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* • Increase of the IWT volume in Hungary • Increase of the IWT share in the modal split in Hungary • The overall intermodal transport volume of the Hungarian ports (including all means of transport)
Horizon for implementation	The geographical horizon of the measure is the Hungarian section of the Danube, in the concerned ports. The 55 ports are situated along the Danube in/ in the vicinity of 14 cities, as seen on the below map. Time horizon of the elaboration of the funding scheme is ~ 1 year, whereas the time horizon of the projects' implementation is 1 – 1,5 years.
Budget	*Implementation (non-recurring costs)* The estimated allocation of 25-30 small scale intermodal development projects is 15-20 million € *Operation (yearly costs)* The operation of the measure shall be provided by the Managing Authority. The estimated number of the necessary human resource is 3 full-time people until the execution of the projects (for 2,5 year) - ~150.000 €
Good practice example	Although during the previous financing period two similar funding schemes were successfully implemented in Hungary in the previous transport development OP, there is no discovered good practice from other member states.



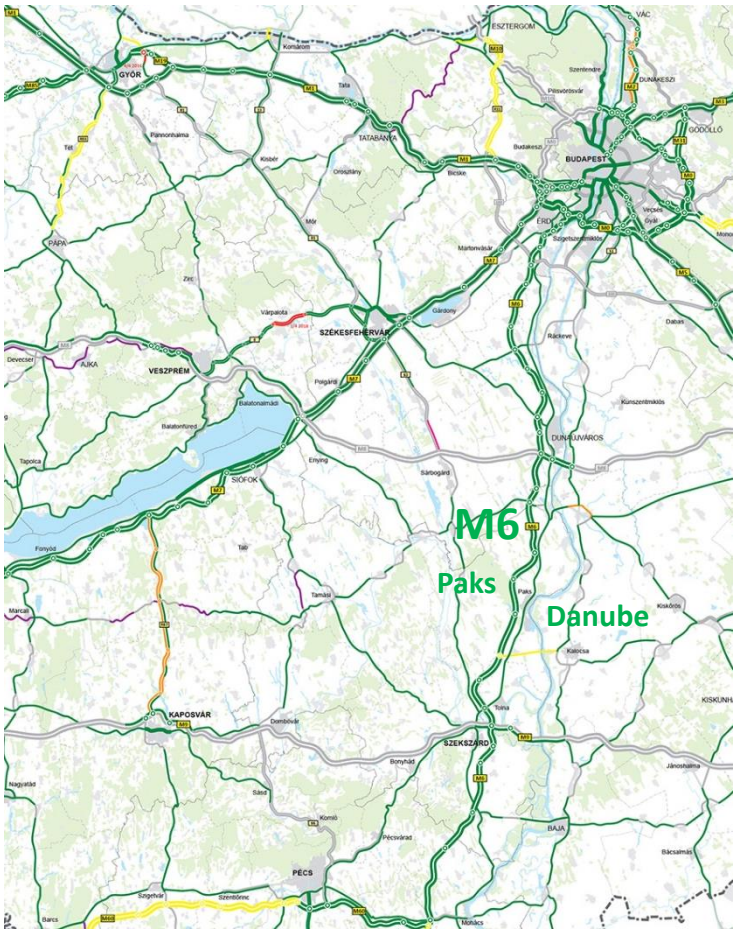
Hungarian ports along the Danube

The Budapest-Belgrade railroad to be reconstructed - own editing

Recommendation I154 **Reconstruction of the railway line between Budapest and Belgrade**	
Description	The railway line between Budapest and Belgrade is currently in a **very poor technical condition**. According to the official schedule, it takes more than **8 hours to make the 380 km** distance between the two cities, but in practice the real travel time takes even 3 hours more. Currently, 1.5 million people are using this line, but due to the lengths of the trip, most of the freight and passenger transport is switched onto road. The need for the reconstruction has been discussed since 1991. The late Yugoslavia closed the pre-contract on this issue with the European and American enterprises. Following the end of the Yugoslavian state, this contract was not valid anymore. The latest reconstruction plans are the results of the **16+1 cooperation agreement program between China and the Eastern Central European states**. With the realisation of the project, Chinese goods could be transported much faster to the Western European states. As the **implementation is founded by Chinese credit**, Belgrade is likely to become the first milestone of the new Silk way. The construction of the new railroad might result in a **stronger economic cooperation between the European Union and China**. The existing line connects Belgrade with Ópazova, Újvidék Verbász, Szabadka, Kelebia and Tompa. On the currently used tracks it is not possible to make these distances in an hour, but if the reconstruction takes place, all these cities **will be accessible within 60 minutes**. The renewal of the railway line between Belgrade and Ópazova has already begun, the implementation is financed by Russian credit.

	The reconstruction of the railway links aims to let the trains travel by **160km/hours**. To ensure this speed, railway tracks cannot have any ground level rise, which currently is a **result of the construction of dozens of tunnels and overpasses**. The expected travel speed also requires the installation of the European Train Access System and its electronic safety device. The renewal is expected to **reduce the travel time** between Budapest and Belgrade **to three and a half hours**. The project plan also contains the establishment of railway stations which are able to **operate with 750m long freight trains**. On the stations the platform heights will be 55 cm above the rail crown, which will ensure **unobstructed entry and boarding**. Both freight and passenger transport are investigated in feasibility studies. As the execution plan represents**, four railway tracks** will connect Budapest and Belgrade, to assure parallel operation of both passenger and freight transport. Until freight wagons are not able to reach the sufficient speed **to avoid congestion** between the passenger and cargo transport, the construction of four tracks is required. The aspiration to let both passenger and freight transportation work as fast as the technical conditions allow represents that the main objective of the project is to **shorten travel time**.
Beneficiaries	*Who is benefitting from this measure and why?* All the stakeholders within the Freeport of Budapest and Belgrade, due to the direct connection to the core network corridors such as the Mediterranean corridor. Operating companies in the districts around the port are also benefitting from the measure, thanks to the faster freight transportation between the two cities. *Objectives of the measure* The main objective of the measure is to strengthen the economic connection between China and the Central European states. By the realization of the project, bidirectional freight and passenger transport will be accelerated between the two cities.
Responsible institution	*Who is responsible for implementing the recommended action?* National Infrastructure Developer Plc. (NIF Zrt.) and the Hungarian Railways (MÁV Zrt.) are the main responsible organisations for the implementation, and the later operation. *Which other institutions should be involved?* As the construction takes place under the jurisdiction of the European Union, the Hungarian government shall be involved.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* The approval of the European Union is necessary for the implementation works, cost-benefit estimates shall be presented. *These are the stakeholders the responsible institution has to involve*

	Hungarian state, Hungarian railways and the concerned railway undertakings shall be involved. *This is what the responsible institution has to do first, second, third* • Consultation with railway undertakings and other stakeholders. • Market analysis, financial and economic cost-benefit analysis have to be prepared and discussed by all affected institutions. • Execution plans to be published. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Publication of operation plans the analysis on the expected economic impacts. *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* The responsible institution has to measure travel time, freight and passenger transport between Belgrade and Budapest. The reduce of travel time and the increase of freight and passenger transport indicates that the implementation was successful. These data shall be accessible from the Hungarian Railways.
Horizon for implementation	Related feasibility studies are not public, but the estimated time of the implementation is 3 years.
Budget	The estimated necessary budget is 4,5 billion €, which will be financed by Chinese credit.
Good practice example	Since there is no experience available for rail reconstruction with these conditions, good practices have not been identified.



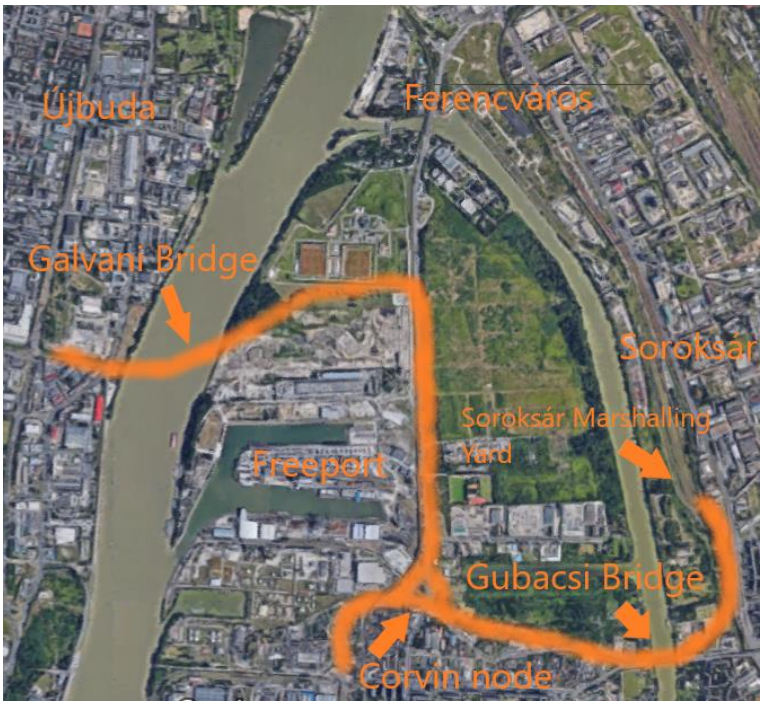
M6 highway, Danube and the city of Paks, own editing

Recommendation **Connecting road to TEN-T port in Paks** (New measure: Infrastructure/ Ensure the accessibility of the ports hinterland/ High-quality rail and road axes from the ports – road)	
Description	MVM Paks II Nuclear Power Plant (NPP) Development[1], a fully owned subsidiary of the Hungarian power company MVM, is expanding the Paks nuclear power plant, which is located 62 miles (100km) south of Budapest, Hungary. The Paks II expansion will comprise two units (5 and 6) of 1,200MW each (the existing four units are 500MW each). Construction of Units 5 and 6 starts in 2018 and 2019 but commissioning is expected in 2025 and 2026 only. Due to the forthcoming construction works, the shipping demand of the area is expected to grow dramatically. Given the fact that the plant is established along the Danube, waterborne transportation is a strategic means of transport. Especially for high and heavy goods,

[1] https://www.power-technology.com/projects/paks-ii-nuclear-power-plant/

	which are likely to be typical project cargo during the nuclear plant expansion. In order to provide adequate infrastructure for the intermodal transportation processes, the inland connection of the M6 motorway and the port of Paks is a key element of the transport system. The access infrastructure of the Paks port is also expected to be developed as well to ensure higher capacity within the port. During the construction works, high share of the shipping demand could be transported on the Danube. With the implementation of planned road development, new, missing network connections will be established, the quality of transport infrastructure will improve, the shipping time will be shortened, and harmful emissions can be reduced, improving the overall quality of life in the area. As a result of the development of economic relevance, new jobs can be created, which helps to preserve the local population, while improving the quality of transport infrastructure, due to which the economic importance of the region will be higher.
Beneficiaries	*Who is benefitting from this measure and why?* Inhabitants of the city of Paks and the surrounding region. Port operators in Paks and shipping companies using the ports. *Objectives of the measure* To build a new road between the M6 highway and the port of Paks. As a result of the development, a new high-quality road link would be established between the Danube and the M6 motorway, the availability of Paks harbour and the quality of life of the city will be significantly improved.
Responsible institution	*Who is responsible for implementing the recommended action?* Local government of Paks, National Infrastructure Developing Plc (NIF Zrt.), Hungarian Public Road Nonprofit Plc. (MK Nzrt.) *Which other institutions should be involved?* National Toll Payment Services Plc. and concerned public organizations
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* • To analyse the conditions of constructing the connecting road, consultations with the affected institutions, stakeholders and inhabitants, preparing financial and economic cost-benefit analysis. *These are the stakeholders the responsible institution has to involve*

	National Toll Payment Services Plc, operators of the concerned port(s) *This is what the responsible institution has to do first, second, third* • To elaborate a detailed implementation plan, feasibility study, needs assessment, financial and economic cost-benefit analysis. • Consultation with local inhabitants and companies operating in the area of the planned construction. • Gain national and/ or EU financial support for the implementation. • Public procurement for the construction works and implementation. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* • Standard testing and control processing before putting into service and operating licence. *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* • To monitor environmental impacts (e.g. noise and air pollution), traffic volume, the settlement structure impacts, built environmental impacts, social and economic impacts. • To develop the access infrastructure of the Paks port to ensure higher capacity within the port.
Horizon for implementation	The expected time horizon of the implementation is ~3 years including preparatory activities.
Budget	*Implementation (non-recurring costs)* • There is no detailed cost estimate for the construction. The estimated budget of the ~4km connecting road is ~5 million €. *Operation (yearly costs)* • In the future the government has to pay maintenance and repair costs, e.g. pothole repair, enclosure reinforcement, berm and ditch arranging, maintenance of signalling system. ~20.000 €/year
Good practice example	This measure is not adopted from other countries, there are naturally good practices available in Hungary for road constructions.



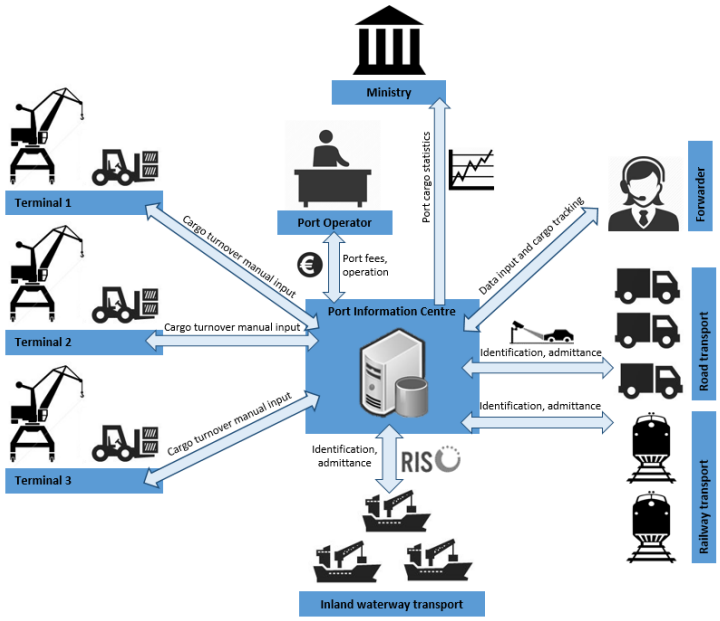
Csepel island and transport links

Recommendation **Bridge constructions between the inland Freeport of Budapest and the core network corridors** (New measure: Infrastructure/ Ensure the accessibility of the ports hinterland/ High-quality rail and road axes from the ports – rail)	
Description	Though **rail freight of the Freeport is constantly growing**, there are serious bottlenecks on Csepel island: 1. Gubacsi bridge Railway connection to the Freeport of Budapest is already existing via Gubacsi Bridge. Currently, freight trains can only enter the bridge with 5 km/h speed limit and 18 t axle load limitation for freight wagons, 20 t axle load limitation for the locomotives. The speed limit cannot be lowered, but considering the poor technical condition of the bridge, it is a risk that MÁV Ltd. will have to introduce further weight limitations, which will result in serious loss of water side freight volume and strengthen the bottleneck between the core railway network and the largest freight transportation port of Hungary. By reconstructing the Gubacsi bridge the Freeport of Budapest, the largest cargo port of the country, can remain operable, keeping this important regional economic potential operational. 2. Corvin node The insufficient condition of the port's railway connection has an impact on the operation of the road infrastructure network which also suffers from shortage in efficiency in the surroundings of the port area. Due to the heavy bidirectional traffic of freight transport both on the road and on railway, the so-called Corvin node situated between the port and the Gubacsi bridge with

	a rail-road intersection suffers from very low permeability on a daily basis, resulting in constant traffic jams in the urban traffic. This is a rising problem as the occupancy of the port is increasing. The newly established container terminal is predicted to significantly increase the traffic of the port. As the Freeport of Budapest is an identified TEN-T port on the Rhine-Danube transportation corridor, this growth could contribute to the European Strategy for the Danube River as its target is to increase the cargo transport on the Danube by 20% until 2020 compared to 2010. For developing the TEN-T port, the improvement of railway connection as well as the maintenance have equally high priority, which are the main objectives of this measure as well. 3. Galvani bridge The Freeport has direct connection with the motorways and the adjacent districts, but these are also limited. Currently there is only one road which applies direct access to the ringway around Budapest. The ringway has a high priority in roadway transportation, as the ring has the connection to all the motorways across the country. River Danube makes Budapest geographically a two-sided city. The eastern side, Pest, has a direct connection to Freeport via Kvassay Bridge, but from the western side, Buda, it is not possible to reach Freeport directly. The lack of a bridge (Galvani bridge) from Buda to Csepel island results in a bottleneck between the roadway transport of Buda and Pest. Due to the situation mentioned above, the Integrated Transport Development Program of Budapest supports the construction of Galvani Bridge and the General Assembly of Budapest has already accepted the plans of the new facility. With the realization of this project, as the western marshalling yard, Újbuda can also serve the two main freight transportation corridors, just as Ferencváros and Soroksár. After the construction Freeport will have two different but direct connection with the ringway around Budapest. **Scope of the measure:** in order to solve the complex bottleneck problem on Csepel island, as a first step, the reconstruction of **Gubacsi bridge** is to be implemented. Technical planning, feasibility study and alternative analysis are under preparation. Though, the financial sources for the construction works are not provided yet.
Beneficiaries	*Who is benefitting from this measure and why?* Any stakeholder of port operation is benefitting from the measure since the development of ports' infrastructure affects various level of port management: port owners, port managers, port operators, shipping companies and any other user of the concerned Danube ports. *Objectives of the measure* The main objective of the measure is to reduce the most significant bottleneck from the freight transportation routes crossing Budapest. By the realization of the measure, freight trains will be able to cross Gubacsi Bridge and Corvin node at a higher speed than 5km/hour, and the axle load

	limitation of the wagons will be also able to decrease. After the construction of the new bridge, Freeport will have two direct roads to connect it with the ringway of Budapest.
Responsible institution	*Who is responsible for implementing the recommended action?* The Ministry of National Development (NFM) and the National Infrastructure Developer Plc. (NIF Zrt.) are the main responsible bodies for the implementation. NIF has been accomplishing projects assigned by NFM since 2007. In the last 11 years, NIF has constructed hundreds of kilometres of roadways and railways. *Which other institutions should be involved?* In order to realize the project, the Municipality of Csepel district (where the construction takes place) must permit the execution plan. Though the place of the project is under the authority of the Municipality, the operator of the railway is the Hungarian Railways (MÁV Zrt.) and of the roadway is the Transport Centre of Budapest (BKK).
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* The measure shall be approved by the Municipality of Csepel district. *These are the stakeholders the responsible institution has to involve* Municipality of Csepel, Transportation Centre of Budapest and Hungarian Railways shall be involved. *This is what the responsible institution has to do first, second, third* • NIF shall initiate discussions with the Municipality of Csepel and with the ministry on the possible implementation alternatives and the expected impacts; • Complete feasibility studies in line with the agreement between stakeholders; • Detailed market analysis and transport forecasts, economic cost-benefit analysis; • Public procurement and construction works; • Monitoring transport statistics, including road and rail transport, with special focus on the intermodal transport volumes within the Freeport. *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Agree with the Municipality of Csepel on the execution plan alternatives. *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* The responsible institution has to measure the travel time between the marshalling yard and the entry point of Freeport.

	After the construction travel time shall be reduced. These data will be available at the Freeport.
Horizon for implementation	Since there is no execution plan accepted and the financial sources are not yet available, implementation time has not been identified. Nevertheless, construction works would require a minimum of 3 years.
Budget	The estimated budget of the Gubacsi bridge reconstruction is ~60 million €.
Good practice example	Since there is no experience available for reconstruction with these specific conditions, good practices have not been identified.



Planned functional structure of the pilot system, Source: http://www.rsoe.hu/tevekenysegek/kir_hu/

Recommendation C013 **Development of an Integrated Port Information System in Hungary (KIR)**	
Description	The competitiveness of Hungarian inland ports suffers from obsolete infrastructure and outdated technologies. The overall objective of the CEF Transport project is to develop an integrated inland port ICT application to streamline administrative formalities through better use of information, communication and positioning technologies. To deliver on the overall objective, the project will develop, test and validate an integrated inland port information. In addition, KIR project will analyse cross-border options and opportunities for interconnection.

	The main activities of KIR project: i) design of pilot system; ii) pilot system implementation and testing iii) exploitation of results. The central information system will capture all automatic and manual data inputs, including the planned and current entry into port of various water and inland transport vehicles (ship, lorry and rail) and freight traffic (loading and unloading). The central system aggregates and processes the data and serves users in the form of appropriate notifications and queries based on their eligibility levels. It informs the carriers about their exact point of loading within the port, helps the freight forwarder to keep track of the merchandise and provides general port statistics to the ministry. The pilot system will have the following functionalities: • Port and Cargo Operations Management; • Port Traffic and Berth Management; • Port Services and Dues Management and • Electronic Reporting and Statistics
Beneficiaries	*Who is benefitting from this measure and why?* The direct beneficiary of the project is the Ministry of National Development and the implementation body is the Hungarian National Association of Radio Distress-Signalling and Infocommunications (RSOE). Final users benefitting from the project are port owners, managers and operators, policy makers and any user publicly accessing port cargo figures: e.g. sailors, truck driver, external quality inspectors, ware owners, sellers and buyers too. *Objectives of the measure* KIR project will have positive impacts on the competitiveness of inland waterway transport, modal split, traffic management, service quality, safety and security.
Responsible institution	*Who is responsible for implementing the recommended action?* Hungarian Ministry of National Development (NFM) through the National Association of Radio Distress-Signalling and Infocommunications (RSOE) *Which other institutions should be involved?* All Danube ports along the Hungarian sector shall be involved in the development, including port owners, managers and operators.
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the responsible institution has to do as preparation* ACTIVITY 1: Project management and publicity measures • Project and financial management

- Project dissemination and synergy with other relevant projects and organizations
- Preparation and execution of public procurement procedure

These are the stakeholders the responsible institution has to involve

Stakeholders of Danube ports to get information on their needs and recommendations as regards the operation of the system

This is what the responsible institution has to do first, second, third

ACTIVITY 2 AND 3: Design of the pilot system (2018) and its implementation and testing (2019), introduction in 2020

- monitoring of the incoming/outgoing transport flows into/from the port;
- recording the volume of cargo loading and unloading;
- port traffic management;
- analysing user needs;
- modernization of the registration system of port terminals;
- installation of hardware components;
- software development and system integration;
- modernization of the port management supervision, and automatization of port charges and electronic invoicing;
- pilot tests, evaluation and validation
- providing electronic data to ministries, national statistics office and EUROSTAT;
- an enhanced security system
- monitoring the implementation of port rules and licenses

This is what the responsible institution has to do before the recommendation can be considered as successfully implemented

Introduce the statistic services in the first step in the Danube ports with 'national public ports' title.

This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?

As a result of the project, each Hungarian Danube ports shall be connected to the new system and continuously up-to-date data should be available publicly for any user.

ACTIVITY 4: Exploitation of results

Exploiting possibilities for cross border cooperation based on the project results

It is not decided on which level will the data supply be, or the government will expand the functions with additional inputs in the future or not.

Horizon for implementation	The project is planned between September 2017 - December 2020 to implement and establish the whole system. When the system will have been running successfully for years than it is expected to be merged with data from other countries to create a big database for the entire Danube Region. In the future it can be expanded with additional functions as well, e.g. calculating port fees.
Budget	*Implementation (non-recurring costs)* • The total implementation cost will be 997 500 EUR financed by the EU and the owner of the system will be the Hungarian government. The cost covers the creation of the system and the needed equipment as well: license plate recognition cameras, Wi-Fi and mobile applications. *Operation (yearly costs)* • There is no detailed estimate for the future operational costs since the system operator has not been selected. In addition, operational costs mostly depend on the final specifications. The government is expected to provide financial support for the future operation (80.000€/year). The usage of this system shall be free for all the parties concerned.
Good practice example	There are numerous good practices for such information system in other member states as well, for example in Italy, Spain, Germany (Diusburg, Hamburg), Netherlands (Rotterdam). RSOE works on building up the system based on its own experiences and ideas, but the association is in contact with the above-mentioned ports as well to gain information on the good practices and experiences.

Source: stockphoto.com

Recommendation T006 **Adaptation of a biomass power plant concept in Danube ports, based on the findings of project ENERGY BARGE within the Danube Transnational Programme**	
Description	Pre-feasibility study is being completed on the implementation and maintenance of a biomass-based power plant in the Freeport of Budapest to supply companies settled in the port with renewable heat and energy. The study is being completed in the framework of ENERGY BARGE, a project within the Danube Transnational Program. Main objectives of ENERGY BARGE are: • Establish and map the possibilities of energy biomass value chains along the River Danube, • Increase the share of IWT in the modal split, create biologistics hubs at Danube ports, • Discover new markets and launch joint services related to energy biomass supply. *Key factors for successful implementation* *'soft'* components – cooperation & legislation • Strong cooperation of Danube ports, R&D institutes and policy-makers (legislation) on local, national and international levels • State aid support for eco-friendly service as the concept of biomass transport on IWW • Involvement of raw material suppliers, biomass processers and manufacturers, service providers (heat and energy suppliers), and all the potential end-users (public and specific consumers e.g. port companies in case of installing a biomass power plant) • Measure local demand for heat and energy • Map the available raw materials in the region *'hard'* components – infrastructure & technology • Each forestry located along the river shall have free access to the nearest port equipped with necessary machineries, loading and unloading facilities for carrying wood biomass (logs etc.) • Danube ports specialized in agri-product handling shall have sufficient buffer storage capacities for residues, agri-by-products and other energy biomass raw materials (bulk cargo) • Switch from traditional gas-based infrastructure to biomass-based heat and energy supply • Examine the possibilities to connect to the grid • Storage capacities to be settled by the power plant, located on river side with multimodal connections • New technology requires adequate human capacities • Prices of raw materials and service provision (supply) must be below traditional gas'

Beneficiaries	*Who is benefitting from this measure and why?* • Forestries and sawmills, lumberyards, carpentries selling firewood, logs, or residues to their clients. • Less dependency on energy import on national level. • Danube logistics sector: growing share of IWT generating higher turnover for inland ports. *Objectives of the measure* • Modal shift from road transport to IWT • Higher level of B2B cooperation of Danube ports • Installation of loading facilities and water establishments at forestries by the Danube • Supply biomass-based heat and energy for companies settled in Danube ports for a competitive price below traditional gas' • Establish an energy biomass logistics hub in the Freeport of Budapest and building up a system that can be benchmarked as a good practice by other ports along the Danube
Responsible institution	*Who is responsible for implementing the recommended action?* • Freeport of Budapest Logistics, MAHART-Freeport Plc. *Which other institutions should be involved?* • Port operators, companies having offices and warehouses in the Freeport • Forestries • FŐTÁV Zrt. (Capital District Heating Co.) • Local Government of Budapest District XXI • HEA Hungarian Energy and Public Utility Regulatory Authority • Other Hungarian Danube ports specialized to grain, agri-products, by-products and/or wood biomass handling and storing
Steps	*What concrete steps will have to be taken in order to implement the whole recommendation?* *This is what the* responsible *institution has to do as preparation* MAHART-Freeport Plc. has to • Involve forestries and other Danube ports with a special focus on grain and wood handling and storing to establish an energy biomass supply chain; • Support forestries by the river to set up their own ports with necessary machineries and loading facilities; • Define the location of the power plant and its related storage facilities by the river; • Complete a business plan for calculating costs, benefits, profits; • Define the required scale and estimate performance of the power plant;

	• Set the organizational structure and decide on the investor and operator of the facilities (MAHART, FBL or a project company (internal or external)); • Organize logistics services and fluent supply. *These are the stakeholders the responsible institution has to involve* • Freeport of Budapest Logistics Ltd. • Port operator companies, logistics service providers • Forestries • FŐTÁV Zrt. – Capital District Heating Co. • Local Government of Budapest District XII • Freight forwarding companies specialized to wood and grain transport • Danube ports specialized to wood and grain handling and storage *This is what the responsible institution has to do first, second, third* 1. Invest into the preparation and construction works or involve an investor 2. Decide on the way of operation and desired organizational structure 3. Switch from the current traditional gas-based infrastructure in the port to biomass heat and energy supply 4. Share experiences with other Danube ports *This is what the responsible institution has to do before the recommendation can be considered as successfully implemented* Maintaining and operating the power plant and the related infrastructure, supplying companies settled in the port *This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?* Difference between biomass raw materials' prices vs. traditional gas' prices
Horizon for implementation	First milestone of the measure would be to implement and maintain a biomass-based heat and energy supply system for companies settled in the Freeport of Budapest exclusively. Second step would be to expand this service and supply other customers, the public, outside the port. As a further milestone, other biomass-based power plants could be installed along the Danube. First investment into biomass power plant established in the Freeport of Budapest could return in 8-10 years.
Budget	*Implementation (non-recurring costs)* Investment costs depend on the scale of the power plant. Prior calculations have been completed for plants with 15 and 12 and 6 MWe nominal power

	generation. Nominal investment cost in HUF / kWe is HUF 600,000 i.e. approx. EUR 2,000. *Operation (yearly costs)* Typical operation and maintenance staff at a plant varies from 3-5 people for a 1-5 MWe plant to 20-40 people in case of a 20-40 MWe plant. The size of the on-site O&M staff and organization depends on: • plant size • fuel type • plant design • degree of plant automation • need for 24/7 presence of staff vs. possible cooperation and involvement with other industrial operators • O&M strategy, responsibilities
Good practice example	There are numerous activities practiced in other ports related to energy biomass logistics, and there are biomass-based power plants across Hungary as well. Although, this measure is not an exact benchmark from a certain Danube port in the region having its own biomass power plant to supply its warehouses and offices.

4.6 Regional Action Plan (RAP) for Port of Vukovar Region

4.6.1 Definition of the Port Region

The port of Vukovar is located at 1335 km of downstream river Danube, on the right side of the river. The port extends eastwards to west, approximately 850 m long and 45 m wide. The favourable position of the port in relation to the river Danube allows normal operation throughout the year irrespective of the water level of the river so that at the lowest water level of the Danube port can normally work.

The traffic on the Danube with the Vukovar arch and the gravitational ports of Osijek and Slavonski Brod that are very well connected to existing roads and railway lines emphasizes its role in international transport and the exchange of goods and services. Luka-Vukovar d.o.o. is the largest licensed concessionaire in the port area of Vukovar, and is also the only one dealing with the transhipment of general and bulk cargoes. There are also river ports at the Danube in Ilok and Opatovac, and the planned piers at Sava near Račić, Gunja and Županja. Current economic indicators suggest that in the near future the traffic in the port will increase, although at this moment it is not yet at the level it was before the Homeland War in the absolute sense.

Today's capacities Luka Vukovar d.o.o., according to the estimates, is able to relocate approximately 1.5 million tons, depending on the type of cargo being transhipped.

The gravitational markets are Croatia and Bosnia and Herzegovina in the import of that state downstream from Vukovar in export.

Map 1: Territorial coverage of port of Vukovar

4.6.2 Description of specific target groups

The Regional Action Plan Lower Austria/Vienna addresses the following institutions responsible for implementing the recommended action:

- Ministry of Sea, Transport and Infrastructure
- Port Authority Vukovar and other Port Authorities
- Railway infrastructure owner (HŽ Infrastruktura)
- Road infrastructure owners

The main beneficiaries of the measures described in the RAP are:

- Port users, international partners
- Vukovar Port Authority and other Port Authorities
- Entire transport system, all transport stakeholders and operators
- Agency for Inland Waterways

4.6.3 Overview of recommended measures

Detailed analysis of all current strategic documents of the transport system and the internal navigation system of the Republic of Croatia identified all the measures that are in correlation with the project. Some of these measures have already been implemented or in implementation. The remaining measures whose implementation has not been initiated have been analysed from the aspect of usability, relevance and maturity for implementation in the forthcoming period. It has therefore been identified and proposed for further elaboration through the Regional Action Plan 8 measures. These are:

1. Increasing interoperability with neighbouring countries
2. Preparation of projects and planning documents in inland navigation
3. Development of the port of Vukovar (TEN-T core network)

4. Encourage companies to transport on inland waterways
5. Increasing administrative capacity
6. Introduction of systematic identification of traffic bottlenecks (infrastructure, administration, operational, legal issues, etc.)
7. Long-term agreements between port operators and port users

Part of the measures are in dependence. For example, the Project Preparation and Planning Document for Inland Navigation is a basic strategic document that determines future investment and the direction of the development of the inland navigation system and without that document there is no basis for seeking EU funds. Furthermore, the development of the port of Vukovar is an infrastructural part of the overall system development, the complementary part of which is certainly the measure "Incentives for inland waterway transport companies", "Increasing administrative capacity", "Long-term agreements between port operators and port users" and "Introduction of systematic identification of traffic bottlenecks".
Measure "Development of the Vukovar Port (TEN-T Core Network)" and is infrastructural measure and is prerequisites for development. It solves problems of capacity and efficiency of port infrastructure. Together with the measure "Increasing Interoperability with Neighbouring Countries" related to connecting land transport modes (roads and railways), the lack of efficiency of the entire transport route through the port of Vukovar is solved. This is why basic prerequisites for traffic development are met.
Other soft measures will each contribute to the full utilization of these capacities in their domain, to motivate users to transport inland waterways and multimodality and, consequently, generate new amounts of cargo through our traffic directions.

4.6.4 Description of recommended measures

Recommendation I13 **Increasing interoperability with neighboring countries**	
Description	The measure is intended for the functional connection of all traffic branches in the main corridors. Since most commodities in the Republic of Croatia are only in transit, for development of transport routes through our ports, the main segment and links with transport infrastructure are also key to neighbouring countries. In this respect, this measure provides for the construction or reconstruction of railway and road infrastructure on main traffic routes connected with neighbouring countries.
Beneficiaries	Port users, international partners
Responsible institution	Ministry of Sea, Transport and Infrastructure, Port Authorities, Railway infrastructure owner (HŽ Infrastruktura), Road infrastructure owners
Steps	All responsible institutions should initiate following actions in order to identify priority investments in neighbouring countries and to conclude common agreement on future investments: • Bilateral agreements • Conferences • Common working groups • Creation of common strategic documents • Mutual exchange of examples of best practice

	Once the priorities on future investments are agreed with neighbouring countries, Croatian government and responsible institutions have to set up investment plan and proceed with implementation. Transnational corridors Vc and X are of utmost importance for port of Vukovar and Port Authority has the responsibility to initiate actions on those corridors.
Horizon for implementation	continuously
Budget	It is not possible to approximate the investments. Potential funds: Interreg and national funds for meetings, agreements, conferences, common strategies, etc. and CEF for investments
Good practice example	Investment in reconstruction and upgrading of railway line on TEN-T corridor Vb (Križevci-Koprivnica-Hungarian border)

Recommendation I110 **Preparation of projects and planning documents in inland navigation**	
Description	At the moment, Croatia is missing national strategic document for investments in Croatian inland waterway system. The old strategy is outdated. Thus, a new strategic document is of utmost importance as it is a precondition for all future investments.
Beneficiaries	Port Autorities, Port users
Responsible institution	Ministry of Sea, Transport and Infrastructure
Steps	Ministry of Sea, Transport and Infrastructure should prepare and publish tender for external developers of the strategic documents. National IWT strategy and accompanied ports masterplans should be a subject of a tender. Once the strategy and master plans start developing, Port Authorities should be active source of information and constructive comments.
Horizon for implementation	1 year for developed strategic documents
Budget	1,6 million euros from OP KK
Good practice example	National plan for maritime ports development

Recommendation I258 **Development of the port of Vukovar (TEN-T basic network)**	
Description	The development of the port of Vukovar is limited by the current capacities and the state of the infrastructure. For further development and growth of competitiveness, infrastructure investment and port modernization is essential. The construction of the port is in the process of building new port on the East. The precondition for construction is development of a national strategic document for development of the inland navigation system and the development of the master plan for development of the port of Vukovar. The

	production of both documents is recognized by this Regional Action Plan.
Beneficiaries	Entire transport system, all transport stakeholders
Responsible institution	Ministry of Sea, Transport and Infrastructure, Port Authority Vukovar
Steps	The Ministry of Sea, Transport and Development must make a National Strategic Document and Master Plan of the Port of Vukovar. Harbor Administration is a key partner in document creation. These documents will define the scope of future investments and then you can prepare a project documentation (Feasibility Study, Natura 2000, blueprints, etc.) By securing the funds for construction, a project for which Vukovar Port Authority is in charge will be started.
Horizon for implementation	Due to the fact that strategic document is missing, estimation is not possible
Budget	Due to the fact that strategic document is missing, estimation is not possible
Good practice example	Construction and modernisation of Port of Osijek from CEF

Recommendation L43 **Encouraging companies in inland waterway transport**	
Description	IW companies have difficulties at market due to old vessels and navigable equipment. They need support in order to upgrade to new eco standards and get better market share. In other hand, IW freight forwarders need new knowledge in market acquisition in order to increase their competitiveness.
Beneficiaries	Transport operators
Responsible institution	Ministry of Sea, Transport and Infrastructure
Steps	The Ministry of Sea, Transport and Infrastructure should conduct a survey of the needs of stakeholders involved in inland waterway transport and explore the possibilities of support so as not to negatively affect the competitiveness of stakeholders. Following the identification, a joint action plan should be drawn up, which will define the multi-annual incentive measures and the ability to conclude binding agreements.
Horizon for implementation	2 years
Budget	Estimation is not possible without identification of needs. Potential financial sources are national budget and various Interregs
Good practice example	

Recommendation L35 **Increase administrative capacity / training**

Description	It is necessary to invest continuously in the education and training of the administrative staff of the Ministry of Transport and Infrastructure, the Port Authority of Vukovar and the Waterways Agency. Education needs to be carried out in all spheres of activity from economic affairs, concession, legal affairs, marketing, systems management etc.
Beneficiaries	Ministry of Sea, Transport and Infrastructure, Vukovar Port Authority, Agency for Inland Waterways
Responsible institution	Ministry of Sea, Transport and Infrastructure, Port Authority Vukovar
Steps	It is necessary to make continuous analysis of staff needs to acquire the competence needed to improve the traffic system and to be a generator of development. Self-evaluation system is ideal for preparing needs. All participants must have a clear program of needs, education and employee training.
Horizon for implementation	Continuously
Budget	100.000 euros annually (national budget, own budget, Interreg)
Good practice example	

Recommendation C56 **The introduction of systematic identification of traffic bottlenecks (infrastructure, administration, operational and legal issues, etc.) by the transport operator**	
Description	In 1999, the European Commission has launched an exercise to identify and alleviate obstacles hindering the smooth running of the freight transport chain in Europe concentrating mostly to Short Sea Shipping. In the framework of this so-called "bottleneck exercise", stakeholders and interested parties are invited to submit details of bottlenecks they have encountered. A bottleneck is any obstacle to freight and passenger transport logistics services, whether administrative, operational, legislative, local, national, Europe-wide or similar. Participants to the bottleneck exercise are also asked to identify effective solutions to these problems. Project "Bottleneck exercise" is executed individually at a national level by a responsible SPC in its own country and coordinated EU-wide within European Shortsea Network. This is great tool that should be implemented in IWT.
Beneficiaries	Entire transport sector
Responsible institution	Ministry of Sea, Transport and Infrastructure, Port Authority Vukovar
Steps	The port authority must set up a working group for the implementation of the project for identifying the bottlenecks for the supports of the Ministry of Sea. The working group consists of representatives of responsible institutions for the functioning of the traffic direction (customs, Police, PA, Ministry, railway infrastructure, port operators, inspections, captaincies, etc.). It is necessary to initiate

	simple collection of bottlenecks in the functioning of traffic among all participants in the transport system using the existing methodology. The working group has to meet periodically to develop solutions for identified bottlenecks. In order to address part of the bottlenecks related to cross-border traffic, it is necessary to initiate the establishment of the same working group in cross-border countries and to organize joint activities and solutions.
Horizon for implementation	1 year
Budget	Less than 10.000 euro annually from own budget
Good practice example	European Shortsea Network and project "Bottleneck exercise"

Recommendation C57 **Long-term agreements between port operators and port users**	
Description	Long term agreements are generators of long-term visions and great basis for planning of investments. One of the actions should be regular coordination meetings in order to exchange state of the market and plans of all stakeholders.
Beneficiaries	Port operators, port users
Responsible institution	Port Authority Vukovar
Steps	Port Authority should coordinate following activities: • Investigating the subject of an agreement • Elaboration of rights and obligations • Preparing the legal framework • Holding regular meetings • Initiating and holding expert meetings with the aim of updating the market situation and the necessary measures • Signature of the agreement
Horizon for implementation	1 year
Budget	Estimation is not possible (own budget, Interreg)
Good practice example	

4.7 Regional Action Plan (RAP) for Port of Novi Sad Region

4.7.1 Definition of the Port Region

The Port of Novi Sad is situated at 45o20'N and 19o51'E, in the central part of the Autonomous Province of Vojvodina in northern Serbia. The port is located at km 1254 at the left bank of the Danube, in the Novi Sad-Savino Selo canal (part of the Danube-Tisa-Danube (DTD) Canal network) at its km 0.4-1.2. The Port of Novi Sad covers an area of 24ha, and it's situated at the TEN-T Rhine-Danube Corridor (former Pan-European Corridor VII), as well as at former Pan-European Corridor X, which is projected to be a part of the TEN-T Orient/East-Med Corridor (Figure 1).

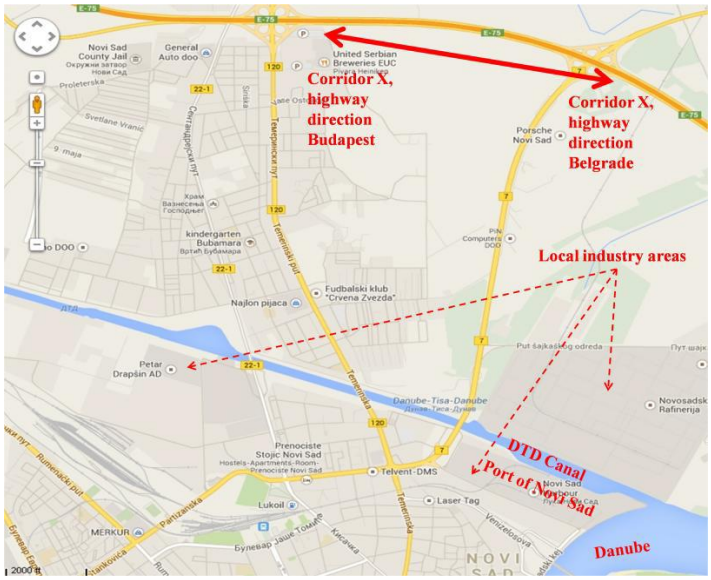


Figure 1. Position of the Port of Novi Sad

The Port of Novi Sad is located in the Novi Sad city which belongs to a group of Danube cities. The Novi Sad city, thanks to its geographical position in Province of Vojvodina and good traffic connections, represents the economic and business center of Vojvodina. The Port of Novi Sad serves a region with a diameter of 60km in which live approximately 600.000 inhabitants. Although the port handles several dominant types of goods, where each of them has specific origin and destination of their flows which implies that the size and shape of hinterland is different in relation to the type of transported goods, however it could be said that the basic hinterland of the Port of Novi Sad is South Bačka district (region within 60km), while the competition margin cover almost the whole range of Vojvodina (Figure 2). The Port of Novi Sad is mainly port for bulk cargo where the main exporting goods are cereals (mostly transported to Constanta and to a lesser extent to Germany) and scrap iron transported to Constanta. Transport activity in the port hinterland are realized mostly by road transport. The imported goods are coal and coke (import from Russia), fertilizers (import from Russia, Romania and Austria) and road salt (import from Egypt).

The Port of Novi Sad is situated in the Autonomous Province of Vojvodina which is agricultural region of Serbia and dominantly handles bulk agricultural products. Analysis point out that this type of cargo flows will continue to dominate in the future and that the flows should increase. Beside those bulk goods, the main export freight flows in the region of Vojvodina are chemical products, food and beverage, rubber and plastic products, electrical mashines and apparatus, etc.

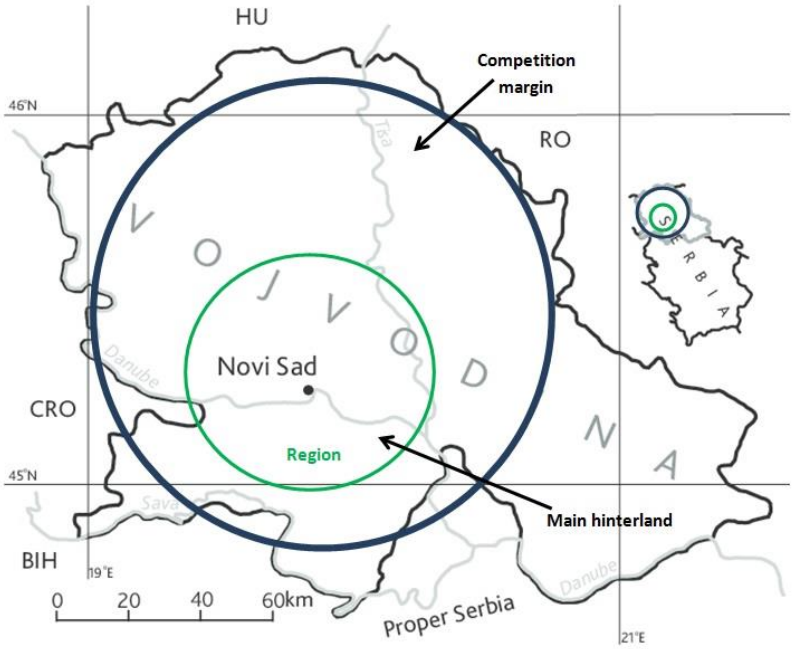


Figure 2. Hinterland of the Port of Novi Sad

4.7.2 Description of specific target groups

The Regional Action Plan Lower Austria/Vienna addresses the following institutions responsible for implementing the recommended action:

- Port of Novi Sad
- Ministry of Construction, Transport and Infrastructure
- other ports in DBS region
- Port Governance Agency
- Province of Vojvodina
- Chamber of Commerce and Industry of Serbia

In order to achieve the best outcome and ownership of the implemented measures the following additional institutions will be involved in the process:

- Municipality of Novi Sad,
- the Province of Vojvodina
- Ministry of Construction, Transport and Infrastructure
- national and regional governments

The main beneficiaries of the measures described in the RAP are:

- logistic service providers
- companies in port's hinterland
- other customers of the port
- Port of Novi Sad
- port region

- all involved parties in container transport chains, such as shipping lines, sea and inland ports, container leasing companies, shippers, and inland carriers.
- smaller producers
- IWT stakeholders in Serbia and the region
- ports in DBS region
- Port Governance Agency in Serbia
- investors, etc.
- local communities
- national and regional governments
- researchers
- stakeholders from the entire DBS region etc.

4.7.3 Overview of recommended measures

Generally, all proposed measures are realistic and most of them do not require high financial investments. All of measures have long or medium implementation time frame. When measures were chosen, a balance between different fields of intervention was taken into consideration, so there are two measures from the field "Infrastructure", two measures from the field "Service", and one measure from the following fields: "Legal framework", "Technology", "Danube-affine business development", and "Organization and cooperation". All proposed measures are oriented towards increasing port service capability and attracting new cargo flows to the Port of Novi Sad.

The five of the eight proposed measures already exist in some form in some of the strategic documents on the local, regional or national level (measures I252, S10, I251, L58, and B15). However, these measures weren't specified in full manner in given strategies (they were described too general and imprecise), therefore here are they specified in a more detailed way. Also, all already existing measures require priority status in the process of their implementation. The rest of the measures are newly proposed (measures S11, T23, and C36).

Measures I251 and I252 will provide an adequate terminal infrastructure (modernizing handling equipment and storage facilities) within the Port of Novi Sad towards its transformation into a functional logistics and intermodal hub. Measures S10 and S11 are oriented towards widening the ports functionalities by adding new services to the ports portfolio. The measures I251, I252, S10, and S11 all together are completely interconnected, mutually dependent and complementary between each other, oriented towards further affirmation of agro production industry and development of stronger connection between the port and SME from the agricultural production. They work together in strengthening both the Port of Novi Sad and its hinterland. After their implementation logistic operations in agricultural production could become significantly more efficient.

With implementation of the measure I252, agricultural producers in the hinterland of the Port of Novi Sad would get a modern facility for storing and keeping their products, which could be the driver of further improvement of agricultural production in the whole region as well as increasing the efficiency of export activities. Measure S10 could contribute to a stronger connection of the Port of Novi Sad with stakeholders in maritime container chains, on the one hand, as well as with business subjects in the port's hinterland, on

the other. Also, this measure would encourage the development of liner container transport on the Danube (regards the repositioning of empty containers), which would impact the resolution of the global container repositioning problem, while simultaneously promoting the container transport in the region. The measure „development of handling capacities for containerization of bulk goods“ is a logical continuation and expansion of measures I252 and S10, because the proposed silo can be equipped with appropriate handling equipment for filling bulk goods into containers. Therefore, the concentration of empty containers in the Port of Novi Sad can accelerate their use for loading of bulk goods and transport in the direction of their repositioning route (containers would return loaded to the direction of import markets).

Measures L58 will provide incentives for eco-friendly behaviour through ensuring competitive prices for shipping in order to make IWWT more competitive. This measure is oriented toward strengthening the Danube as the backbone of the DBS region. Measure T23 will ensure uptake of innovation in IWT and ports in the DBS region. By introducing the proposed software solution, better control, planning and management of resources in logistic processes will be enabled in the whole DBS region. Measure B15 will support companies during business settlement process and provide special services to support companies using IWT.

Measure C36 considers stronger connections of the port with companies located in its hinterland. The measure was chosen because currently there is no communication of this type in Serbia. Ports as the local logistic hubs should be involved in transport and logistics development strategies at the state level, and should also be included in the development plans of other stakeholders in the logistic industry and market, since only full integration can create benefits for all stakeholders in a supply chain. That integration primarily means strengthening cooperation between transport chain stakeholders in identification of different transport and logistics problems.

4.7.4 Description of recommended measures

Recommendation I252 **Construction of storage - increase of the temporary storage capacity for bulk cargos**	
Description	In order to meet the growing demand for handling of bulk agricultural products as well as for attracting new customers, the port of Novi Sad needs to increase its temporary storage capacities for bulk cargoes. Construction of such facilities will reduce the number of actors in the grain transportation chains which could lead to reduction of the costs. Also, it would allow the direct export of the grain to foreign markets, which is very important for raising the competitiveness of the small and medium agricultural producers in the region of Vojvodina.
Beneficiaries	The proposed measure is directly related to the idea of transforming the Port of Novi Sad into a functional multimodal logistic center that should provide benefits for all logistic service providers as well as for the all customers of the port. Also, the proposed measure is oriented towards strengthening the port region through improving connections between the port and small and medium agricultural producers in its hinterland.
Responsible institution	The Port of Novi Sad should be responsible for implementation of the recommended action, whereas the Municipality of Novi Sad, the

	Province of Vojvodina and the Ministry of Construction, Transport and Infrastructure should provide technical and financial support.
Steps	A preliminary analysis shows that a storage of a 20.000 t capacity is needed. In order to asses and evaluate the real needs and to prove and validate the measure, a feasibility study should be performed including technical, financial, operational and environmental aspects. After the feasibility study and before to the construction of the storage, a business plan and an implementation plan should be developed.
Horizon for implementation	Long term
Budget	Estimated necessary budget: • Implementation (non-recurring costs)-these cost depend of the storage type (warehouse or silo), but preliminary assessment goes to 2.000.000 €. • Operation (yearly costs) - about 750.000 €.
Good practice example	The similar measure is proposed by Bulgaria (I258 and I278).

Recommendation S10 Transformation of the ports in Vojvodina to logistic centres – development of a container terminal at the Port of Novi Sad	
Description	Problem of empty container repositioning is one of the most challenging in global container shipping. One of the repositioning strategies assumes existence of inland container depots where empty containers are stored, maintained, and cleaned. Currently, in Serbia there is no functional container depot. Development of one in the Port of Novi Sad (development of inland container depot - ICD) would require equipment for handling and temporary storage of empty containers and an ICD status given by the ocean carrier. The ICD should be an initial step in the container terminal development. The second steps should be increase of depo capacity and purchase of additional handling equipment to reach the requirements of a modern container terminal. Construction of such a terminal would represent a precondition for the following measures I251 and S11.
Beneficiaries	Initially, this would be a new logistic service that would improve service for the customers of the Port of Novi Sad allowing them to pick up or return empty containers inland. This would also enable customers to obtain empty containers to load at their inland location on short notice. After the entire container terminal is constructed, beneficiaries would be all involved parties in container transport chains, such as shipping lines, sea and inland ports, container leasing companies, shippers, and inland carriers.
Responsible institution	The Port of Novi Sad should be responsible for implementation of the recommended action, whereas the Municipality of Novi Sad, the Province of Vojvodina and the Ministry of Construction, Transport and Infrastructure should provide technical and financial support.

Steps	The ICD status of a river port has to be market driven based on the container flows volume that is generated in the port hinterland. Hence, the needed actions should be: • Container flows analysis (full and empty containers) • Conceptual design regards depot size and participation of companies interested in this service (exploring possibilities of repositioning empty containers by IWT) • Coordination with development of similar ICD in the DBS region • The Master plan and Feasibility study (technical, financial, operational, environmental) • Preliminary and detailed design study (project) • Construction
Horizon for implementation	Long term
Budget	Estimated necessary budget: • Implementation (non-recurring costs) – depends of depot and container terminal size. Preliminary estimated costs for the ICD are up to 850.000 € and for the entire container terminal are up to 4.000.000 €. • Operation (yearly costs) – depends of container traffic volume. Preliminary estimated costs for empty containers handling are 15 €/TEU and for the full containers 30 €/TEU.
Good practice example	The similar measure is proposed by Austria (I226); Slovakia (I231); and Bulgaria (I261, I272).

Recommendation I251 **Procurement of new transhipment equipment –development of handling capacities for containerization of bulk freight**	
Description	The containerization of bulk commodities has been a growing trend in shipping markets. The use of containers for the carriage of bulk freight could be effective and popular method of exporting grain products in the region, which will attract a number of small and medium size exporters to use IWT. To facilitate such kind of supply chain, appropriate equipment, and appropriately trained staff should be ensured. Development of handling facilities for bulk freight containerization is connected with improving the overall port services portfolio, especially with development of container traffic.
Beneficiaries	Usage of containers for bulk freight would enable smaller producers that usually cannot fulfill the vessels with their exporting capacities to use IWT and to get competitive prices of IWT through consolidation of their cargo with other cargo types in the same vessel. The proposed measure fruitfully joins both efforts oriented toward transformation of the port into a logistic center and efforts oriented toward development of the Danube as the backbone for IWW connection between Black Sea ports and Central Europe through possibilities of establishment of regular container service.

Responsible institution	The Port of Novi Sad should be responsible for implementation of the recommended action, whereas the Municipality of Novi Sad, the Province of Vojvodina and the Ministry of Construction, Transport and Infrastructure should provide technical and financial support.
Steps	The physical network for grain container shipping consists of moving grain from production site to silo facilities, and filling containers (including weighing, inspection, certification, etc.); and finally load onto a track, train or vessels. To form such a system, the needed actions are: • Feasibility study (technical, financial, operational, environmental) • Preliminary and detailed design study (project) • Construction
Horizon for implementation	Medium term
Budget	Estimated necessary budget: • Implementation (non-recurring costs) – Preliminary estimated costs are 300.000 €. • Operation (yearly costs) – Preliminary estimated costs are 40 €/TEU.
Good practice example	The similar measure is proposed by Austria (S020).

Recommendation S11 **Development and installation of facilities for frigo containers and storage for agro products in the Port of Novi Sad**	
Description	In 2016 Serbia exported 670,000 tons of fresh and frozen fruits. Export of these fruits and vegetables was dominantly from the hinterland of the Port of Novi Sad to Russia by road transport. Development of facilities for frigo containers in the Port of Novi Sad could enable attracting part of these cargo flows from road to water transport. Equipping the Port of Novi Sad for operating with frigo containers is one of the activities within group of measures aimed to transform the port into logistic center.
Beneficiaries	By implementing this measure, the Port of Novi Sad could offer services for cold supply chains of agricultural and food products from Serbia. This measure is complementary with the measures I251, I252, S10 because all of them are oriented towards strengthening the port regions through improving connections between the port and small and medium agricultural and food producers in its hinterland, which are the main beneficiaries.
Responsible institution	The Port of Novi Sad should be responsible for implementation of the recommended action, whereas the Municipality of Novi Sad, the Province of Vojvodina and the Ministry of Construction, Transport and Infrastructure should provide technical and financial support.
Steps	The concrete steps are: • Feasibility study (technical, financial, operational, environmental)

	• Preliminary and detailed design study (project) • Construction
Horizon for implementation	Long term
Budget	Estimated necessary budget: • Implementation (non-recurring costs) – Preliminary estimated costs, based on the assumption that a container terminal will be constructed and that storage for frigo will be only a part of it, are 100.000 €. • Operation (yearly costs) - Preliminary estimated costs are 55 €/TEU.
Good practice example	The similar measure is proposed by Austria (I223).

Recommendation L58 **Taxing external costs – introduction of incentives for development of IWT**	
Description	The water transport represents the most environmentally friendly mode of transport. However, regulations in Serbia do not give sufficient importance to this fact and provide rather declarative but not real commitment to the environmental norms set by the EU. Therefore all fiscal payments to the state of all modes of transport: water, rail and road, must take into account environmental criteria and, in accordance with general tendencies in the EU, create a space for market competition in which water transport show its importance and benefits.
Beneficiaries	The main and direct beneficiaries are all IWT stakeholders in Serbia and the region. Indirect beneficiaries are companies, users of IWT.
Responsible institution	The Ministry of Construction, Transport and Infrastructure should be responsible for implementation of the recommended action.
Steps	• Analysis of existing national regulations and comparisons with EU standards in the field of transport in general, and in particularly in the context of the development of IWW and intermodal transport. Interested parties in the countries are the ministries of transport, economy and finance. • Based on the analysis, The Ministry of Construction, Transport and Infrastructure must develop a proposal of new regulations that are in compliance with the EU ones. • The proposed regulations should be corrected and verified through a public debate involving all interested stakeholders. • The results of the public debate should be formulated and shaped by the Ministry of Construction, Transport and Infrastructure in the new regulation through which will be defined the amount of ecological taxes that will give priority to more sustainable transport modes. • Legal control over the application of ecological tax.
Horizon for implementation	Long term
Budget	Estimated necessary budget:

	• Implementation – No special costs are required except administrative and promotional ones, which are difficult to estimate, approximately 20.000 EUR. • Operation (yearly costs) – No
Good practice example	The similar measure is proposed by Croatia (L051 and L056).

Recommendation T23 **Development and implementation of RIS TLS software for transport planning – IT networking of the Danube ports**	
Description	Networking of the ports in Serbia and in the DBS region, as well as networking of the ports with other participants in supply chains requires that all information flows (from inquiries, contacts, agreements, bids, bidding, billing, ...) between all subjects in a supply chain are performed via sophisticated and synchronized IT systems and cloud solutions. Such an IT solution, including River Information Services (RIS) and offering additional TLS (Transport Logistic Services) was developed and tested within the DaHar project.
Beneficiaries	Testing of this IT tool proved significant advantages that implementation of such a system would bring to the ports in DBS region and to the further development of the IWT. Additionally, application of such system would increase cooperation among the participants in supply chains and would increase reliability of the service creating benefits for all participants including also the users of the IWT.
Responsible institution	The Port of Novi Sad with other ports in DBS region should be responsible for implementing the recommended action, while national and regional governments should provide technical, administrational and financial support.
Steps	The following steps should be performed to ensure the full regional IT networking through the RIS TLS platform: • Upgrade of the RIS TLS platform that was developed in the DaHar project, to ensure that it can accommodate estimated number of users. • Ensure connection of the platform to the RIS system through the national RIS system managing authorities in the whole DBS region. • Ensure connection of the platform to the administrative bodies, such as border crossings, police, customs, etc. in in the whole DBS region. • Creating the standard for the RIS TLS platform users regarding the hardware and software requirements. • Creating the legal regulation defining rights and obligations of the users. • Promotion of the platform to attract as many users as possible, as well as training for the use of the platform for all potentially interested parties. The targeted users are: ports, port operators, logistic service providers, companies using IWT, etc.

	• Ensuring quality and reliable connection of all users to the platform.
Horizon for implementation	Medium term
Budget	Estimated necessary budget: • Implementation (non-recurring costs) include networking and installation costs as well as the costs of synchronization of their existing IT system with the RIS TLS platform and should be approximately 20-30.000 EUR per port and up to 10.000 EUR per user. • Operation (yearly costs) include system technical support and maintenance as well as system update and should be around 10.000 EUR per port and up to 5.000 EUR per user.
Good practice example	The similar measure is proposed by Austria (C030 and C042) and Bulgaria (C022).

Recommendation B15 **Establishment of the One-stop-shop for investors – setting up Technical and Business Development Center**	
Description	Serbia is approaching to the EU and through this process new investment funds will become available. Full use of these funding sources for development of ports, business parks in their hinterland, and IWT, requires preparation related to the strategic planning and technical documentation for the development of logistic infrastructure and services, as well as support to business settlement process for Danube-affine companies. Analysis point out that there is a significant lack of know-how resources oriented to preparing of technical documentation that is needed for application for support at EU funds, as well as for support of ports in implementation of their development projects.
Beneficiaries	The main objective of this measure is establishment of a Technical and Business Development Center (TBDC), potentially positioned within the Port Governance Agency, which would have an extensive know how and enable on time preparation activities for further implementation of IWT development projects. The main (direct) beneficiaries are ports, Port Governance Agency in Serbia, investors, etc. Indirect beneficiaries are local communities, national and regional governments, researchers, stakeholders from the entire DBS region etc.
Responsible institution	The Port Governance Agency and the Ministry of Construction, Transport and Infrastructure should be responsible for implementing the recommended action.
Steps	The concrete steps are: • The establishment of such a center should be presumed in the strategic documents of the Ministry of Construction, Transport and Infrastructure. • Formal establishment of TBDC.

	• Providing financial, technical and human resources for sustainable functioning; marketing actions. • Defining the particular business goals and tasks for TBDC • Proposing a list of priority projects and potential funding sources. • Ensure sustainability of TBDS through organizing meetings and consultations with ministries, ports, business chambers, logistics companies and all other interested stakeholders.
Horizon for implementation	Medium term
Budget	Estimated necessary budget: • Implementation (non-recurring costs) - 250.000 € • Operation (yearly costs) – 300.000 €
Good practice example	The similar measure is proposed by Austria (B018 and T026); Bulgaria (C052 and C054); and Croatia (I108).

Recommendation C36 **Development of stronger relationship between the Port of Novi Sad and logistic companies in their hinterland**	
Description	In order to become modern logistic and intermodal node and local freight hub in the DBS gateway region, the Port of Novi Sad needs to establish stronger relationship with all relevant stakeholders in their hinterland. That relationship could range from simple sharing information between port and hinterland connection providers, through consultations and setting up cooperation platforms with all relevant logistics stakeholders in the region to the long term cooperation with biggest logistics service providers and business companies in creation logistic zones in their hinterland.
Beneficiaries	Development of logistic zones in Province of Vojvodina or Serbia shouldn't be discussed without Port authorities due to requirement of full transport chain integration from the Black Sea ports as the main entrance nodes in the DBS gateway region to the shippers and customers in the Danube ports hinterlands. This measure could be of particular importance for the Port of Novi Sad and all logistic companies in port's hinterland respecting the fact that full integration of the transport chain could create opportunities for all involved actors.
Responsible institution	The Province of Vojvodina and Chamber of Commerce and Industry of Serbia should be responsible for implementing the recommended action, whereas the Port of Novi Sad and the Ministry of Construction, Transport and Infrastructure should be involved.
Steps	Concrete steps are: • Ensure political commitment to secure sustainability and, strategic dimension and potentially legal framework • Selection a strong lead stakeholder (Chamber of Commerce and Industry?)

	• Set clear scope of the whole action as well as positioning it in the context of strategic regional logistic concept • Development of proper cooperation platform to facilitate various ways of sharing information, strategies, plans and to increase interaction between stakeholders • Keeping involved stakeholders engaged through sustainable and more formal relationships
Horizon for implementation	Medium term
Budget	Estimated necessary budget: • Implementation – No special costs are required but organizational and administrative, which are difficult to estimate, approximately 20.000 EUR per port • Operation (yearly costs) – approximately 5.000 EUR per port
Good practice example	The similar measure is proposed by Austria (C051), Hungary (C033); and Croatia (C059).

4.8 Regional Action Plan (RAP) for Bulgarian Inland Waterway Ports Region

4.8.1 Description of the Port Region

Republic of Bulgaria borders the Black sea to the east; Greece, Turkey and Macedonia to the south; Serbia to the west and Romania to the north. From strategic point of view, the country is on a crossroad between Europe, Middle East and Russia and former Soviet republics. The strategic position of the region is enhanced by relative proximity to the Adriatic, Aegean seas. The geographical position offer good communication and transport links, along with the River Danube at Bulgaria's Northern border with Romania.

The Regional plan is about the region of Bulgarian ports along the Danube River. The main ones are those at cities of Ruse and Vidin.

The town of Ruse is situated at North-Eastern part of the country, on the right bank of the Danube River. The leading advantage of the town is its geographical position, which is excellent from transport options. The region is crossed by two European transport corridors - № 7, where Danube River is inland waterway and №9, connecting the Baltic with Aegean Sea through motorways.

Close to the Danube River bridge near Ruse is situated a direct transport connection to forth-million capital of Romania – Bucharest, which is at just 75 km. distance. All modes of transport are very well developed at Ruse region – road, rail, inland water, even an infrastructure for air transport exists.

The region of Vidin is at North-Western part of Bulgaria. The distance between the town of Vidin and the capital Sofia is 200 km. From geographical point of view, the municipality's makes it well-accessible, which predefines its importance for national and European transport systems. The corridor "Orient/East Mediterranean": Craiova (Romania) - Vidin - Sofia - Kulata is the shortest road connecting the countries in Western, Middle and Eastern Europe. There is a road and rail connection with Romania true Danube Bridge 2.

4.8.2 Description of specific target groups

The implementation of measures is targeted towards ports operators, local economy and the transport business as a whole. The measures implementation will create conditions for development of DBS Region as attractive regional gate for all ecological modes of transports between Central Europe and Black Sea, Caspian Region and Far East. Year-round and safe navigation on the Danube River will contribute for sustainable planning and reliable and efficient enforcement of all transport and logistic activities and modern methods for communication.

The measures for the port region of Ruse are important for improvement of the efficient performance of intermodal transport and container traffic between Varna port and the hinterland, which covers the towns of Byala, Veliko Tarnovo and Gabrovo. Besides, they will attract more freight from hinterland to the port, and there is an opportunity for freight from South part of Bulgarian. On Graphs 2 the important business centers are marked in orange.

The measures for the port Vidin will exclusively support socio-economic development of the port region itself and the municipalities along the modernized railway Vidin-Sofia and road infrastructure at corridor "Orient/Mediterranean". The region is among the poorest in Europe and with limited potential for

development, because the low quality of the infrastructure and connectivity as a whole. The measures will contribute for the development of business, transport and logistic services, transport inter-modality and will secure an alternative route between Black sea ports and the ones along the upper Danube, in case of low water and limited navigation at critical river points between Vidin and Ruse.

Besides, the measures´ implementation will help for development of the cross-border port region of coastal areas of Romania and Serbia; will enhance the freight transportation trough the new Danube Bridge 2 by rail and road and will [promote the intermodal connectivity of Danube River. On Graph 2 are shown hinterland areas with direct effect in green; areas with opportunities for improvement of business competiveness in light blue, and the port and the city in blue and orange.

4.8.3 Overview of recommended measures

Regional Action Plan consists of 9 measures that are under the following scope of interventions:

- Legal framework – 1 measure, which aim is through public-private-partnership principle to obtain additional financing for modernization of Bulgarian ports infrastructure, This will increase their competiveness and the one of Danube River as inland waterway;
- Infrastructure – 5 measures. The measures are directly linked to the main priority for providing year-round navigation of Danube River and connectivity between the river and hinterland. The measures are related to modernization of rail way Vidin-Sofia and Ruse-Gorna Oryahovitza-Dimitrovgrad, as well as two measures focused on intermodal transport at ports Ruse and Vidin;
- Cooperation – 2 measures for integrated information exchange, which will upgrade already done and will reinforcing the cooperation between member states of DBS Region. It is foreseen the development of Integrated Intermodal Informational System and Construction of systems along the two corridors passing through the territory of the Republic of Bulgaria (Rhine - Danube and Orient - Eastern Mediterranean) for management, optimization and automation of logistic processes and multimodal transport (Port Community System);
- Marketing – 1 measure for creation and implementation of marketing strategy for Bulgarian ports at Danube River, which to bring business and public awareness to ecological water transport and the potential of DBS Region as a whole.

The measures are chosen to be relevant to the whole port region and taking into account the connectivity with the rest of the country. Measures that can be implemented by the district and municipalities authorities and could be implemented independently of the core measures are not included in the Regional plan. The rationale is that the implementation of the core measures will stimulate the local ones.

The measures are prioritized based on the following criteria:

- Effect for year round navigation on Danube River;
- Intermodality;
- Connectivity with the hinterland;
- Socio-economical effect on the region;
- Cross-border cooperation and synergy;
- Comprehensive and simplification of procedures;
- Unified and easy modern data and documents transfer.

The main challenge before the implementation of all measures is providing the needed financing so the measures will be put into a force as a package within a midterm horizon. Applying the principle for their complex realization will allow in relatively short period of time to overcome the main deficits of Bulgarian ports at Danube River and to assure conditions for their future financial sustainability. Providing the needed financing is a responsibility of the national and district authorities in the country. From that point of view, the challenge is inter for the national transport system.

The achievement of maximum success and effectiveness of implemented measures depends on external, regional factors. On the first place it is important for achieving a year-round navigation of Danube River efforts to be made and from Romanian authorities, because the river is a border. In relation with measures for assurance integrated informational exchange, in order to have a maximum effect of its implementation it is necessary and the other state members of DBS Region to invest in this sphere. The implementation of DBS Gateway project is based on cooperation and joint activities of all participants. The existing network should be supported and built up after the project closure, in order to support future joint efforts.

The main result, which is aimed, is the assurance of year-round navigation in the fairway of Danube River, in order to secure safe, reliable, efficient, ecological and attractive water transport.

The existence of intermodal terminals along the Danube River will bring substantial increase of river used for transport of freight and containers. Additional synergy effect will have the measures for implementation of information technologies for easer and systematic exchange of information, lowering the administrative burden, increase the transport efficiency and freight tracking from start to end transfer locations not related to the modality or the change of the transport. The improvement of infrastructural connection between the hinterland and the DBS region's ports, promoting the ecological aspects, reliability and effectiveness of water transport within the region would be important for leveraging the business and the public awareness towards that mode of transport.

4.8.4 Description of recommended measures

Recommendation L034 **Development of transport infrastructure through public-private mechanisms partnership**	
Description	Implementation of the next stages of the "Strategy for development of the transport infrastructure of the Republic of Bulgaria through the concession mechanisms"
Beneficiaries	The ports as a whole, local economies and the transport business
Responsible institutions	• Ministry of transport, informational technologies and communication
Steps	• Review and prioritization of public transport ports of national importance included in the Strategy; • Update a register of port assets that are subject to concession (if necessary); • Update of the whole package of documents that MTITC applies for concession under the new Concessions Act, which came into force on 2 January 2018
Execution period	2018 – 2025
Budget	Up to 1 % of the received concessionary payments in the last 5 years
Example for good practice	N/A

Recommendation I133 **Improvement of the infrastructure to ensure smooth and safe navigation on the Danube River by dredging and construction of hydrotechnical facilities**	
Description	Dredging in the harbor waterfront to maintain a level of 2.5 m and dredging in critical areas of the fairway to maintain navigation and exploration and design for future construction of hydrotechnical facilities to provide navigable fairway and waterfront of the ports
Beneficiaries	Shipping, transport companies, port operators The public
Responsible institutions	Executive agency for exploration and maintenance of the Danube river “Bulgarian Ports Infrastructure” Company
Steps	• Exploration of depths and planning of dredging works in the waterfronts of the ports • Conduct a regular dredging auction in the waterfronts of the ports and in the narrow stretches of the fairway • Exchange of information between the two agencies and ships sailing along the river; also using RIS to obtain fairway status information • Review and Analysis of the FastDanube River Techno-Economic Engineering Survey Report after it is published • Selection of a consultant for the design of proposed engineering measures and other hydro-technical facilities offered by studies, valuation of measures and their environmental relevance, cost-benefit analysis • Selection of a pilot project and provision of funding • Implementation of the project and analysis of results • Preparation of a program for construction of next engineering facilities • The project will be considered successful with the successful construction of pilot engineering facility
Execution period	2015 -2022
Budget	About 2 000 000 Euro per year for regular dredging. EU and national funds.
Example for good practice	Hydrotechnical equipment in other countries along the Danube River.

Recommendation I161 **Modernization of the railway Vidin - Mezdra-Sofia**	
Description	The railway connects the two ports Thessaloniki and Vidin along Orient/East-Med Corridor and in its part from Sofia to Vidin needs modernization and reconstruction to ensure a stable and fast railway transport along the corridor and to the port of Vidin and to the railway bridge across the Danube River in Vidin
Beneficiaries	Areas along the line, railway operators, port and logistics operators, business and industry, population
Responsible institutions	National Railway Infrastructure Company

Steps	• Pre-feasibility studies and conceptual design have been prepared. The first stage includes preparing the projects for the individual sections complying with the new regulatory requirements of the European Interoperability System • The coordination of the project will be carried also with the ports in Vidin and the eventual operator of the intermodal terminal in the town. • After application for funding the preparation of documentation will start as well as the splitting of lots and conducting procedures under the PPA for the construction work • The first stage is the construction of the section Vidin - Medkovets • The second stage is the construction of the section Medkovets – Ruska Byala • The third stage is the construction of the last section Ruska Byala - Sofia • The project can be considered successful in two stages - when the construction works start and when the first train is started on the renewed route of the separate sections
Execution period	2022 – 2034
Budget	According the last calculation the project cost is 1.828 mln. Euro. Financing from international and European structural funds
Example for good practice	

Recommendation I167 Modernization of the railway line Ruse - Gorna Oryahovitza – Dimitrovgrad	
Description	The railway line connects the economically more developed South Bulgaria through Stara Planina along the main TEN-T network with Ruse and the ports in Ruse. The line is electrified but needs rehabilitation to provide a stable and fast railway transport along the corridor and to the port of Ruse and the future intermodal terminal in Ruse, as well as for the railway cargo passing through the Danube Bridge to Ruse.
Beneficiaries	Areas along the line, railway operators, port and logistics operators, business and industry, population, intermodal operators
Responsible institutions	National Railway Infrastructure Company
Steps	• Because there is no project readiness, the first stage includes preparing feasibility studies and designs for the individual sections complying with the new regulatory requirements of the European Interoperability System • The coordination of the project will be carried also with the ports in Ruse and the intermodal operator in the town. • After application for funding the preparation of documentation will start as well as the splitting of lots and conducting procedures under the PPA for the construction work • The first stage is the construction of the section Ruse-Gorna Oryahovitsa • The second stage is the construction of the section Gorna Oryahovitsa to Dimitrovgrad

	• The project can be considered successful in two stages - when the construction works start and when the first train is started on the renewed route of the separate sections
Execution period	2022 – 2027
Budget	No less than 1 ml. euro. At this stage calculations that are more precise cannot be given, because there is no pre-feasibility studies prepared. No financing secured.
Example for good practice	

Recommendation I199 **Developmnet of intermodal terminal in North Central Planning Region in Bulgaria - Ruse**	
Description	Development of intermodal terminal in Ruse
Beneficiaries	The public, transport companies, railway carriers, business and industry, port operators
Responsible institutions	Ministry of transport, information technology and communication
Steps	• Analysis and update of the preliminary study and the urban plan, as well as the needs of the shippers • Coordination with railway carriers, transport associations, large industrial exporting companies and their needs • Updating the project after completion of the research • Procedure under the PPA for a contractor of the construction works and the supply of the equipment • Construction activities and equipment supply • Promotion of ITT and its benefits • The project can be considered successful after completion of the deliveries and functional loading of the facilities
Execution period	2025
Budget	About 22 000 000 euro. It is planned for construction of the intermodal terminal PPP (Built-Operate-transfer) to be used.
Example for good practice	

Recommendation I257 **Development of intermodal port in Vidin**	
Description	Constructing an intermodal port in Vidin
Beneficiaries	The public, transport companies, railway carriers, business and industry, port operators
Responsible institutions	Bulgarian Ports Infrastructure Company + public-private partnership
Steps	• Analysis of the preliminary study and town planning plan and modification of railway road connection to the port area of the intermodal terminal

	• Coordination with "National Company Industrial Zones" , municipality, National Railway Infrastructure Company, Transport Associations, public-private partnership participants • Update of the project after completion of the study • Procedure for a contractor for the construction work and equipment supply • Construction activities and equipment supply • Promotion of intermodal terminal construction and its benefits • The project can be considered successful after completion of the supply and functional loading of the facilities
Execution period	2017-2020
Budget	About 15 000 000 Euro. National financing and public-private partnership
Example for good practice	

Recommendation C022 **Development of Integrated Intermodal Information System**	
Description	The project aims to analyze the needs of customers and operators and to upgrade the existing information systems in the railway carriers, road transport, ports and intermodal terminals to provide automation option of the logistics processes for multimodal transport
Beneficiaries	Intermodal operators, navigation at Danube River and Black Sea, internal transport, port and logistic operators, business administration agencies and authorities; the public
Responsible institutions	MTITC
Steps	• The project will take place in stages • Firstly, the available data and customers / users and systems will be analysed, the state and functionality of the different systems across transport operators at national and international level • Analysis of the necessary changes in regulations • Selection of a structure for preparation of PPL documentation and establishing a responsible contracting authority for the implementation of the project • Determining budget and timeframe for implementation • Developing documentation for contractor selection • Implementation of the project after the procedure • The project will be successful when intermodal services grow and the administrative burden and needed time for the customers of transport services is reduced
Execution period	after 2025
Budget	Budget and financing after the analysis
Example for good practice	

Recommendation C028 **Development of systems along the two corridors passing through the territory of Bulgaria (Rhine - Danube and Orient - East Mediterranean) for management, optimization and automation of logistic processes and multimodal transport (Port Community System)**	
Description	The project aims to use the experience and studies of the Port Community System project for the Bulgarian seaports, to compare and analyse the data and the needs in the river ports and to further build the system by including the sea ports with the Danube ones and providing opportunity for automation of logistic processes in multimodal transport
Beneficiaries	Navigation at Danube River and Black Sea, inland transport, port and logistic operators, administrative organisation and authorities, controlling authorities, the public
Responsible institutions	Bulgarian Ports Infrastructure Company
Steps	• The project will take place in stages • Firstly, the available data and customers / users and systems in river ports will be analysed and will be compared with those of the projected system for seaports • Analysis of the data volume and communication channels • Developing a project to upgrade the PCS software and hardware architecture • Developing documentation for contractor selection • Implementation of the project after an auction • The project will be successful if cargo traffic through ports increases and the administrative burden and time for transport customers is reduced
Execution period	2018-2020
Budget	Budget of 5 million Euro, national and private financing
Example for good practice	

Recommendation M013 **Creating and executing marketing strategy for ports in the Bulgarian part of Danube River**	
Description	Creating a marketing strategy for the promotion of Bulgarian ports along the Danube River. The primary, immediate goal of the strategy is to promote the ports and services they offer to potential customers and the public in general. The long-term goal is to promote water transport and build its public image as a competitive, secure and environmentally friendly transport.
Beneficiaries	• The ports as a whole. The development and implementation of a marketing strategy will help the overall business development of ports by enabling them to promote themselves among potential customers and to build a clear public image. The implementation of a marketing strategy provides additional value to the ports and services they provide; • Port areas. The promotion of Danube ports and their transformation in an integrated part of the logistics transport chain will improve the business environment and the overall well-

	being of local communities. It will help develop the local economy using some of the main competitive advantages of the regions
Responsible institutions	• Bulgarian Ports Infrastructure Company for the development of a marketing strategy • „Port Complex Ruse“ J.S. Co and „Vidin” Ltd. For the implementation of the strategy
Steps	• Carrying marketing research to establish the characteristics of the market and its potential; • Preparation of a technical assignment for choosing a contractor for the development of a complete marketing strategy. During the development, all interested parties, including port operators, freight companies and local community representatives will be involved; • Developing the strategy, its discussion and adoption. In order to achieve its goal, the marketing strategy must be recognized by the port authorities, so they must be involved at every stage of the implementation of the measure; • Implementing the measures described in the strategy by the state-owned enterprises operating the ports
Execution period	2018 – 2019 for developing the strategy: from developing a task to accepting the final version; 2020 – 2023 for strategy implementation
Budget	90 000 BGN (exc. VAT) for strategy development 180 000 BGN (exc. VAT) for implementing the measures in the strategy for Vidin, Ruse, Silistra and Tutrakan ports in 3 years. The planned budget is for the implementation of a marketing plan that isn’t too ambitious and on the condition there aren’t any specific problems that need solving
Example for good practice	N/A

4.9 Regional Action Plan (RAP) for Port of Burgas Region

4.9.1 Definition of the Port Region

Port of Burgas is one of the major Bulgarian ports. It has been established as the core of the trans-European transport network Ten-T. Located in the bay of the same name in the westernmost part of the Black Sea coast in Burgas, the port has a total of 19 ship locations with a maximum allowable draft of 12.3 m. The natural hinterland of the port combines southern Bulgaria, Macedonia and Serbia. The port is a vital link between western and eastern coast of the Black Sea. Port of Burgas has been chosen as a core port for Bulgaria and it is a part of the Key Core Network Corridor: Hamburg – Rostock – Burgas/TR border – Piraeus – Lefkosia /Hamburg / Rostock – Berlin – Praha – Brno – Bratislava – Budapest – Arad – Timişoara – Sofia – Burgas/TR border/. Today Burgas port area is the largest in the country, as on the territory operate seven port operators.

The advantage of the Port of Burgas is the connection with highway Trakia, which connects the port with the biggest logistic center in Bulgaria, capital Sofia.

The Port of Burgas consists of 4 sub-terminals, East Terminal, Bulk Cargo Terminal, Terminal 2A and West Terminal, one dedicated storage base and one seasonal passenger terminal in the port of Nessebar.

4.9.2 Description of specific target groups

The main target groups of the RAP are:

- Port operators;
- Ship-owners/charterers/managers;
- Ship agents;
- Logistics companies/cargo forwarders;
- Freight providers - producers of goods/traders;
- Citizens of the town of Burgas and the region;
- State and municipal authorities/institutions/administrations:
    - Municipality of Burgas;
    - Bulgarian Port State Infrastructure;
    - Ministry of Transport, Information Technology and Communications;
    - Executive Agency Maritime Administration;
    - Road Infrastructure Agency;
    - National Railway Infrastructure Company;
    - Ministry of Regional Development and Public Works;
    - Ministry of Environment and Water;
    - Other;
- Non-governmental organisations and non-profit associations.

4.9.3 Overview of recommended measures

During the process of Burgas Regional Action Plan several discussions were held that contributed to the co-creation of the measures set in the plan. Representatives of State company Bulgarian Port infrastructure,

Port of Burgas, Maritime Association shared ideas and information in open dialogue which were transformed into concrete, included in the Regional action plan.

The most necessary strategic measures for the Burgas region (both for the port and its interior) have been selected, which will contribute to the development thereof. The measures are reviewed in further detail, each of which is addressed in a separate section containing general project information, what objectives it achieves and what results it will deliver. Where possible budget and funding sources are defined.

- SM 1: IMPROVEMENT OF THE ROAD STRUCTURE AT THE ENTRY AND EXIT POINTS OF PORT BURGAS- measure in the Roadmap I265
- SM 2: DEVELOPMENT OF MULTIMODAL TERMINAL BURGAS measures in the Roadmap I269, I282, I265
- SM 3: CONSTRUCTION OF FACILITIES FOR LIQUEFIED NATURAL GAS IN PORT BURGAS measures in the Roadmap I259, I268
- SM 4: FEASIBILITY STUDY FOR THE CONSTRUCTION OF FACILITIES FOR GENERATION OF ENERGY FROM SEA WAVES AND THE TRANSFORMATION THEREOF INTO ELECTRICITY measure in the Roadmap I259

SM1 IMPROVEMENT OF THE ROAD STRUCTURE AT THE ENTRY AND EXIT POINTS OF PORT BURGAS

SITE
RECONSTRUCTION OF THE KRAIEZERNA STREET AS PER THE PLAN FOR THE NORTH INDUSTRIAL ZONE OF THE TOWN OF BURGAS IN THE SECTION FROM THE OVERPASS ABOVE THE FREIGHT RAILWAY STATION, THE CONNECTION WITH TODOR ALEKSANDROV BLVD. TO PORT WEST
SUBSITE
New facilities at the junction of Kraiezerna Street and Todor Aleksandraov Blvd.

The transport traffic from the direction from and to Sofia and the interior of the country, for Sozopol, Primorsko, Tsarevo, Ahtopol and the settlements south of Burgas, until recently passed almost through the central part of the town (the two entry roundabouts on Stefan Stambolov Blvd. and the Trapezitsa roundabout on Todor Aleksandrov Blvd.) as the only fast road link. This makes the traffic on urban streets higher, makes it more difficult for pedestrians and public transport and generates more harmful emissions.

The approximate number of transport units crossing this route are between 4 000 – 6 000 per day and during the busy summer months much more.

The renovation of Prof. Yakim Yakimov Street, the Kraibrejna Street and the construction of the bridge over the Burgas Railway Freight Station, allowed the transit traffic towards the southern Black Sea coast to be moved from the central part of the town. Unfortunately, during the past months and the active summer season after the reconstruction, as expected, there were problems with the crossing of the flows of passenger cars and cargo traffic in this area of the town, mainly directed towards Port Burgas - West and East - 2, since these are the largest terminals in the Burgas port complex.

According to the opinion of the Consultant, the problem is within the intersection at 2 levels between Todor Aleksandrov Blvd. and Kraiezerna Street., where the cargo traffic flow along the Kraiezerna Street between the North Industrial Zone and Port Burgas intersects and partially duplicates the transit flow formed mainly from passenger cars coming from northwest along the Kraiezerna Street, to the southwest along Todor

Aleksandrov Blvd. in the direction of Sozopol. At present, the traffic flow in the direction towards the southern Black Sea is moving relatively well considering that there is a right turn at the specified intersection. The opposite direction remains a problem (the traffic from Sozopol to Sofia), because the cars travelling on Todor Aleksandrov Blvd. have to take a left turn to the northwest on Kraiezerna Street.

Left turns are always accompanied by a number of conflict points of vehicles entering the intersection, and if we add to these the rare pedestrians and cyclists in this part of the city, the throughput is reduced many times relative to the traffic in the opposite direction. This creates difficulties for both the town's visitors (some of whom are using the route through the town center again) and the cargo traffic, which is also of great importance for Burgas, because Port of Burgas creates many jobs and also has significant financial contribution to Bulgaria's Gross Domestic Product.

For the intersection under consideration there are already existing regulation plans for its regulation with two roundabouts on the Kraiezerna Street with its intersections with the ramps for disembarkation and boarding on Todor Aleksandrov Blvd. Even outside the summer season, these two intersections already create traffic jams. Just as the right turn from Kraiezerna Street towards Todor Aleksandrov Blvd. is without intermediate points of conflict, so does the traffic in the opposite direction have to be regulated. Roundabouts are well suited to predominantly urban conditions and traffic, but when these are used for intercity traffic (such as in the case of the traffic from Sofia to Sozopol and vice versa) they have to be much larger than the radii provided for in the regulation plan or shall be replaced by junctions on 2 or more levels. Due to the limited area of adjacent terrains, the great number of private properties and the geological features, the diameters of these roundabouts cannot be increased.

In connection with the above, a transit route of the traffic shall be sought with the design of a special lane that does not cross the traffic on Kraibrejna Street on any level. This will be done in the southeastern part of the junction, where a ramp shall be envisaged to allow the traffic to pass under it and at the same time to descend below the bridge along Todor Aleksandrov Blvd., whose height is strictly limited by the existing structure thereof.

Several options are possible for the implementation the commented solution, and the main ones differ in the radius of the turn on the ramp, and hence in organizing the traffic at the terrain level on Kraiezerna Street.

In order to avoid the second roundabout on Kraiezerna Street in the northwest part of the intersection and not to hold the traffic in the direction of Sofia, there is no direct exit from Port of Burgas to Sozopol. This is compensated in such a way that in the relatively rare cases it is possible to make a turn on Kraiezerna Street in the direction of Lozovo on the new road junction before the Bridge above the Freight Railway Station and from there back on the transit route to Sozopol.

Objectives

The main objective of the project is to carry out a direct and transit-by-nature transport link between Kraiezerna Street and Todor Aleksandrov Blvd. through which:

- the transit traffic of cars through the central part of Burgas from and to Sofia and Sozopol will be stopped;
- there will be fast and unconflicted passage of vechiles, mainly cargo, flows from and to Port of Burgas - terminals East - 2 and West;

- there will be an increase of the traffic safety in the town;
- there will be an ncrease in the comfort for movement of pedestrians and travel of cars in the central part of Burgas;
- there will be a positive effect on tourism;
- the passage of heavy vehicles traveling in these areas through the town will be discontinued;
- there will be a significant reduction in noise and harmful emissions in the town of Burgas;

SM2 DEVELOPMENT OF MULTIMODAL TERMINAL BURGAS

By its very nature, combined transport is an effective integration of different modes of transport, i.e. of individual transport operators and infrastructure companies in the context of the transport logistics chain. Identical methods and requirements are established for the various transport modes, resulting in the unification of cargo units and the requirements for proper and efficient use of containers.

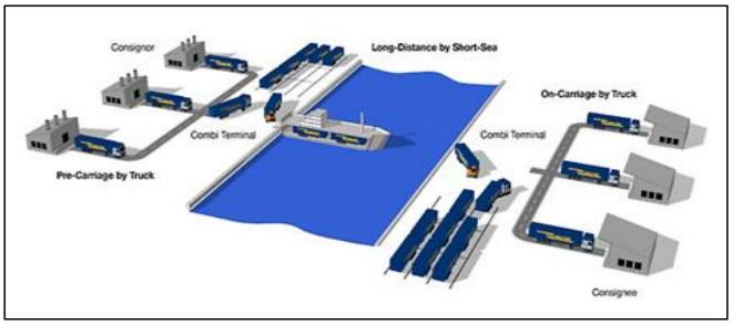


Figure 1 Scheme for combined road – maritime transport

Prerequisites for the development of combined transport:

- Provision of the required rolling stock as well as loading and unloading and other processing facilities;
- Construction of transshipment points and logistics centers;
- Connection to environmental policy;
- Effective combination of state support with the possibilities for financing from the Structural Funds and programs, etc.;
- Unification of technical parameters (e.g. containerization);
- Application of incentive tools for combined transport.

A determining factor for the realization of multimodal transports is the need to create cargo units. This means mandatory possession of a container 10 park and container equipment with standard of ISO parameters that are adapted in terms of size, type and kind in order to meet the technical and technological requirements for transporting a wide range of cargo with different characteristics. An essential element of the multimodal system is the availability and development of the technical infrastructure. It includes:

- container depots and container equipment located at strategic logistics points near the arrival of cargo as areas of production and consumption. The depots must allow for the reception and storage of containers and equipment;

- land container terminals, such as specialized transport nodes, providing the possibility to service the transport means by the different land transport modes. These are the different types of terminals - railway, road, port, airport. These terminals have the necessary infrastructure;
- transshipment facilities, terminal operations and service facilities, workshops for repairs and maintenance of containers and container equipment. These also have the necessary organization and management;
- sea container terminals specializing in land-sea transport nodes;
- a developed logistics network covering the logistics centers and points located at important transport points and providing the technological and organizational side of the transport processes, the servicing and management thereof. The most important element of multimodal transport is the differentiation of the multimodal operator who undertakes to deliver the cargo from the point of origin to the destination.

The multimodal operator may be a maritime or land carrier, prepared organizationally with the necessary capital and equipment to perform the complex delivery service tasks. By offering the customer a wide range of high quality complex services, the operator has the opportunity to convince the client to use a professional transport service and solve her/his transport problem.

The general objectives of the multimodal transport system can be formulated as follows:

- minimization of total transportation time;
- optimization of total transportation costs;
- joint optimization of transport time and costs;
- improving the cargo transportation from the manufacturer to the consumer.

The realization of these objectives is achieved through a new transport policy, which is expressed through:

- offering overall services needed to make the delivery, including the provision of containers and container equipment;
- the full responsibility of the multimodal transport operator for making the delivery, which the operator shall perform at his own expense and his own risk;
- the multimode transport process requires multimodal coordination on behalf of theoperator; - the correct operation of the system depends on its weakest units, such as the points where the different modes of transport intersect. Avoiding bottlenecks means cargo transfer without transshipment; - introduction of logistic control of the processes taking place in the system;
- choice of optimal means of transport;
- minimization of transportation time in order to reduce the period of freezing of the capital invested in the transported cargo;
- applying uniform prices for all multimodal transport.

The task of multimodal transport is to use the specific positive features of the different transport modes. This can reduce overall transport costs and reduce the price of offers proposed to clients.

Regional trade integration as a logistics development factor - Bulgaria's degree of integration into the global economy has increased significantly over the last 15 years. It is high both in terms of trade in cargo and services as well as in terms of spending significantly more money on imports of cargo and services than on

export revenue. The steps towards building a good long-term partnership with a competitive organization are the following:

- Planning joint cooperation. Common customer service models are established through joint solutions;
- Information integrity. In this step, it is necessary to develop common standards for the exchange of information and to implement specialized software for data transfer. Integrated information systems are among the factors with the highest priority in enhancing co-operation;
- Partnership. In a common information environment, it is necessary to regulate the sharing of cross-company information.
- Cost and quality of service. Building relationships leads to a reduction in expenditures. The cooperation is clarified in regard to the delivery of the supplies as well as the measures for avoiding failed trips;
- Differentiation. Identifying the capabilities of each partner to perform specialized services. The key word here is flexibility;
- Cost determination. Investments and operating costs should be adjusted in advance. This will save potential financial tensions that undermine mutual trust.

SM3 CONSTRUCTION OF FACILITIES FOR LIQUEFIED NATURAL GAS IN PORT BURGAS

In Bulgaria, the compressed liquefied gas (CNG), which has been used as fuel by buses and trucks since 2003, has been better known in Bulgaria, when "Bulmarket" opened the first methane station in Ruse. At present, a quarter of the CNG market in Bulgaria is working with the company's equipment, i.e. with compressors it delivers, maintains and repairs - either directly or with partners.

LNG (Liquified Natural Gas) is harder to make its way in Bulgaria due to the only opportunity to transport with large ships by sea.

The construction of facilities/ terminal for the delivery of LNG and its logistics at the port of Burgas will allow gas to be received by sea and its subsequent forwarding to the interior of the country /sea and land/. For the successful operation of the facility, it is necessary to sign in advance contracts for delivery to the port and delivery contracts from the port to the regions in question.

Liquefied natural gas is stored at -162 degrees Celsius without pressure in tanks/containers.

SM4 FEASIBILITY STUDY FOR THE CONSTRUCTION OF FACILITIES FOR GENERATION OF ENERGY FROM SEA WAVES AND THE TRANSFORMATION THEREOF INTO ELECTRICITY

Renewable energy sources include: wind power; solar energy (thermal energy - including concentrated - and photovoltaic energy); hydroelectric power; tidal energy, sea wave energy and ocean energy; geothermal energy; biofuels; and renewable waste.

The use of renewable energy has a number of potential benefits, including the reduction of greenhouse gas emissions, the diversification of energy supply and reduced dependence on the fossil fuel markets (especially oil and gas). Increasing the share of renewable energy sources can also have the potential to stimulate employment in the EU by creating jobs in new green technologies.

The International Agency for Renewable Energy Sources (IRENA) is an intergovernmental organization that supports countries in their transition to a sustainable energy future and serves as a major platform for international cooperation, a center of excellence and a repository of policy, technology, resource and financial knowledge for renewable energy. IRENA promotes the wide-spread acceptance and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind, sustainable development, access to energy, energy security and low carbon economic growth and prosperity.

The world is moving towards a low-carbon oriented future and with sustainable government policy, sound investment and industry consensus in the sector, the wave energy industry can become a success story following the steps of more mature renewable energy technologies.

Wave energy, also known as ocean energy or sea wave energy, is the energy that comes from the ocean and sea waves. The vertical movement of surface ocean waves contains a lot of kinetic (movement) energy that is subject to different technologies for its energy recovery such as electricity generation, desalination and water pumping (in tanks). In particular, the waves are generated by the wind's passing on the surface of the sea. When the waves move more slowly than the wind speed that generates the wave, there is a transfer of energy from the wind to the waves. Then the waves move on this energy, opening up the potential for collecting it.

The machine capable of operating the wave power is known as the wave energy converter (WEC). It can be installed on existing structures such as breakwaters, quays and floating and fixed platforms. Power wave converters are different types and are classified according to different criteria:

- According to its position on the shore;
- According to their orientation on the wave front;
- According to the technology.

Wave energy technologies derive energy directly from surface waves or from pressure fluctuations below the surface. Waves have a huge amount of unused energy, part of which we can use to power at least some of the world's electricity. Renewable energy analysts believe there is enough energy in the ocean waves to provide up to 2TW of electricity.

The locations with the greatest potential for wave power include the western coast of Europe, the northern coast of the United Kingdom and the Pacific coast in the North and South America, South Africa, Australia and New Zealand. Especially our Black Sea coast is not one of the most favorable geographic locations for large wave currents from sea waves. Their energy is low compared to the ocean coast, characterized by a high annual rate of intense wave sway, which makes the installation of energy farms effective. Although the potential of the waves is not high on our coast, this is not an obstacle to doing any development. The device does not need to power a whole city, it can be used both for local needs along the coast and the port as well as for the region around it.

Research institutes and private companies around the world are striving to improve the technology of extracting energy from sea waves as a promising RES source. Their efforts are also supported by the regulatory framework in the area that provides for EU countries 3.6 GW of energy from the sea waves to 2020 and 188 GW by 2050.

"Wave energy is a very dense form of solar energy." Each square meter of the solar panel receives from 0.2 to 0.3 kilowatts of solar energy and each square meter of the wind tower absorbs from 2 to 3 kilowatts. Each meter from the coast of California receives 30 kilowatts of wave power. Unlike wind and solar power, waves are easily predicted and available 24 hours a day. Wave energy has recently become an opportunity for clean, green and sustainable energy.

ADVANTAGES OF WAVE ENERGY	DISADVANTAGES OF WAVE ENERGY
1. Renewable. The best thing about wave energy is that it will never run out. There will always be waves crashing upon the shores of nations, near the populated coastal regions. The waves flow back from the shore, but they always return. Unlike fossil fuels, which are running out, in some places in the world, just as quickly as people can discover them. Unlike ethanol, a corn product, waves are not limited by a season. They require no input from man to make their power, and they can always be counted on. **2. Environment Friendly. 3**a Also unlike fossil fuels, creating power from waves creates no harmful byproducts such as gas, waste, and pollution. The energy from waves can be taken directly into electricity-producing machinery and used to power generators and power plants nearby. In today's energy-powered world, a source of clean energy is hard to come by. **3. Abundant and Widely Available.** Another benefit to using this energy is its nearness to places that can use it. Lots of big cities and harbors are next to the ocean and can harness the power of the waves for their use. Coastal cities tend to be well-populated, so lots of people can get use from wave energy plants. **4. Variety of Ways To Harness.** A final benefit is that there are a variety of ways to gather it. Current gathering methods range from installed power plant with hydro turbines to seafaring vessels equipped with massive structures that are laid into the sea to gather the wave energy. **5. Easily Predictable.** The biggest advantages of wave power as against most of the other alternative energy sources is that it is easily predictable and can be used to calculate the amount that it can produce. The wave energy is consistent and proves much better than other sources which are dependent on wind or sun exposure. **6. Less Dependency on Foreign Oil Cos.** Dependence on foreign companies for fossil fuels can be reduced if energy from wave power can be extracted up to its maximum. Not only it will help to curb air pollution but can also provide green jobs to millions of people. **7. No Damage to Land.** Unlike fossil fuels which cause massive damage to land as they can leave large holes while extracting energy from them , wave power does not cause any damage to earth. It is safe, clean and one of the preferred method to extract energy from ocean.	**1. Suitable to Certain Locations.** The biggest disadvantage to getting your energy from the waves is location. Only power plants and towns near the ocean will benefit directly from it. Because of its source, wave energy is not a viable power source for everyone. Landlocked nations and cities far from the sea have to find alternate sources of power, so wave energy is not the clean energy solution for everyone. **2. Effect on marine Ecosystem.** As clean as wave energy is, it still creates hazards for some of the creatures near it. Large machines have to be put near and in the water to gather energy from the waves. These machines disturb the seafloor, change the habitat of near-shore creatures (like crabs and starfish) and create noise that disturbs the sea life around them. There is also a danger of toxic chemicals that are used on wave energy platforms spilling and polluting the water near them. **3. Source of Disturbance for Private and Commercial Vessels.** Another downside is that it disturbs commercial and private vessels. Power plants that gather wave energy have to be placed by the coastline to do their job, and they have to be near cities and other populated areas to be of much use to anybody. But these are places that are major thoroughfares for cargo ships, cruise ships, recreational vehicles and beach goers. All of these people and vessels will be disrupted by the installation of a wave energy gathering source. This means that government officials and private companies that want to invest in wave energy sources have to take into account and consider the needs of those they may be disturbing. **4. Wavelength.** Wind power is highly dependent on wavelength i.e. wave speed, wave length, wavelength and water density. They require a consistent flow of powerful waves to generate significant amount of wave power. Some areas experience unreliable wave behavior and it becomes unpredictable to forecast accurate wave power and therefore cannot be trusted as reliable energy source. **5. Weak Performance in Rough Weather.** The performance of wave power drops significantly during rough weather. They must withstand rough weather. **6. Noise and Visual pollution.** Wave energy generators may be unpleasant for some who live close to coastal regions. They look like large machines working in the middle of the ocean and destroy the beauty of the ocean. They also generate noise pollution but the noise is often

	covered by the noise of waves which is much more than that of wave generators.

Wave energy can be useful, but those who are interested in using it have to look at both sides of the equation. They should consider the positive and negative aspects of this new energy source and determine who and what can be affected.

4.9.4 Description of recommended measures

Recommendation I265 **IMPROVEMENT OF THE ROAD STRUCTURE AT THE ENTRY AND EXIT POINTS OF PORT BURGAS**	
Description	The transport traffic from and to Sofia and the interior of the country as well as the settlements south of Burgas, until recently passed almost through the central part of the city as the only fast road link. This makes the traffic on urban streets higher, makes it more difficult for pedestrians and public transport and generates more harmful emissions. The renovation of two of the streets and the construction of the bridge over the Burgas Railway Freight Station, allowed the transit traffic towards the southern Black Sea coast to be moved from the central part of the city. Unfortunately, during the past months and the active summer season there were problems with the crossing of the flows of passenger cars and cargo traffic in this area of the city. The problem is within the intersection at 2 levels where the cargo traffic flows between the North Industrial Zone and Port Burgas intersects and partially duplicates the transit flow formed mainly from passenger cars coming from northwest along and these in the direction south of Burgas. At present, the traffic flow in the direction towards the southern Black Sea is moving relatively well considering that there is a right turn at the specified intersection. The opposite direction remains a problem because the cars have to take a left turn. Left turns are always accompanied by a number of conflict points of vehicles entering the intersection. This creates difficulties for both the city's visitors and the cargo traffic, which is also of great importance for Burgas. For the intersection under consideration there are already existing regulation plans for its regulation with two roundabouts with its intersections with the ramps for disembarkation and boarding. Roundabouts are well suited to predominantly urban conditions and traffic, but when these are used for intercity traffic they have to be much larger or shall be replaced by junctions on 2 or more levels because these two intersections already create traffic jams. Due to the limited area of adjacent terrains, the great number of private properties and the

	geological features, the diameters of these roundabouts cannot be increased. In connection with the above, a transit route of the traffic shall be sought with the design of a special lane that does not cross the traffic on any level. This will be done in the southeastern part of the junction, where a ramp shall be envisaged to allow the traffic to pass under it and at the same time to descend below the bridge whose height is strictly limited by the existing structure thereof. Several options are possible for the implementation the commented solution, and the main ones differ in the radius of the turn on the ramp, and hence in organizing the traffic at the terrain level. In order to avoid the second roundabout and not to hold the traffic in the direction of Sofia, there is no direct exit from Port of Burgas to Sozopol. This is compensated in such a way that in the relatively rare cases it is possible to make a turn on the new road junction before the Bridge above the Freight Railway Station and from there back on the transit route to Sozopol. The main objective of the project is to carry out a direct and transit-by-nature transport link through which: • the transit traffic of cars through the central part of Burgas from and to Sofia and Sozopol will be stopped; • there will be fast and unconflicted passage of vehicles, mainly cargo, flows from and to Port of Burgas - terminals East - 2 and West; • there will be an increase of the traffic safety in the town; • there will be an increase in the comfort for movement of pedestrians and travel of cars in the central part of Burgas; • there will be a positive effect on tourism; • the passage of heavy vehicles traveling in these areas through the town will be discontinued; there will be a significant reduction in noise and harmful emissions in the town of Burgas;
Beneficiaries	Who is benefitting from this measure and why? • RIA, as a manager of the road infrastructure; • Municipality Burgas - assistance in the organization of traffic in the city; • Port operators, logistic companies, citizens in the region, users of the infrastructure
Responsible institution	Who is responsible for implementing the recommended action? • MRDPW/ RIA
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • Preparation of conceptual and technical design

	• Conducting of land acquisition events (if necessary) • Preparation of compliance assessment • Issuance of Construction Permit • Providing funding • Implementation of the Construction and Assembly Works • Site acceptance and commissioning
Horizon for implementation	23 months (2019 -2021)
Budget	Total indicative value - 19 750 000 € • Conceptual design: 30 000 € • technical design: 500 000 € • Preparation of compliance assessment: 20 000 € • Implementation of the Construction and Assembly Works: 19 000 000 € • Independent construction supervision and investment control: 200 000 € • European Regional Development Fund; OPTTI 2014-2020; State budget
Good practice example	-

Recommendation I275 **DEVELOPMENT OF MULTIMODAL TERMINAL BURGAS**	
Description	The location of the Burgas Municipality identifies it as the main logistics point of the Orient/Eastern Mediterranean transport corridor connecting the German ports of Bremen, Hamburg and Rostock with the ports of the Black Sea (Burgas), the Aegean Sea (Athens) and the Adriatic Sea (Patra) through the Check Republic, Slovakia, Romania, Bulgaria and Greece. This corridor combines railway and road transport, major ports and airports. The Trakiya highway is part of this corridor. Burgas International Airport is a distribution hub for international and domestic tourism and provides excellent connectivity. The good transport connection of the Burgas Municipality is complemented by the availability of water transport (by sea) - there are 4 sea ports for public transport and 3 ports with special purpose. The modernization of the transport system is a key element of intermodal transport on the territory of the municipality. For the development of multimodal transport and logistics in the Burgas region, modern intermodal terminals are required to be constructed on the territory of the ports and in the places where the main transport routes cross. The realization of such a project would add a very high value to port Burgas. Through the integration of a port, an airport, a railway station and motorways (Trakiya motorway and the Black Sea motorway),

	Burgas can become a key transport hub for both passengers and goods in Southeastern Europe. With the implementation of the project the port of Burgas would become attractive for the realization of links to: • - Western and Central Europe by railway and inland waterway transport; • - Western Balkans by railway transport; • - Terminals and hubs in the neighboring countries: Romania, Greece, Turkey; • - Sea ports of the Black Sea, Greek and Turkish ports; • - Multimodal access to China, Central Asia, the Caucasus countries, Iran, Ukraine and Russia
Beneficiaries	Who is benefitting from this measure and why? • State and municipal institutions/administrations; • transport/logistics companies; • freight providers
Responsible institution	Who is responsible for implementing the recommended action? • Road transport - RIA • Railway transport - NRIC / RAEA • Maritime transport - BPIC / EAMA/ Port operators in the Burgas Region • Intermodal operators in the Burgas Region
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • Feasibility studies; estimates for freight turnover; financial and economic analysis; multi criteria analysis, etc. • Preparation of conceptual and technical design • Conducting of land acquisition events (if necessary) • Preparation of compliance assessment • Issuance of Construction Permit • Providing funding • Implementation of the Construction and Assembly Works • Site acceptance and commissioning
Horizon for implementation	After 2020
Budget	Indicative budget: 40 - 45 million BGN • CEF (Connecting Europe Facility) • European Regional Development Fund • OPTI 2014-2020; State budget
Good practice example	-

Recommendation I275 CONSTRUCTION OF LIQUEFIED NATURAL GAS FACILITIES IN PORT BURGAS	
Description	The Liquefied Natural Gas (LNG) terminal is a receiving facility for unloading liquefied natural gas tankers. These constructed ports are specifically used for export and import of LNG. Various facilities are provided at these terminals for unloading, regasification, storage, metering, etc. of LNG. Natural gas is transported in liquid form using liquefied natural gas tanks. At liquefied natural gas terminals, liquefied natural gas is returned to gaseous state after unloading from ships and then distributed to the grid. LNG terminal activity can be divided into four main stages: • Reception and unloading of LNG from shops • Storage • Compression and regasification • Transfer The liquefied natural gas terminal may operate a little differently based on the requirement and purpose of the particular terminal.
Beneficiaries	Who is benefitting from this measure and why? • BPICo, • port operators; • private and state companies – users of LNG;
Responsible institution	Who is responsible for implementing the recommended action? • BPICo, • port operators
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • Feasibility studies and amendment of the General Plan for Development of Port Burgas; • Preparation of conceptual and technical design • Conducting of land acquisition events (if necessary) • Preparation of compliance assessment • Issuance of Construction Permit • Providing funding • Implementation of the Construction and Assembly Works • Site acceptance and commissioning
Horizon for implementation	2019 – 2023
Budget	The budget varies depending on the capacity of the facility.
Good practice example	LNG terminal of Bulmarket in the town of Ruse List of LNG terminals: https://en.wikipedia.org/wiki/List_of_LNG_terminals#Greece

Recommendation I275 FEASIBILITY STUDY FOR THE CONSTRUCTION OF FACILITIES FOR GENERATION OF ENERGY FROM SEA WAVES AND THE TRANSFORMATION THEREOF INTO ELECTRICITY	
Description	The sea waves are periodically descending and rising water masses. They generate kinetic energy breaking into quays and ports. This type of mechanical energy can be absorbed by means of devices located on the piers of the port and subsequently transformed into electricity. The benefits of generating electricity with renewable sources are numerous: • Port Burgas: generates profits from the sale of electricity, acquires its own power plant with a renewable source, builds a favorable image in society for the production of green energy, contributes to national and European energy independence goals from third countries, increases the value of the shares of BMF; • The state: after the end of the concession, it will receive a free power plant generating energy from renewable sources; • Small and medium-sized enterprises: a large part of the equipment can be provided by small and medium-sized local businesses, helping them to develop; • Population and the planet: no greenhouse gases are emitted from production and thus it helps to fight global warming
Beneficiaries	Who is benefitting from this measure and why? • BPICo • Port operators
Responsible institution	Who is responsible for implementing the recommended action? • BPIC (Bulgarian Ports Infrastructure Company), • Port operators, • НЕК (НацNatsionalna Elektricheska Kompania), • EDC (Electricity Distribution Company), • ME (Ministry of Energy), • EWRC (Energy and Water Regulation Commission); • MEW (Ministry of Environment and Water), • MTITC (Ministry of Transport, Information Technology and Communication of the Republic of Bulgaria), • BAS (ББulgarian Academy of Sciences)
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • Research of the potential of the Black Sea in the region of port Burgas, jointly with research centers from Europe
Horizon for implementation	After 2020
Budget	EFRD, etc.
Good practice example	Eco Wave Power - http://www.ecowavepower.com/gibraltar-project/

	(Land Installed Marine Power Energy Transmitte) - https://en.wikipedia.org/wiki/Islay_LIMPET Aguçadoura Wave Farm Pelamis system 1 - https://en.wikipedia.org/wiki/Agu%C3%A7adoura_Wave_Farm

4.10 Regional Action Plan (RAP) for Port of Varna Region

4.10.1 Definition of the Port Region

The terminology „Port of Varna Region" is not legally defined and it could have different meanings and aspects. For this Regional Action Plan it includes the port of Varna and its respective hinterland. Port of Varna's hinterland comprises all areas – generating and consuming the cargo handled in the port.

The main hinterland is defined as the Municipality of Varna and the greater Varna region, this is the North-East Planning Region, which includes the areas of the districts Varna, Dobrich, Shumen and Targovishte. The Municipality of Varna is the main administrative centre of the district.

The port of Ruse is the natural link of the Varna Region with the Danube River. Therefore, the North-Central Region, which includes the areas of the districts Ruse, Silistra, Razgrad, Veliko Tarnovo and Gabrovo define the Competition Margin.

4.10.2 Description of specific target group

The Regional Action Plan Varna addresses the following institutions responsible for implementing the recommended action:

- Ministry of Transport, Information Technology and Communications(MTITC)
- Ministry of Regional Development and Public Works (MRDPW)
- Ministry of Education and Science
- Ministry of Economy
- Ministry of Tourism

- Ministry of Agriculture (MAFF)
- National Railway Infrastructure Company (NRIC)
- Bulgarian Ports Infrastructure Company (BPICo)
- Municipality of Varna, Municipality of Shumen, Municipality of Ruse
- Road Infrastructure Agency (RIA)
- NGOs; universities
- Execute agency “Science and Education for Smart Growth
- Executive Agency "Bulgarian Accreditation Service" (BSA)
- Port of Varna
- private secor
- Sea Cluster Bulgaria
- ICT Cluster – Varna

The main beneficiaries of the measures described in the RAP are:

- Logistic and transport operators; operators of intermodal terminals and facilities
- Travel agencies, tourist operators, tourism services providers and users of tourism products
- Economic sector (industry, high-tech companies, start-ups, small and medium-sized enterprises, distributors and merchants, fisheries industry)
- Research institutions (universities and research institutes from Varna, the North East and the South East Planning Region; Scientific institutions in Bulgaria and the Black Sea region in particular; Naval academy in Varna)
- Bulgarian Ports Infrastructure Company (BPICo)
- ship owners
- Port of Varna
- Municipality of Varna, Dockyard "Odessos", Lesport, the naval base, Varna shipyards
- Clusters and NGOs
- Residents in the residential areas along the railway line (from a safety point of view)
- Railway and road operators

4.10.3 Overview of recommended measures

In a workshop, relevant stakeholders specified the following measures which have to be carried out in order to achieve the objectives:

- Development of business initiatives for setting up science and technology centers and parks;
- Improvement of the local and adjacent infrastructure environment in order to facilitate mobility, transport security and interoperability between modes;
- Ensure adequate terminal infrastructure in the region and turn it into reliable, sustainable and functional intermodal hubs;

- Building a large-scale network of links between road and rail transport as a basis for developing business models based on the connection between sea and river transport with end users and customers;
- Upgrading and purchasing appropriate port facilities to ensure better and more reliable services;
- Improvement of rail and road infrastructure within the sea and river ports;
- Transforming the ports into intermodal hubs by optimizing business processes and models based on the demand for specific transport services from the hinterland and their role within international and regional logistical links;
- Improvement of the Danube - Black Sea regional connections and achieve year-round sustainability of the Danube River transport communications (Improve Danube navigation through full implementation of the European River Information System - RIS) by ensuring effective maintenance of water infrastructure;
- Ensuring uniform and harmonized international standards and implementing the relevant European legislation;
- Providing a unified approach to customs and border services for faster cargo handling;
- Enhance environmental protection measures and policies, and above all stimulate environmental measures in the delivery of transport services;
- Ensure competitive market environment by introducing a transparent system for determining infrastructure charges;
- Increased presence in the transport market by presenting the advantages offered by the ports and the region;
- Presentation of the advantages of water transport in terms of environmental protection;
- Provide a reliable system for sharing information and data between ports to better optimize the processes and activities of providing transport and logistical services;
- Improving the interaction between infrastructure operators in order to ensure good and reliable navigation and elaboration of common plans for maintenance of free shipping;
- Development and provision of joint services, as well as access to them

Bearing in mind that the priority areas and measures are very important to establish the Region of Varna as an economic zone, a study called “Research of the potential for the development of the Port of Varna hinterland as well as the development of industrial zones and improvement of Danube Black Sea – Far East transport flows as part of the Danube – Black Sea Joint vision strategy” was conducted. The research outlined 4 priority operations in the field of transport and infrastructure. It is believed that the implementation of the operations will help achieve the objectives of the Region of Varna and improve the interoperability between the maritime and inland waterways as well as the Varna hinterland. In addition to these 4 operations another 6 priority operations have been defined. These are seen as very important for the realization of the concept for Varna to become a natural gateway to Asia.

The operations are in the field of scientific research, new technologies, tourism, services and environmental protection. The importance of the horizontal principle of promoting joint cooperation in areas where the Region of Varna has specific knowledge and potential for development is also emphasized. The analysis of the projects showed that they all individually and among themselves are essential for making the Region of Varna an attractive place for investment and growth as well as for the inclusion of the city in the networks of

economic zones that provide the Danube - Black Sea region with a wide range of opportunities and alternatives for sustainable economic development.

4.10.4 Description of recommended measures

Recommendation №I18 **Turning the Varna-Ruse railway into a two-way electrified, robotized railway connection**	
Description	Doubling the existing one-way railway Ruse-Kaspichan section (135 km) Rehabilitation / modernization of the existing two-way section of Kaspichan-Varna (97 km) Objectives: • A good rail link will be created for the cities of Ruse and Varna - important logistical centers in the Danube-Black Sea region; • Ensuring the interoperability of railway infrastructure and the continuity of traffic flows between the Rhine - Danube Corridor and the Black Sea; • Integration of the National Transport Network with the European transport network; • Creating conditions for increasing the volume of goods carried on the line due to improved line characteristics in terms of speed, travel time, capacity and reliability of service; • Shifting freight from road to rail, which will reduce greenhouse gas emissions, i.e. will reduce the negative impact of transport on the environment
Beneficiaries	Economic operators - manufacturers, exporters and importers from Europe and Asia, who would have a reliable alternative for freight transport between Central Europe, the Caucasus and Asia through the Port of Varna gateway; Transport operators on the Rhine - Danube Corridor who could use the capacity of Port of Varna; Road and rail carriers, logistical companies that will have a fast and reliable rail freight transport link; Travelers between Bucharest - Ruse - Varna; Tourist operators serving the tourist flows between Romania and the Bulgarian Northern Black Sea coast; Residents in the residential areas along the railway line (from a safety point of view)
Responsible institution	Ministry of Transport, Information Technology and Communications; National Railway Infrastructure Company
Steps	1. Pre-feasibility studies for doubling the existing one-way railway Ruse - Kaspichan section (135 km); 2. Preparation of a tender procedure for construction activities (according to information from the NRIC there is a complete project readiness to start the construction activities under the project "Restoration of project parameters of Ruse-Varna railway line"); 3. Engaging the following stakeholders: the municipalities of Varna and Burgas with a view of coordinating the projects; 4. Implementation of the respective construction activities;

	5. Putting into operation of the new/modernized line
Horizon for implementation	2019-2022 (according to the Integrated Transport Strategy for the period up to 2030; a project to double the railway the Ruse - Kaspichan section is not foreseen, but it would be logical to implement it together with the existing project; if not - the implementation horizon is 2022 - 2025)
Budget	BGN 749 082 890 excluding VAT (Budget of the project for the recovery of the existing parameters of the existing line Ruse - Varna) + approximately BGN 175 million, needed for pre-feasibility studies and construction works to double the railway line between Ruse and Kaspichan. In the medium term the realistic goal is to carry out feasibility studies (without the detailed design stage). According to NRIC information, these studies for the section Ruse - Varna are available. For the Ruse - Kaspichan section, the draft budget for them is between BGN 1 and 2 million.
Good practice example	N/A

Recommendation I287 Rehabilitation and modernization of Ferryboat Complex - Varna	
Description	Objectives: • Increasing the capacity and improving the quality of the services provided by the Ferryboat Complex; • Increasing the transport flows of goods from and to South Caucasus, Central Asia and Far East; • Providing better conditions for larger container ships; • Increasing the role and importance of the Port of Varna in the transport system of the Republic of Bulgaria; • Providing better connectivity to the ports along the Bulgarian bank of the Danube river
Beneficiaries	Economic operators – producers, import and export oriented businesses from Cenrtal Europe, the Caucasus, Asia; Railway and road operators; Transport and logistics companies; Local entities related to the services provided by the Ferryboat complex
Responsible institution	Ministry of Transport Information Technologies and Communications (MTITC), National Railway infrastructure company (NRIC), Bulgarian Ports Infrastructure Company, Municipality of Varna, Road Infrastructure Agency
Steps	1. Pre-feasibility studies and analysis for modernization of the Ferryboat complex - Varna; 2. Preparation of tender procedure for rehabilitation and modernization of Ferryboat complex - Varna; 3. Open new warehouses and increasing the capacity of existing ones; 4. Engaging the following stakeholders: NRIC, Municipality of Varna, MTITC, Port of Varna, BPI Co, economic operators and etc.;

	5. Carring out the construction works and activities; 6. Putting into operation of the modernized ferryboat complex
Horizon for implementation	OPTTI 2021-2027 r. , Connecting Europe Facility post 2020
Budget	EUR 35 mln. In the medium term the realistic goal is to carry out feasibility studies. Budget: BGN 500 000.
Good practice example	The construction of a public ferry terminal in the Port of Gdynia : https://www.port.gdynia.pl/en/eu-funding ; The construction of a new terminal for ferries between Malta to Gozo: http://ec.europa.eu/regional_policy/en/projects/malta/new-ferry-terminal-to-boost-tourism-and-business-in-malta-and-gozo ; Vuosaari Fairway - Improvement of the maritime access of the Port of Helsinki, Vuosaari Harbour: https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/2017-fi-tm-0027-w

Recommendation I37 Construction of the "Black Sea" motorway, with priority in the section Varna - Burgas	
Description	Completion of about 95 km. from the highway to connect Varna and Burgas. At present, about 10 km are built between Varna and Priselci village Objectives: • Connectivity of Varna on the north-south axis (Varna-Burgas), as part of the Pan-European transport corridor VIII; • Facilitating the transport links between Varna and Burgas; • Overcoming the difficulties with the crossing of Stara Planina mountain, which significantly slows traffic especially during the winter period
Beneficiaries	Transport companies operating between Bourgas and Varna, between Southern and Northern Bulgaria, between Turkey and Romania; Tourist flows between Varna and Burgas; Travel agencies
Responsible institution	Ministry of Regional Development and Public Works (MRDPW); Ministry of Transport, Information Technology and Communications; Road Infrastructure Agency (RIA)
Steps	1. Preparation of an extended conceptual design (including detailed development plan - plot plan); Environment impact assessment; carrying out preliminary archaeological research (all in progress). 2. In the case of a concession option, the Ministry of Regional Development and Public Works should undertake preparatory actions under the Concessions Act. 3. In case of EU project financing option - inclusion of the project in an operational program; drawing up a project fiche 4. Expropriation procedures; 5. Procedure for selecting a private partner; 6. Involving the following additional stakeholders: Municipality of Varna, Municipality of Burgas, European Investment Bank, European Bank for Reconstruction and Development
Horizon for implementation	2021

Budget	BGN 525 mln. In the medium term the realistic goal is to carry out feasibility studies. Budget: BGN 1 - 2 mln.
Good practice example	Public-Private Partnership to Build Sections of the D4 Motorway and the R7 Speedway in Slovakia http://www.ceskainfrastruktura.cz/wp-content/uploads/2016/10/Jan-Brazda-_-D4-R7.pdf http://www.eib.org/infocentre/press/releases/all/2016/2016-157-eib-supports-d4-r7-ppp-in-slovakia-with-eur-426-million-of-financing-first-eib-transaction-under-efsi-in-slovakia.htm

Recommendation I38 **Building a speed route Varna-Ruse, with a continuation – building a first-class road Shumen-Ruse**	
Description	Objectives: • Improving the road safety between Varna and Ruse ports; • Ensuring transport connectivity between Ruse and Varna, the Danube and the Black sea regions; • Ensuring road infrastructure between the Pan-European transport corridors VII and VIII; • Improving the regional economic and social links between Varna and Ruse;
Beneficiaries	Car users; Bus operators; Fleet operators; Economic operators – producers, merchants of goods and service providers from and to Europe, Asia and Caucasus via Port of Varna; Transport companies which operate along the Rhein -Danube corridor; Logistic and transport companies; Travel agencies
Responsible institution	MRDPW, MTTIC, RIA, Municipality of Varna, Municipality of Shumen, Municipality of Ruse
Steps	1. Pre-feasibility studies and analysis for construction of high speed road between Varna and Ruse and shortcut to Shoumen; 2. Preparation of tender procedure for construction of high-speed road between Varna and Ruse with shortcut to Shumen; 3. Involving the following additional stakeholders: MRDPW, MTTIC, RIA, Municipality of Varna, Municipality of Shumen, Municipality of Ruse; 4. Carring out of construction works; 5. Placing in service of the high-speed road
Horizon for implementation	OPRR 2014 - 2020 г.; OPTTI 2014 – 2020 г.; Loan from international financial institutions, financial resources from the state budget; public-private partnership; CEF
Budget	EUR 330 mln. (For instance the construction of high-speed road between Sunny beach and Burgas (5.8 км) – total investment costs EUR 10 mln or approx. EUR 2 mln. per kilometre. Approximate length of the road between Varna and Ruse - 193 км.) In the medium term the realistic goal is to carry out feasibility studies. Budget: BGN 1 - 2 mln.

Good practice example	N/A

Recommendation B7 **Support for the creation of a Black-Sea High-Tech Business Park**	
Description	Establishment of a dedicated area with built infrastructure where businesses working in the field of maritime industry, transport, renewable energy can find the right intellectual environment and support for starting and developing their business and for creating innovations in areas such as: ship design and construction, logistical port management, renewable energy sources etc.
Beneficiaries	High-tech companies, start-ups, small and medium-sized enterprises; universities and research institutes from Varna, the North East and the South East Planning Region
Responsible institution	Municipality of Varna, NGOs; universities
Steps	A concept for building a Black Sea High-Tech Park is available. More important follow-up steps: 1. Design of the necessary building infrastructure; 2. Construction works; 3. Supply of specialized equipment and software; 4. Furnishing of the premises; 5. Delivery of necessary computer and office equipment; 6. Selection of the park operator; 7. Drawing up a business plan; 8. Creating a voucher system model; 9. Building a software platform for shared use of the equipment; 10. Patenting, licensing and certification procedures; 11. Creating a database for the scientific infrastructure; 12. Organizing awareness-raising campaigns
Horizon for implementation	2018 - 2020 (according to the Municipal Development Plan of Municipality of Varna for the period 2014-2020); 2020 - 2027 (provided that funding is sought from the EU)
Budget	BGN 90 million (approximate budget of Sofia Tech Park - Phase 1 and Phase 2)
Good practice example	Pomurje Technology Park http://www.smart-production.eu.com/pomurje-technology-park/ https://investincornwall.com/industry/marinetech/

Recommendation T10 **Finishing and modernisation of the R&D base for maritime scientifical research**	
Description	Objectives: • Improving the scientific research, technnological development and innovations; • Establishing research institution that will have the leading role in the field of ship hydrodynamics, , water transport and energy saving, ocean engineering, sea and river crises and disaster management, marine ecology and coastal protection, facilities

	for fisheries and aquacultures, marine renewable energy sources, technology transfer, national security and defense; • establishing modern scientific research base which will help achieve the goals for inteligent and sustainable economic growth
Beneficiaries	Scientific institutions in Bulgaria and the Black Sea region in particular; Naval academy in Varna; Bulgarian Ports Infrastructure Company (BPIC; technical universities; operators of intermodal terminals and facilities; ship owners; the port administrations; drilling companies; scientists
Responsible institution	Execute agency “Science and Education for Smart Growth”;Ministry of Education and Science; MRDPW; Executive Agency "Bulgarian Accreditation Service" (BSA); Municipality of Varna
Steps	1. Project application form submission; 2. Preparing tender procedure for delivering and installment of equipment as well as for construction of new facilities and labs; 3. Involvement of the following additional stakeholders: Execute agency “Science and Education for Smart Growth”, MES, MRDPW, BSA, Municipality of Varna; 4. Carring out construction works and delivery of equipment; 5. Putting into operation of the modernized facility
Horizon for implementation	Operational Programme “Science and Education for Smart Growth” 2014-2020 (OP SESG), Operational Programme “Regional Development” 2014-2020 r., Horizon 2020
Budget	EUR 35 mln.
Good practice example	National center of mechatronics and clean techhologies: Project BG05M2OP001-1.001-0008, funded by OP SESG 2014-2020

Recommendation I286 **Design and construction of reception and purification of ballast and santinas waters facilities**	
Description	Objectives: • Environment protection and avoiding the spreading of invasive species; • Ensuring better environment and protecting the flora and fauna; • Purification of ballast waters; • Responding to the new rules and conventions for ballast waters management
Beneficiaries	Port of Varna, Municipality of Varna, Dockyard "Odessos", Lesport, the naval base, Varna shipyards, travel agencies, hotel operators, tourists
Responsible institution	MOEW, MRDPW, Ministry of Agriculture MAFF, Municipality of Varna, Port of Varna
Steps	1. Pre-feasibility studies and analyses; 2. Preparing tender procedure for construction works; 3. Involvement of the following additional stakeholders: MOEW, MRDPW, Ministry of Agriculture, Food and Forestry, Municipality of Varna, Port of Varna; 4. Implementation of the contruction works;

	5. Putting in service of the new facility
Horizon for implementation	Post 2018
Budget	EUR 20 mln.
Good practice example	Ballast management system: http://www.isprambiente.gov.it/en/publications/technical-documents/control-and-management-of-ships2019-ballast-water-in-the-adriatic-sea-region.-a-collection-of-legal-texts North Sea Ballast Water Opportunity http://archive.northsearegion.eu/ivb/projects/details/&tid=89

Recommendation C55 **Creating Black Sea networks to popularise joint initiatives for tourist and maritime sector development**	
Description	Objectives: • Enchansing the intrerest to the tourist products and opportunities offered by the Region of Varna; • Improving the exchange of knowledge, communication on environmentally sustainable tourism within the Danube - Black sea region; • Improving the cooperation between tourist operators; • Promoting the sustainable tourism potential within the Black Sea region; • Improving the exchange, aviability and accessability of tourism data and infotmation
Beneficiaries	Tourist operators; Tourism services providers and users of tourism products; Local and regional business; Hotel owners and investors; Transport operators
Responsible institution	Ministry of Economy, Ministry of Tourism, Ministry of Regional Development and Public Works, Municipality of Varna, private secor
Steps	1. Research on the demand of tourism services and products in the Black Sea region; 2. Preparation of project fiche under the Operational programme “Transborder cooperation” or Operational Programme "Innovation and Competitiveness"; 3. Involvement of the following additional stakeholders: Ministry of Economy, Ministry of Tourism, Ministry of Regional Development and Public Works, Municipality of Varna, private secor; 4. Implementation of the activities within the project
Horizon for implementation	2018-2020
Budget	EUR 1 mln
Good practice example	Creation of a Black Sea Sustainable Tourism Network http://blackseatourism.net/new/home/

Recommendation C54 Set up a cooperation platform for relevant associations	
Description	Creating a technology cooperation platform and/or in areas where specific regional knowledge is available, such as marine industry, Black Sea resource utilization, renewable energy sources such as water and wind, transport and tourism. The aim is to promote cooperation between specific clusters, NGOs, business and public institutions to enhance the competitiveness of the industry and the organizations working in them.
Beneficiaries	Technological companies, Economic operators in the marine industry, Tourist operators, Clusters and NGOs
Responsible institution	Municipality of Varna; Sea Cluster Bulgaria; ICT Cluster – Varna; Ministry of Economy and Tourism (Operational Program "Innovation and Competitiveness")
Steps	Preparatory stage: 1. Identifying an area where local knowledge exists and/or which contains economic potential (e.g. maritime activities, tourism); 2. Defining a clear objective for the platform (e.g. promoting technology transfer, creating new products and services, pooling existing initiatives in a common product); 3. Determining the geographical scope depending on factors such as: common interests, level of development; 4. Identifying a responsible institution from the Region of Varna which will take the initiative to establish a platform for cooperation Stage of realization (on a project basis): 1. Identifying a program to finance the initiative (e.g. OPIC); 2. Preparation of a project by the responsible institution; 3. Provisioning of the cooperation platform; 4. Preparing market research for the sector in which the initiative will be implemented; 5. Developing a development strategy for the platform; 6. Creating a website of the platform 7. Linking activities between organizations participating in the platform; 8. Participation in events (exhibitions, conferences)
Horizon for implementation	2018 - 2020 (according to the Roadmap); 2020 - 2027 (provided that support from EU funds is sought)
Budget	BGN 500 000 (including operating funds for a period of 2 years)
Good practice example	Project CULTPLATFORM_21: http://www.interreg-danube.eu/approved-projects/cultplatform-21 Education Reform Initiative of South East Europe (ERI SEE): http://www.erisee.org/ MADE IN DANUBE: http://www.interreg-danube.eu/approved-projects/made-in-danube

Recommendation S13 **Development of the complex of Port Varna and the ports in the Lakes of Varna and Beloslav and turning it into a logistic and distribution connection center of Pan-European transport corridors VII, VIII, IX and TRASECA**	
Description	Objectives: • Establishing the city of Varna as a core port and important logistic hub within the Black sea region; • Attracting more traffic flows from the South Caucasus, Asia and Europe; • Accommodation of larger ships; • Increasing the capacity of the port infrastructure; • Improving the services provided
Beneficiaries	Transport and logistic operators; Distributors and merchants; Local producers of goods and providers of services; Tour operators; Fisheries industry
Responsible institution	MTITC, MRDPW, BPIC, Municipality of Varna, Port of Varna
Steps	1. Carring out market research on the development of port Varna and turning it into logistic center of Pan-European transport corridors VII, VIII, IX and TRASECA; 2. Identifying appropriate programme for supporting and funding the project idea: Operational Programme "Transport and Transport Infrastructure" 2014 - 2020, Connecting Europe Facility, Black Sea Basin Programme 2014-2020; 3. Involving the following additional stakeholders: MTITC, MRDPW, MOEW, BPIC, Municipality of Varna, Black Sea countries; 4. Preparation of project fiche; 5. Implementation of the project
Horizon for implementation	Post 2020 provided that the appropriate funding is sought
Budget	EUR 28 mln.
Good practice example	Sweden-Poland Sustainable Sea-Hinterland Services "Sustainable Swinoujscie-Trelleborg MoS https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/2014-eu-tmc-0641-m ; Dublin Port Alexandra Basin Redevelopment https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/2014-ie-tm-0222-w

4.11 Regional Action Plan (RAP) for Port of Galati Region

4.11.1 Definition of the Port Region

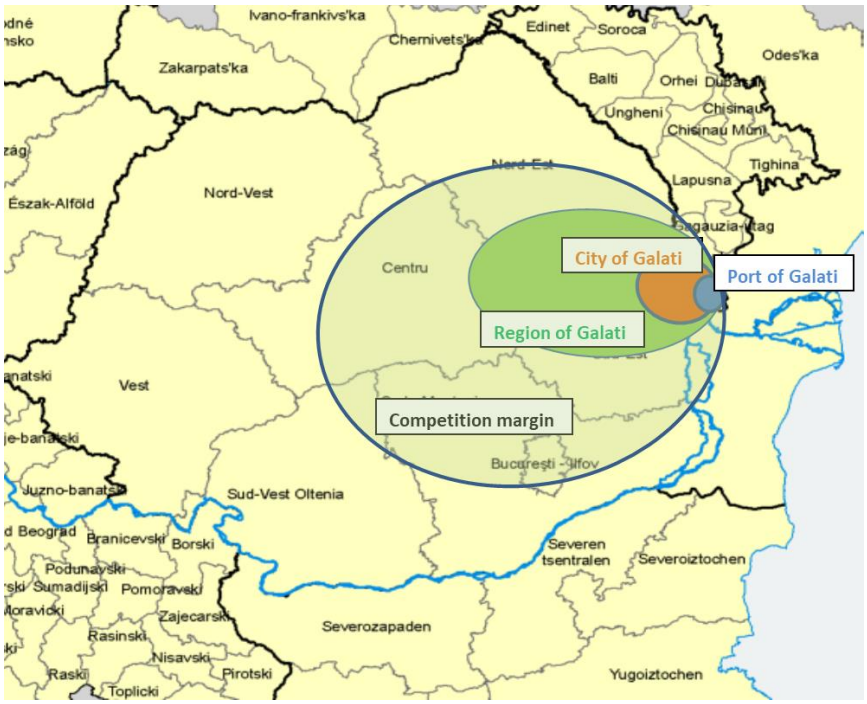
Located on the left bank of the Danube, only 80 nautical Miles or 150 kilometres to the Black Sea (Sulina channel), Galati is situated closely to the Romanian non EU border - The Republic of Moldova (12 km to the border crossing at Giurgiulesti) and the Ukraine (Danube Port of Reni located 20 km from Galati). The city is also very close to the Romanian Danube town of Braila (only 20 km), the “Twin Citys” - Braila and Galati would form the second largest metropolitan zone in Romania after Bucharest. The city of Galati had a population of 241 776 in 2011, making it Romania's 7th largest city.

The Danube is the 2nd longest river in Europe after the Volga, and it has been a transport mode since ancient times; and the development for Galati Port began in 1856, when was formed the first union of states that have proposed to work together in order to ensure a safe and efficient transportation corridor for goods between the Danube and the Black Sea and vice versa.

The main advantages of Galati in the field of international transport are:

- its connection to the wide gauge railway lines of Moldova, Ukraine and Russia,
- the accessibility by seagoing vessels with a draught of up to 24 ft. (7.3 m) via the maritime Danube (Sulina channel).
- the Eastern European Union Danube port.

Combined with road transport, standard railway lines to Western Europe and inland navigation on the Danube, Galati is a pentamodal or five modal location. Galati port is the main IWT and maritime port on the Danube.



4.11.2 Description of specific target groups

The Regional Action Plan Lower Austria/Vienna addresses the following institutions responsible for implementing the recommended action:

- Galati County Council, Galati Municipality
- National Company Administration of Romanian Railway Infrastructure
- National Company Administration of Romanian National Roads
- National Company Maritime Danube Ports Administration
- River Administration of the Lower Danube Galati, ROMANIA (AFDJ)
- private port operators Port Bazinul Nou and Metaltrade Intl
- Union of Romanian Inland Ports and CERONAV

Beneficiaries

- Galati town community, Port community of Galati port, Galati-Giurgiulesti (RO-MD) crossborder area
- maritime Danube ports and civil protection and disaster management national authorities
- rail operators, passengers, logistic companies
- road transport operators, population, logistic companies
- IWT operators, logistic companies
- River Administration of the Lower Danube Galati
- vessels calling the port of Galati, rail and road transport operators.
- inland & maritime transport services and logistic services providers
- stakeholders from maritime sectors: transport, ports, shipbuilding, ship repairing , ship design.
- port community members both employers and employees, training services providers, youngsters
- port infrastructure administrators
- persons travelling for tourism purpose
- ship-owners and LNG traders

4.11.3 Overview of recommended measures

The fields of intervention has been elaborated into operational objectives by Roadmap and for each of these objectives has been identified for Galati port and related hinterland the following measures:

Field of Intervention: Infrastructure

- Ensure the accessibility of the ports´ hinterland:
  - high-quality transport axes (rail, road and IWW) from the ports to business areas/customers in the region
    - Expansion and modernization of Galati city ring road
  - wide-reaching network of last mile infrastructure (rail and road) from the ports to customers/consumers
    - Modernization of Galati-Buzau rail road section (I56)
    - Modernization of road connection Galati-Buzau road; Galati-Slobozia (I88)

- Ensure reliability and accessibility of the whole DBS Gateway Region:
  - All year-round reliable fairway conditions of the Danube river (bring the Danube River in a good navigation status including full implementation of RIS and ensure effective river and waterway infrastructure maintenance)
    - Improving Navigation Conditions on the Danube between Calarasi and Braila – works and FS (I137)
    - Improving Navigation Conditions on the Danube – Romanian – Bulgarian Joint Sector (Km 845,5 – km 375)
    - Infrastructure works, Bank protections on Sulina Channel
    - Dredging works on the Danube for fairway maintenance (I138)
    - Rehabilitation and maintenance Procurement of equipment (I141)

- Provide adequate terminal infrastructure in the region and within the ports to transform them into functional intermodal hubs:
    - Construction of new multimodal logistic platforms :
        - Galati multimodal platform (I291)

Field of intervention: Service

- Widen the ports´ functionalities by adding new/special services to the ports´ portfolio
    - Development passenger and touristic services in maritime Danube ports (S16)
- Transform ports into functional intermodal hubs by optimising processes and specializations based on specific transport demand of the hinterland and the role within the regional and international logistic chain
    - elaborate Smart Specialization strategies for Danube ports development (S14)

Field of intervention: Danube-affine business development

- Business settlement services: support companies during business settlement processes and provide special services to support companies using IWW
    - setting up business facilitators in ports (business incubators, business centres, one-stop-shop) (B13)

Field of intervention: Organisation/ Cooperation

- Enable the efficient share of information between all ports to optimise operation and processes:
    - support full deployment of information and communication systems (e.g. interface between RIS and port systems) and linking them with similar systems for the maritime sector; provide logistic stakeholders with access these data; integrate customs agencies in information flow
        - implementation of Port Community Systems in DBS ports (C24)
- Encourage joint planning processes and solutions to address transnational challenges:
    - develop and implement of a DBS Gateway Region resilience strategy (including for example emergency services of the DBS countries etc.)
        - set up joint awareness and planning for accidental water pollution management (C45)
- Encourage the offer of joint services:
    - Development of joint services (specialisation of single ports within the system of the DBS Gateway Region)
        - Enhance cooperation and innovation uptake on Danube ports by clustering relevant stakeholders (C48)
    - Accessibility of joint services: ICT applications and integrated information exchange (one stop shop) for supporting intermodal and logistic services
        - set up technology information centres in DBS ports (C51)

Field of intervention: Legal framework

- Ensure transnational harmonisation of standards:
  - set standards for port labour training and qualification at DBS Gateway level and develop a regulatory framework at European level to provide multi-skilled port workers and enable port labour mobility
    - set up a Centre for port labour training (L39)

- Ensure competitive prices for shipping in order to make IWW transport competitive and ensure transparency of infrastructure charges.
  - elaborate a toolkit for stimulative charging of the port infrastructure (I51)

Field of intervention: Research/ Technology/ Innovation

- Ensure uptake of innovation in IWW and ports
  - implement LNG facilities in core TEN-T ports (T25)

4.11.4 Description of recommended measures

Recommendation I85 **Expansion and modernization of Galati city ring road**	
Description	Rehabilitation and modernization of 10.98 km of municipal road to be transformed and ranked in the upper category (county road). The envisaged upgrades consist of extending the lanes to two strips per sense and building a flyover bypassing the city area. Thus traffic will be fluidized on the artery that connects the city to TEN-T, namely with E87/584 and E581 by DN26.
Beneficiaries	Galati town community, Port community of Galati port, Galati-Giurgiulesti (RO-MD) crossborder area Objectives of the measure : to smoothen freight and passengers flows from Galati-Giurgiulesti crossborder customs and industrial&port areas to the main exits of the city to road connections with the defined hinterland (North-East region and Central region)
Responsible institution	Galati County Council, Galati Municipality
Steps	1. necessity, opportunity, cost estimation – Feasibility Study (completed) 2. identifying funding sources and getting funding (ongoing) 3. implementation
Horizon for implementation	2018-2021
Budget	40 mil EURO Funding sources : Regional Operational Programme, National Budget, County Budget
Good practice example	n.a.

Recommendation I56 **Modernization of Galati-Buzau rail section**	
Description	The envisaged section (lines 700 and 702 between Buzau and Braila and Galati towns) to be modernized is part of comprehensive TEN-T and connect the core port of Galati and the comprehensive port of Braila to core TEN-T *Rhine Danube Corridor). The section is electrified and have one lane per sense. The envisaged works are : • Rehabilitation for High-speed trains • Improvement of signaling and communication systems

	• Modernization of facilities provided in Galati and Braila stations
Beneficiaries	Beneficiaries are rail operators, passengers, logistic companies Objectives of the measure: Upgrade technical parameters, according to Regulation no 1315/2013, of the rail section Buzău – Făurei – Brăila – Galați – Reni - Giurgiulesti (MD, UA border).
Responsible institution	National Company Administration of Romanian Railway Infrastructure
Steps	• necessity, opportunity, cost estimation – Feasibility Study (under preparation) • identifying funding sources and getting funding (under preparation) • implementation
Horizon for implementation	2016-2021
Budget	524 mil EURO Funding sources: Operational Programme “Large Infrastructure” State budget
Good practice example	NA

Recommendation I88 Modernization of road connection Galati-Buzau road; Galati-Slobozia road section	
Description	The envisaged section (Buzau- Braila- Galati and section Slobozia-Braila-Galati) to be modernized is part of comprehensive TEN-T and connect the core port of Galati and the comprehensive port of Braila to core TEN-T *Rhine Danube Corridor). The section have one lane per sense. The envisaged works are : Upgrade to express road range (high-speed improvement and to reduce accidents risks)
Beneficiaries	Beneficiaries are road transport operators, population, logistic companies Objectives of the measure : Upgrade technical parameters, according to Regulation no 1315/2013, of the road section Buzău – Făurei – Brăila – Galați // Slobozia-Braila-Galati.
Responsible institution	National Company Administration of Romanian National Roads
Steps	• necessity, opportunity, cost estimation – Feasibility Study (under preparation) • identifying funding sources and getting funding (under preparation) • implementation
Horizon for implementation	2018-2031
Budget	384,99 mil EURO Funding sources: Operational Programme “Large Infrastructure” State budget
Good practice example	NA

Recommendation I137 Improving Navigation Conditions on the Danube between Calarasi and Braila – works and FS	
Description	Thresholds formed at critical points will be eliminated by carrying out hydro-technical works to improve navigation conditions : 1.improve navigation conditions at Bala critical point (Calarasi – Braila Danube sector Km 375 – km 175) 2.improve Navigation Conditions on the Danube– Romanian– Bulgarian Joint Sector (Km 845,5 – km 375) 3. infrastructure works, Bank protections on Sulina Channel

Beneficiaries	Beneficiaries are IWT operators, logistic companies Objectives of the measure : ensure Danube fairway complying all around year with technical parameters concerning fairway depth according to Regulation no 1315/2013;
Responsible institution	River Administration of the Lower Danube Galati, ROMANIA (AFDJ)
Steps	1. improve navigation conditions at Bala critical point • necessity, opportunity, cost estimation – Feasibility Study (completed; need to be updated) • identifying funding sources and getting funding (partially completed; new application is under preparation) • implementation (Infrastructure works have been executed in 3 bottlenecks on this sector. 2. improve Navigation Conditions on the Danube– Romanian– Bulgarian Joint Sector (Km 845,5 – km 375) • necessity, opportunity, cost estimation – Feasibility Study (under preparation) • identifying funding sources and getting funding • implementation 3. infrastructure works, Bank protections on Sulina Channel • identifying funding sources and getting funding (completed) • implementation (acquisition procedure in progress)
Horizon for implementation	1.1.improve navigation conditions at Bala critical point 2015-2020 1.2.improve Navigation Conditions on the Danube– Romanian– Bulgarian Joint Sector 2017-2020 1.3. infrastructure works, Bank protections on Sulina Channel 2015-2023
Budget	136,036 mil EURO Funding sources : - Operational Programme “Large Infrastructure” - CEF State budget
Good practice example	NA

Recommendation I138 Dredging works on the Danube for fairway maintenance	
Description	Maintenance dredging on Danube fairway The project will provide an adequate maintenance budget for implementation of Master Plan for Rehabilitation and Maintenance of the Danube Channel and its tributaries.
Beneficiaries	Beneficiaries are IWT operators, logistic companies Objectives of the measure : ensure Danube fairway complying all around year with technical parameters concerning fairway depth according to Regulation no. 1315/2013;
Responsible institution	River Administration of the Lower Danube Galati, ROMANIA (AFDJ)
Steps	1. necessity, opportunity, cost estimation – Feasibility Study (completed) 2. identifying funding sources and getting funding (ongoing) 3. implementation
Horizon for implementation	Permanently
Budget	6,374 mil EURO Funding sources: Operational Programme “Large Infrastructure” State budget
Good practice example	NA

Recommendation I141 Rehabilitation and maintenance / Procurement of equipment	
Description	Refurbishment of the multifunctional sea ice trolley with "Perseus" ice class - 6,600 hp Purchase of equipment and specialized vessels (measuring vessels, signaling, dredging, tugs that may interfere with ice breaking) to increase the technical capability of the waterway administration : • 2 seagoing tugs • 2 river tugs (ice breakers) • 1 seagoing tug • 1 marking vessel • 2 dredgers • 1 tank barge • 2 maritime pilot boats • 3 river pilot boats • 1 river dredger • 1 pontoon • 1manoeuvring tug • 2 barges
Beneficiaries	Beneficiary is River Administration of the Lower Danube Galati Objectives of the measure : • increase the effectiveness of maintenance and intervention activity in case of special situations (drought, frost) Improving the efficiency of port and fairway safety services
Responsible institution	River Administration of the Lower Danube Galati, ROMANIA (AFDJ)
Steps	• necessity, opportunity, cost estimation – Feasibility Study (completed) • identifying funding sources and getting funding (ongoing) • implementation (ongoing)
Horizon for implementation	2017-2021
Budget	52.852 mil EURO Funding sources : • Operational Programme “Large Infrastructure” • CEF State budget
Good practice example	NA

Recommendation I291 Galati multimodal platform	
Description	Modernization of port infrastructure and providing intermodal transshipment equipment to develop multimodal platform in port of Galati according to Regulation no.1315/2013 and Regulation no.1316/2013. 900 m of quay wall will be modernized by turning from sloped to vertical one, intermodal facilities (transtainers) will be purchased to manipulate 150.000 TEU/year. The rail and road network will be redesigned and a new dedicated gateway will be provided to separate freight flows from terminal to other freight flows from port. A roundabout and a flyover will eliminate bottlenecks on crossing point between rail tracks entering the port and E87.
Beneficiaries	Beneficiary are vessels calling the port of Galati, rail and road transport operators. Objectives of the measure :

	• Enable intermodality between four modes of transport (rail, road, IWT and maritime) Reduce the negative impact of port operations on the environment
Responsible institution	Consortium composed of National Company Maritime Danube Ports Administration and private port operators Port Bazinul Nou and Metaltrade Intl
Steps	• necessity, opportunity, cost estimation – Feasibility Study (completed) • identifying funding sources and getting funding (completed for quay wall; under preparation for the rest of project objects) • implementation (design and quay wall construction under implementation)
Horizon for implementation	2017-2021
Budget	80.799 mil EURO Funding sources : • Operational Programme "Large Infrastructure" • CEF • State budget Private funds
Good practice example	NA

Recommendation B13 **Setting up business facilitators in ports (business incubators, business centres, one-stop-shop)**	
Description	Setting "One-Stop-shop" in Danube ports including Galati port to provide transparent & up-to-date transnational information on Danube navigation and port facilities. The "one-stop-shops" will be delivered as an on-line integrated platform accessible by all port and Danube clients supporting their logistic needs.
Beneficiaries	Beneficiary are inland & maritime transport services and logistic services providers Objective of the measure : • Enhance integration of Danube navigation and Romanian ports into logistic chains Strengthen Danube region
Responsible institution	Union of Romanian Inland Ports and CERONAV
Steps	• identifying funding sources and getting funding (completed) • implementation (ongoing)
Horizon for implementation	2017-2019
Budget	41,000 EURO Funding sources : • DANUBE Transnational Programme • State budget Private funds
Good practice example	Inland waterway promotion centers are well established and successfully working in the Rhine-Main Region as well as in Austria, offering a wide range of instruments and information which foster and promote inland navigation. Downstream Danube countries do however, have a backlog which will be reduced through institutional, organizational and individual capacity building.

Recommendation C24 Implementation of Port Community Systems in DBS ports	
Description	Design and implement Port Community System in port of Galati. It consist of a neutral and open electronic platform enabling intelligent and secure exchange of information between public and private stakeholders in order to improve the efficiency and competitive position of the Galati port community. It provides for the electronic exchange of information between all port and logistics sectors. Through PCS the port of Galati will gain the ability to integrate into the National Single Window which Romania, as all European Member States , will develop in response to recent Directives and policy from the European Commission. A PCS is therefore pivotal in the Single Window concept and will reduce duplication of data input through efficient electronic exchange of information. PCS will be implemented by a freight corridor approach
Beneficiaries	Beneficiary is the Galati port community. PCS is formed by the community, for the community. Objective of the measure : • It will optimise, manage and automate smooth port and logistics processes through a single submission of data and by connecting transport and logistics chains. Enable integration of Galati port into intermodal supply chains
Responsible institution	National Company Maritime Danube Ports Administration
Steps	• identifying funding sources and getting funding (in preparation) • implementation
Horizon for implementation	2019-2022
Budget	Not yet available Funding sources : • CEF • State budget Private funds
Good practice example	Port of Trieste, partnership between port of Basel and Manheim (Switzerland and Germany)

Recommendation C45 Set up joint awareness and planning for accidental water pollution management	
Description	Establishment of a supportive framework to enhance the awareness and competences of human resources involved in marine pollution management on Lower Danube area. It will be addressed on the basis of available best practice which will be adapted to the specificity of the implementation area. The action will start with a survey of best practice from EU countries. Based on the capitalization of best practice survey will be elaborated the concept of the center which will be fleshing the supportive framework to enhance the awareness and competences of human resources involved in marine pollution management. The concept will be designed so as to allow multiplication and easy adaptation to the specific of other areas along Danube. The concept will be implemented as a pilot action by setting up the center in location in Galati port which will serve all stakeholders from Lower Danube area involved in marine pollution management. As the project address the maritime sector of the Danube, the validation of the implementation of the designed concept will be made by training of a group of personnel selected from port authorities from RO, UK and MD, which are

	providing support functions to national competent authorities responsible for emergency in case of marine pollution. The envisaged actions are : Develop multinational response capacities, including tools and methodologies, to operate jointly and to enhance the quality and interoperability of such capacities Elaborate a common emergency plan to manage crossborder accidental pollution on maritime sector of the Danube Create and train a pool of experts to operate in case of accidental water pollution Set up a training center as a supportive framework to enhance the awareness and competences of human resources involved in marine pollution management
Beneficiaries	Beneficiaries are maritime Danube ports and civil protection and disaster management national authorities Objective of the measure : • Enhance preparedness and response capacities of national civil protection and disaster management personnel to oil spill, to mitigate their adverse effects on people and the environment Strengthen cross-border cooperation and partnerships between Romania and the Neighbourhood countries, the Republic of Moldova and Ukraine, in the field of civil protection to improve the effectiveness of systems for preparing for and responding to oil spill accidents
Responsible institution	National Company Maritime Danube Ports Administration
Steps	• identifying funding sources and getting funding (in preparation) • implementation
Horizon for implementation	2019-2021
Budget	Not yet available Funding sources : EU funding programme and State budget, Private funds
Good practice example	Black Sea Emergency Plan

Recommendation C48 **Enhance cooperation and innovation uptake on Danube ports by clustering relevant stakeholders**	
Description	Building up administrative capacity and competences of “Blue economy” clusters, in this case of Romanian River Transport Cluster, and set up a network among Black Sea and Adriatic Sea clusters. The network will manage a database of innovation needs and experts which will help clusters to enhance their role in innovation uptake among maritime industry stakeholders especially SME’s and to develop cooperation between industry and academic environment
Beneficiaries	Beneficiary are stakeholders from maritime sectors: transport, ports, shipbuilding, ship repairing, ship design. Objective of the measure : • Deliver know how to maritime sector from neighbourhood countries (Balkans) and East EU countries to reduce gaps in innovation uptake With relevance for Romania : enhance Romanian River Transport Cluster role in innovation uptake by port community members; strengthen cooperation between port community and Galati universities and local authorities
Responsible institution	Union of Romanian Inland ports
Steps	• identifying funding sources and getting funding (preparation) • implementation (ongoing)
Horizon for implementation	2019-2021

Budget	50,000 EURO Funding sources : • EU funding programme • National funding programme • State budget Private funds
Good practice example	Networks of clusters from EU (European Network of Maritime Clusters)

Recommendation C51 **Set up technology information centres in DBS ports**	
Description	The Information Technology Center will be established in Galati by Romanian Inland Ports Union, as a software platform dedicated to provide port community members with information about research results and innovation uptake examples related to port business. The action enroll in the program of measures outlined through the Intelligent Specialization Strategy of the South-east Region of Romania which identified waterway transport and related bussinees as smart specialization areas of interest. Also, the center will enhance cooperation between port community, academics and other port's related activities by Romanian River Transport Cluster participation. The center will join networks of similar organizations from Romania and abroad
Beneficiaries	Beneficiary are port community members Objective of the measure : • Enable port community stakeholders access to innovation Deliver research needs to Romanian River Transport Cluster
Responsible institution	Union of Romanian Inland Ports
Steps	• identifying funding sources and getting funding (ongoing) • implementation
Horizon for implementation	2019-2020
Budget	Not yet established Funding sources : • Operation Programme Competitiveness • State budget Private funds
Good practice example	NA

Recommendation L31 **Set up a Centre for port labour training**	
Description	The proposed action purpose is to overcome the challenges faced by port sector activities. The existing skills' gaps and jobs accessibility has always been a topic of the discussions and analysis but since the containerization in international trade starts on 1966s and other demands increased. As labour force proved to be a driver to business competitiveness the lack of competence and low interest for port jobs hinder the port services capacity to met clients demands. The project will specifically target the issue of existing mismatch between available skills and need of the port sector labour market by setting up basis for a concrete link between the sector of education and training on the one hand and port industry on the other hand. The implemented concept of the competency-based framework for port workers development is a good-practice example of cooperation between

	training and industry and of innovative training models , which can be further disseminated to other ports in Black Sea and along the Danube. The project capitalise results of previous projects TRAINING4PORTS an EUPORTRAITS
Beneficiaries	Beneficiary are port community members both employers and employees, training services providers, youngsters Objective of the measure : • Improve training services to match labour market needs • Improve the regulatory framework • Enhance port labour access to training services Support employers to set up a competitive framework for port labor
Responsible institution	Union of Romanian Inland Ports
Steps	• identifying funding sources and getting funding (under preparation) • implementation
Horizon for implementation	2019-2021
Budget	400,000 EURO Funding sources : • EU funding • State budget Private funds
Good practice example	Port Labour school from Lisbon, Anvers, Rotterdam

Recommendation L51 **Elaborate a toolkit for stimulative charging of the port infrastructure**	
Description	The action consist of a set of best practice and guidelines for port infrastructure administrators use to help them develop policy and pricing strategy in order to attract freight flows by increasing the calls of ports. The purpose is commercial but also with environmental impact in line with EU strategy for “greening” the transport.
Beneficiaries	Beneficiary are port infrastructure administrators. Objective of the measure : • Increase ports’ competitiveness Support uptake by infrastructure users which uptake innovation to greening the services they provide
Responsible institution	Union of Romanian Inland Ports
Steps	• identifying funding sources and getting funding (under preparation) • implementation
Horizon for implementation	2019-2021
Budget	Not yet established Funding sources : • EU funding • State budget Private funds
Good practice example	Not identified

Recommendation S14 **Elaborate Smart Specialization strategies for Danube ports development**	
Description	Europe is facing major economic challenges that require an ambitious economic policy for the 21st century. The EU has set out its vision for

	Europe's social market economy in the Europe 2020 strategy which aims at confronting our structural weaknesses through progress in three mutually reinforcing priorities: smart growth, based on knowledge and innovation; sustainable growth, promoting a more resource efficient, greener and competitive economy; inclusive growth, fostering a high employment economy delivering economic, social and territorial cohesion. Investing more in research, innovation and entrepreneurship is at the heart of Europe 2020 and a crucial part of Europe's response to the economic crisis. the Commission encourages the design of national/regional research and innovation strategies for smart specialisation as a means to deliver a more targeted Structural Fund support and a strategic and integrated approach to harness the potential for smart growth and the knowledge economy in all regions. Thus governments start to develop national and regional RIS2 Strategies. Regional RIS2 Srategies need to be depicted into sectorial RIS3 strategies following the identified smart specialization economic sectors for each region by combining innovation with specific strengths of Galati port comunity
Beneficiaries	Beneficiary are port community members. Objective of the measure : • maximizing the exploitation of the opportunities offered by Galati port developing the Galati port as an economic growth engine for local community and for the region
Responsible institution	National Company Maritime Danube Ports Administration
Steps	• identifying funding sources and getting funding (under preparation) • implementation
Horizon for implementation	2019-2021
Budget	Not yet established Funding sources : • EU funding • State budget Private funds
Good practice example	Not identified

Recommendation S16 **Development passenger and touristic services in maritime Danube ports**	
Description	The envisaged measure aims to increase the Galati port contribution in developing the South-East region tourism by the development of passenger transport on the Danube. Thus the waterway transport share will increase for the benefit of the environment and reducing the risk of accidents on roads. The project will create modern facilities for passengers and vessels to ease tourists' access to the Danube Delta and to create a more attractive and environmentally friendly alternative to road transport
Beneficiaries	Beneficiary are persons travelling for tourism purpose Objective of the measure : • To develop the Port of Galati role as starting point for travel exclusively on Danube to the Danube Delta To revitalize the public transport on the Danube
Responsible institution	National Company Maritime Danube Ports Administration; Galati Municipality
Steps	• identifying funding sources and getting funding (under preparation) • implementation

Horizon for implementation	2020-2025
Budget	Not yet established Funding sources : • EU funding • State budget Private funds
Good practice example	CapaCity project

Recommendation T25 Implement LNG facilities in core TEN-T ports	
Description	Construction of LNG terminal in port of Galati to comply with Regulation no 1315/2013. The action is in line with implementation of LNG according to the EU transport/energy/environmental policy goals and actions. The path of this action was paved by the LNG Masterplan which is a platform for cooperation of authorities and industry stakeholders with the purpose to facilitate the creation of harmonized European regulatory framework for LNG as fuel and cargo in inland navigation and to promote it accordingly. It delivers technical concepts for new and retroffited vessels and terminals. It develops a comprehensive strategy together with a detailed roadmap for the implementation of LNG Thus the envisaged action implement the identified measures for port of Galati. According to it the LNG terminal location in Galati is proposed in Industrial Park area with mooring facility for vessels and operational capacity of 8,000 cbm. The storage capacity will be provided with transhipment equipments for all modes of transport
Beneficiaries	Beneficiary are ship-owners and LNG traders. Objective of the measure : • Complying with Regulation no.1315/2013
Responsible institution	National Company Maritime Danube Ports Administration/Free Zone/Industrial Park (depending on final location)
Steps	• necessity, opportunity, cost estimation – Pre Feasibility Study (completed) • identifying funding sources and getting funding • implementation
Horizon for implementation	2019-2023
Budget	Not yet established Funding sources : • EU funding • State budget Private funds
Good practice example	Baltic Sea ports

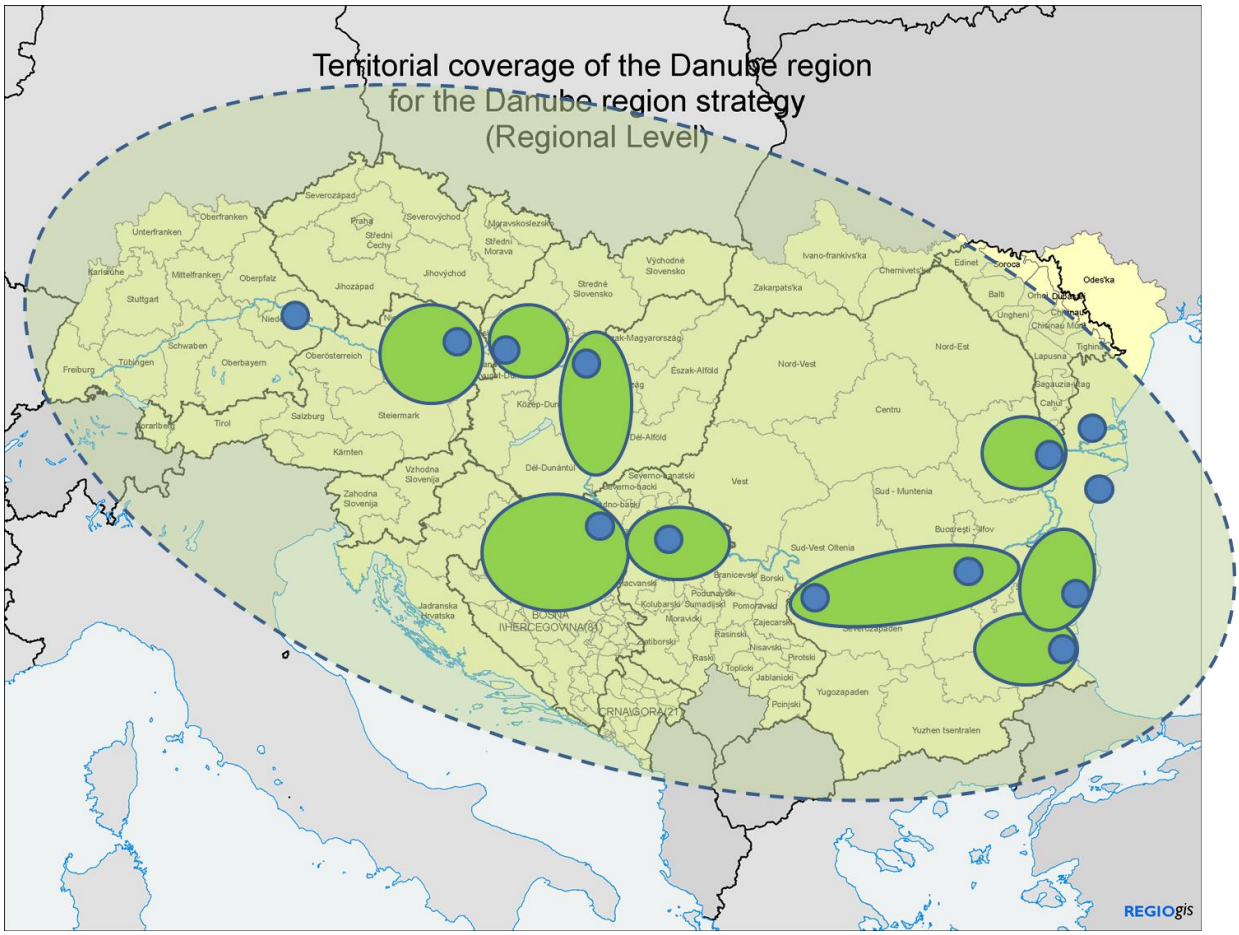
4.12 Cooperation Action Plan (CAP) for the DBS Gateway Region

Following the application form each partner has the obligation for elaborating a Regional Action Plan for his own region. This approach would have resulted having two regional action plans for the same region, i.e. Lower Austria and Vienna, whereas the main hub for Lower Austria is the port of Vienna. At the same time and action plan covering the entire project area was missing. Thus, it was commonly decided to elaborate one regional action plan for Lower Austria and Vienna and a Cooperation Action Plan (CAP) addressing the whole multiport DBS Gateway Region. For the elaboration of the CAP the same methodology as for the

Regional Action Plans was applied. Furthermore, the CAP forms a crucial content wise input for the elaboration of the business plan of the Cooperation Platform (WP6).

4.12.1 Definition of the DBS Gateway Region

The geographical coverage of the Danube-Black Sea (DBS) Gateway Region currently covers parts of seven Member States (Austria, Bulgaria, Croatia, Hungary, Germany, Romania and Slovakia) and three non-EU Member States (Moldova, Serbia and Ukraine).

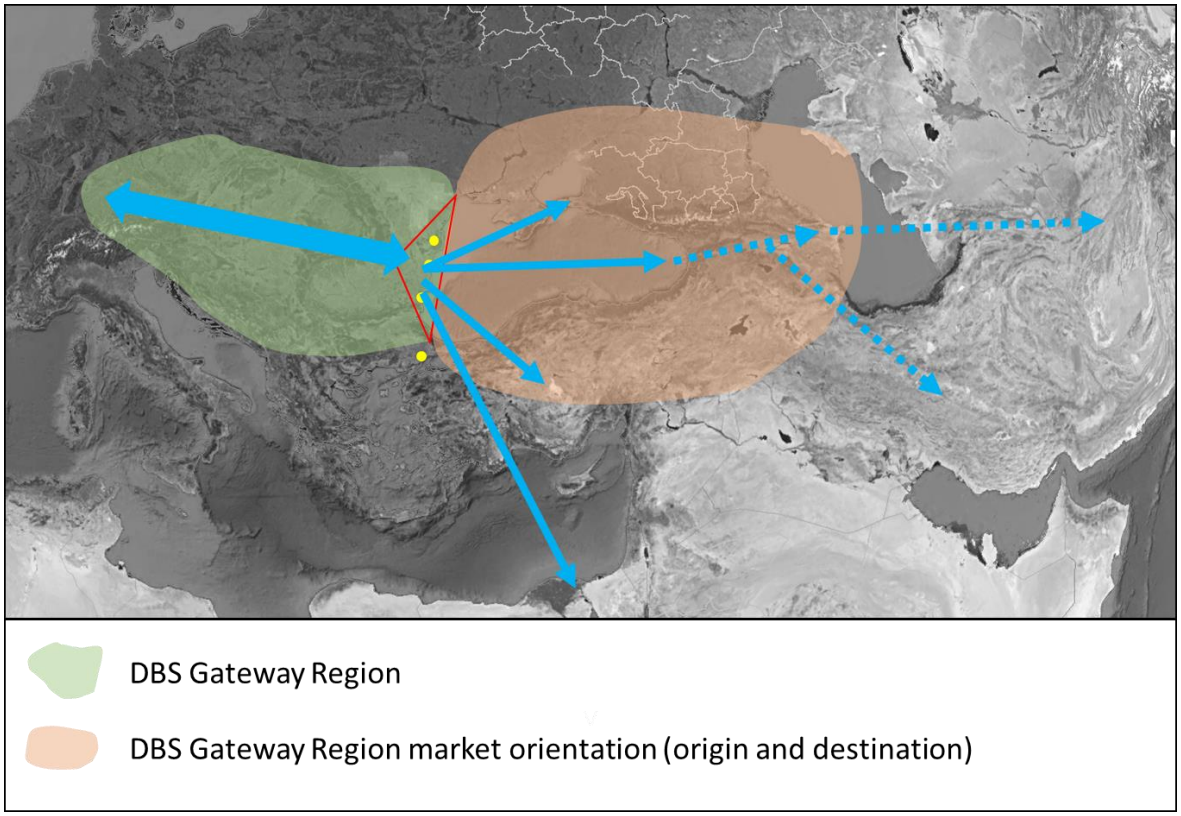


The area overlaps with the territory addressed by the EU Strategy for the Danube Region (EUSDR), comprising also the Danube river basin and the mountainous areas (such as the Carpathians, the Balkans and part of the Alps). It is the most international river basin in the world. The area makes up one fifth of the EU‟s territory and it is inhabited by approximately 114 million people. The variety of natural environment, the socio-economic differences and cultural diversity of the various parts of the area may be perceived as major challenges but actually represent important opportunities and unexploited potential.

The backbone of the area is the Danube with a total length of 2,845 kilometres. Almost 2,415 kilometres of the river (from Kelheim to Sulina) are navigable. The catchment area of the Danube has a population of roughly 120 million and covers approximately 800.000 km², extending over 14 states, among them nine EU-member states (Germany, Austria, Czech Republic, Slovakia, Hungary, Slovenia, Croatia, Bulgaria and Romania) and five countries which are not EU-members (Serbia, Montenegro, Bosnia and Herzegovina, Ukraine and Moldova).

In addition, the DBS Gateway Region consists of the Western Black Sea Regions and its ports, which are signatories of the "Memorandum of Understanding on the Establishment of Cooperation between the Working Community of the Danube Regions, represented by the Province of Lower Austria (incl. Danube Ports) and the Regions of the Western Black Sea and its Ports" (http://www.noel.gv.at/noe/Internationales-Europa/Memorandum_of_Understanding_E.pdf), as entry points and the Danube ports (see http://www.danube-logistics.info/index.php?id=25&L=1) as intermodal nodes and efficient connections between the ports and their hinterland.

Thus, the region has potential to become a very important gateway for sustainable and environmentally-friendly waterway freight transport between Central Europe, the Caspian region and the Far East.



4.12.2 Description of specific target groups

The Cooperation Action Plan addresses the following institutions responsible for implementing the recommended action:

- City Administrations of the DBS Gateway Region
- Regional Governments of the DBS Gateway Region
- Business agencies of the DBS Gateway Region
- Port Authorities
- Ministries of Transport of the DBS Gateway Region

In order to achieve the best outcome and ownership of the implemented measures the following additional institutions will be involved in the process:

- Local authorities of relevant municipalities

- Port authorities (representing also the companies at ports)
- Chamber of Commerce and their relevant departments (integration of the needs of the beneficiaries)
- Potential shippers
- High and heavy logistic service provider
- Working Community of Danube Regions (ARGE Donauländer)
- Logistics networks
- Other institutions having relevant information on IWT and ports

The main beneficiaries of the measures described in the CAP are:

- Ports and companies located at ports (including Danube logistic and industries)
- Public administration
- Logistic service provider
- Shippers
- IT-developer
- Road users and operators (less high and heavy goods transports on roads)
- Industry
- Regional governments
- Existing initiatives, platform and network organisations
- Business agencies

4.12.3 Overview of recommended measures

Based on the measures that were defined for the individual port regions by every partner for the roadmap, a list of transnational measures following the different fields of intervention of the Joint Vision 2040 that are considered relevant for entire gateway region was compiled. In order to reduce this long list to a realistic number of measures/activities project partners, as well as associated partners and external experts had the possibility to weight the measures using four main criteria:

- Relevance of the measure for inland waterway transport on the Danube (high/low)
- Feasibility of the measure (viable/difficult to realise)
- Time horizon for the implementation of the measure (less than 2 years/2 to 5 year/more than 5 years)
- Impact of the measure for shifting transport to IWW (high/moderate/(almost) no)

Based on this assessment ten measures/groups of measures that were ranked highest, were selected for the Cooperative Action Plan.

Within the DBS Gateway Region along the Danube a considerable number of measures to improve technical/infrastructural and organisational preconditions of the Danube river as an adequate transport mode have been developed, tested and implemented during the last decades with different levels of success in the various countries. In addition to these already implemented measures many measures are still in the pipeline or already addressed in national and regional master plans:

- Especially infrastructure measures that have not yet been realised are identified and defined. In this area there is no need for further development of measures – only a need for implementation of the well-known plans is needed.
- The same is true regarding river information services in most of the countries. The system is well developed, further needs are partly identified.
- Different (in most cases not linked) discussion platforms/networks are existing
- Ports develop new business models to gain additional transhipments.

It is not necessary to include these existing activities and measures once again in the CAP. In general, the selected measures cover different fields of intervention, ranging from the establishment of new services and better connectivity to digitalisation and integrative cooperation systems. They can be seen as individual measures that can be implemented separately; however, aspects such as digitalisation are relevant for all measures and digital systems have to be chosen accordingly to cover all the needs (on a technical and functional level) posed by the measures. Also, the implementation of the measures has to be aligned with new management concepts and organisational concepts.

The selected measures derived from the regional roadmaps and assessed on the above described method are:

- Establishment of innovative container services (S003, S004)
- Danube navigability and reliable back-up system by rail
- Digitalisation and data exchange (S002, C001, C003, C004, C006, C008, C009, C010, C011, C012, C013, C014, C015, C016, C017, C018, C019, C020, C021, C022, C023, C024, C025, C028, C037, L003, T012, T023)
- Integrating IWW into the multimodal transport chain
- Development of Danube port in/near cities to city hubs for new logistic concepts and new regional logistic concepts (B008)
- Improvement and construction of sustainable hinterland connections
- Development of new markets and gain new customers (including the elaboration of marketing strategy and an action plan for the DBS Gateway Region) (M001, M004, M011, M012, M013, M019, L052)
- Integration of IWW into regional planning procedures (B010, C061)
- Connecting DBS Gateway Region with other projects/activities (e.g. New Silk Road)
- Set up a harmonised pricing system for vessel's residues and waste discharged in ports to stimulate discharging and create a fair framework based on the "polluter pays" principle (L053)

These measures are described in detail in the following chapter. They partly interact with each other. Needed or suggested interaction is described directly in the tables in the next chapter.

Expected effects of the interventions cover different fields of improvement in terms of freight transport within the Danube Region:

- More efficient use of infrastructure due to cooperative use of port infrastructure, hinterland connections or River Information Services
- Better coordination between ports and other relevant stakeholders via new meeting formats, cooperation platforms and shared logistic concepts

- Better cost-efficiency due to harmonised systems
- Better interconnectivity through technical interoperability and data exchange via shared cross-border information and communication services
  Stronger focus on the environment by supporting green and environmentally friendly modes of transport, avoiding waste and emissions and strengthening IWW transport instead of road transport

4.12.4 Description of recommended measures

Recommendation S003, S004 **Establishment of innovative container services**	
Description	A new and more efficient liner service can be implemented on the Danube by combining volumes of different ports in order to reach the required transporting rate per ton. To facilitate the coordination of this liner service, a platform for carriers can be installed to log-in their goods and amounts for transport on the Danube and to book their space in the load room. In order to reach the required amounts of shipping material, it is necessary, however, to bring large producing companies (e.g. Ikea) closer to the Danube, hence increasing the periodical shipping volumes.
Beneficiaries	Who is benefitting from this measure and why? • Carriers Objectives of the measure • High efficiency • Low environmental impact (compared to other means of transport)
Responsible institution	Who is responsible for implementing the recommended action? • Ship owning companies/shipping companies • carriers Which other institutions should be involved? • Ports • Infrastructure providers • Government

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation
	  ○ High degree of connectivity – increase in the intensity of the flow of goods
	  ○ Necessary volumes
	  ○ Bring producing companies to the Danube – better conditions for suitable companies
	• These are the stakeholders the responsible institution has to involve
	  ○ Network planners

	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Set up a booking platform for carriers
	  ○ Develop a liner service schedule that suits the needs of carriers and shipping companies along the Danube
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ expected volumes
	  ○ number of participating carriers

Horizon for implementation	Medium-term

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ port equipment – approx. 3 mio €
	• Operation (yearly costs)
	  ○ Crane operation and energy costs: 350€ per hour

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other The Ford company in Cologne uses since 2008 five cargo ships to ship new cars from their production site in Cologne to seaports in Antwerp (B), Vlissingen (NL) and Karlsruhe (D) in order to reduce road traffic. The Ford production site is located only 300 metres from Rhine port Cologne-Niehl. Each ship can transport up to 500 Ford Fiesta and hence replaces approx. 65 car transporter trucks. The yearly shipping volume covers approx. 139.000 Ford cars .

Recommendation **Danube navigability and reliable back-up system by rail**	
Description	There are many critical sections along the Danube, where the recommended fairway depth of 2.5 metres at low navigable water level is not achieved throughout the whole year, so barges cannot use their full loading capacity. Also, bottlenecks caused by locks that are in an insufficient state of maintenance lead to capacity issues at the Danube. This measure therefore focuses on an integrated planning approach applied in Danube countries to provide navigational maintenance and rehabilitation measures and hence achieve better fairway conditions along with fewer bottlenecks. This can be done by targeted maintenance and rehabilitation processes. In order to further guarantee the permanent usability of the Danube route, a back-up system is necessary. This can be arranged by setting up parallel railway routes along the Danube, which cover critical

	sections. This also requires the implementation of suitable transhipment infrastructure.
Beneficiaries	Who is benefitting from this measure and why? • shipping company • carriers • EU countries through less emissions Objectives of the measure • better navigability in critical seasons/at critical sections of the Danube • more reliable transport system and fewer losses due to restricted navigability
Responsible institution	Who is responsible for implementing the recommended action? • National governments Which other institutions should be involved? • Railway companies • Ports
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ conduct a baseline study to identify critical sections and possibilities for setting up a back-up railway infrastructure ○ develop plans for new parallel routes and necessary transhipment infrastructure ○ install a comprehensive concept for waterway-rail cooperation • These are the stakeholders the responsible institution has to involve ○ Railway companies – need to cooperate ○ Cooperation with city administrations – integrated planning approach • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Establish a functioning back-up system ○ Install a transport concept that takes into account the back-up route • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Degree of utilisation of back-up system (change of share: road and rail utilisation) ○ Share of good navigability throughout the year (is the navigability improving due to certain measures?)

Horizon for implementation	Medium to long term – setting up the necessary transhipment infrastructure will take longer

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ Base line study
	  ○ Transhipment infrastructure
	• Operation (yearly costs)
	  ○ Maintenance of infrastructure
	  ○ Operation of infrastructure

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

Recommendation S002, C001, C003, C004, C006, C008, C009, C010, C011, C012, C013, C014, C015, C016, C017, C018, C019, C020, C021, C022, C023, C024, C025, C028, C037, L003,T012, T023 Digitalisation and data exchange	
Description	Many ports along the Danube already established information systems on a national level; however, different systems are not compatible, which prevents successful data exchange between international port authorities and e.g. the RIS. Therefore, the measure's aim is the installation of a cross-border information and communication system that links different systems and provides logistics stakeholders access to these data and that offers intelligent and secure exchange of information between port authorities, port stakeholders and different users of port infrastructure. The services provided by the information platform can include data exchange between countries to enable the operation of an international transport management, information on transport possibilities at ports or booking options for port time slots. The goal here is also to improve the shared data collection and to establish new technologies that facilitate River Information and Corridor management. One concept to be used is the "single window concept", which allows ports to simplify and harmonise information procedures. This concept is based on the idea of providing one specific entrance point for all types of information.
Beneficiaries	Who is benefitting from this measure and why? • Port authorities • Shipping companies Objectives of the measure • Creating one transnational, interoperable RIS that can be used by all Danube ports • Interoperability with different systems/data
Responsible institution	Who is responsible for implementing the recommended action?

	• Port authorities • Port infrastructure companies Which other institutions should be involved? • Ministries of transport
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ Analyse needs of customers and operators – upgrade existing information systems ○ define minimum criteria for RIS and harmonisation of underlying national legislations • These are the stakeholders the responsible institution has to involve ○ IT companies • This is what the responsible institution has to do first, second, third • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Define a common standard format for data exchange ○ Set up a RIS that meets the requirements of all participating Danube ports • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ number of users ○ interoperability problems with existing data ○ completeness of digitalized information
Horizon for implementation	Medium-term
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ IT platform/programming: approx. 20,000€ • Operation (yearly costs) ○ Keeping platform up-to-date ○ Marketing costs
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • DoRIS by Via Donau: water road management, proactive bedding management – information on necessary hydraulic engineering measures; information on shallow points; preferred paths along the fairway etc. • Bargelink: Online platform for registered users; users can log in free shipping capacities or shipping amounts to find and select suitable partners; so far, the platform works well in Germany

	and the Netherlands, however, more marketing measures are required in other countries to reach potential clients • RIS COMEX: 4-year project to realise a corridor RIS service, aim is the implementation and operation of cross-border RIS based on operational exchange of RIS data; traffic management by authorities and transport management by logistics sector; availability of Fairway-, Traffic- and Transport Information Services

Recommendation **Integrating IWW into the multimodal transport chain**	
Description	IWW and the benefits of shipping should become more visible and available for freight forwarders, leading to a modal shift in transport. Possible channels to raise awareness for IWW can be educational measures or funding measures that help carriers and other stakeholders to get relevant information. Lobbying will be required to promote an easy-to-use approach that allows to integrate data on IWW into existing platforms, hence creating an alternative to trucks for carriers.
Beneficiaries	Who is benefitting from this measure and why? • carriers • port authorities • EU countries through less emissions Objectives of the measure • better awareness of IWW as part of the transport chain • IWW as environmental friendly alternative to trucks as main players in transport
Responsible institution	Who is responsible for implementing the recommended action? • European Commission Which other institutions should be involved? • Port authorities • IWW terminals • IT companies • Infrastructure planning authorities
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ Develop a strategy to integrate IWW in the multimodal transport chain (define measures, such as funding or lobbying activities) ○ Define adequate regulations for the interchange of transport modes ○ Promote IWW as part of the multimodal transport chain

	• These are the stakeholders the responsible institution has to involve
	  ○ Port authorities
	  ○ IWW terminals
	  ○ IT companies
	  ○ Infrastructure planning authorities
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Promote funding programme/activities to strengthen the IWW
	  ○ Raise the share of carriers using IWW to transport goods
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ share of carriers using IWW to transport goods
	  ○ total amount of shipped goods on IWW

Horizon for implementation	Short to medium-term + long term

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ Setting up strategy for integrating IWW in the multimodal transport chain
	  ○ Funding for programme activities
	• Operation (yearly costs)
	  ○ Lobbying activities
	  ○ Provision of information

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • Marco Polo Support Programme: pro-active policy to promote intermodality and transport by rail, sea and inland waterways – focus on shift from road to environmental friendly modes of transport • NAIADES Action Programme: recommendations for actions to strengthen growth in waterway transport within the multi modal transport chain – in 5 strategic areas: markets, fleet, job & skills, promotion and infrastructure

Recommendation B008 **Development of Danube port in/near cities to city hubs for new logistic concepts and new regional logistic concepts**	
Description	With the development of Danube ports near cities as city hubs/distribution centres a stronger focus on IWW-driven city logistics can be encouraged. By connecting these city hubs with other modes of transport they can be used as fine distribution hubs. Waterway distribution can offer an energy and carbon-efficient alternative to truck deliveries and help avoid congestion due to free capacities in IWW infrastructure. As recent studies have shown, inland navigation is suitable for smaller-scale freight transport in dense urban areas, as long as they have the required infrastructure and appropriate size and location to foster business settlements nearby.
Beneficiaries	Who is benefitting from this measure and why? • Carriers • Businesses • Logistics providers • Local governments Objectives of the measure • Sustainable city logistics – avoiding road logistics, bigger amounts • Avoiding road congestion
Responsible institution	Who is responsible for implementing the recommended action? • City / local public authorities Which other institutions should be involved? • Ports • Business agencies • Chambers of commerce

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation
	  ○ Base line study: suitable delivery routes within the city (including fairway depth, required transhipment infrastructure at final destination etc.)
	  ○ Find suitable locations/ports that can function as distribution centres
	  ○ Promote the city hub as sustainable/efficient alternative to road-based hubs to companies, find clients
	  ○ Find suitable boats that fit the city's requirements for deliveries
	• These are the stakeholders the responsible institution has to involve
	  ○ large businesses as main tenants (e.g. regional partners like large grocery providers)
	  ○ waterway transport providers

	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Establishment of local delivery system including setting delivery routes
	  ○ Achieve a critical mass of clients/hub users
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ number of users of the IWW city hub
	  ○ number of deliveries, delivery amounts

Horizon for implementation	Medium-term

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ Hub infrastructure
	  ○ Boats and other delivery vehicles
	  ○ Promotion of location/services
	• Operation (yearly costs)
	  ○ Mainenance of boats and infrastructure

Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other
	• Beer boat Utrecht: first modern urban logistics concepts using water, since 1996; supply drinks and food to more than 70 catering industries located along the canals of Utrecht; owned by the municipality, which leases the boat to companies that provide the actual distribution services; since 2010: electric, zero emission Beer Boat (uses green energy, can carry 18 tonnes of cargo/40–48 containers); since 2012: similar boat used for waste disposal; Amsterdam also uses boat for inner city deliveries and waste disposal
	• Paris – distribution centres at the Seine:
	  ○ Vert Chez Vous: operating since 2012, multimodal delivery service – “warehouse barge”with fleet of 18 electrically assisted delivery cargobikes on board; focus on delivery of small parcels (less than 30 kg)
	  ○ Franprix: river transport to deliver food products on a daily basis to 80 of its stores in the centre of Paris since 2012; containers are transported by truck from the regional distribution centre of Franprix to an inland port for transfer to a barge for the 20 km journey along the Marne and Seine rivers; funded by local authorities
	  ○ Velib: transports bicycles and mechanics along the Seine; the vessel is equipped with a mobile on-board crane capable of transhipping 5 bicycles and with repairs and storage

Recommendation **Improvement and construction of sustainable hinterland connections**	
Description	The availability of hinterland connections is an important factor for port competition, since inefficient hinterland links lead to increased supply chain costs and inefficiencies as well as greater environmental impacts. In order to remove bottlenecks in hinterland connections, good infrastructure connections (to the railway and road system) have to be established. A better integration with the land modes can help ports to take over a more central role within the logistic chain; they can be established as distribution centres for fine distribution to the hinterland.
Beneficiaries	Who is benefitting from this measure and why? • Ports • Logistic companies / shippers Objectives of the measure • Strengthening the attractiveness of ports as part of the logistics supply chain • Better accessibility, avoiding detours • Better competitiveness due to faster shipment of cargo to hinterland
Responsible institution	Who is responsible for implementing the recommended action? • Port authorities Which other institutions should be involved? • Port infrastructure providers • Local authorities - road/railway planning departments

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation
	  ○ Base study to determine the key issues in regards to hinterland connections and assessment of key trends in the container and ferry markets with focus on port hinterland flows
	  ○ Development of recommendations for improvement of connectivity of ports and their hinterland
	• These are the stakeholders the responsible institution has to involve
	  ○ Road/railway planning departments for infrastructure planning
	  ○ rail and road operators
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ define suitable hinterland connections
	  ○ implement connections together with infrastructure providers

	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Number of logistics companies using the IWW-hinterland connection for shipping goods ○ Number of companies using port facilities as distribution centres
Horizon for implementation	Long-term (long implementation period for infrastructure)
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Rail/road infrastructure for connecting port with hinterland ○ Port infrastructure for establishing a distribution centre • Operation (yearly costs) ○ Maintenance of transport infrastructure ○ Personnel for distribution centre
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • Port of Rotterdam (-> extended definition of hinterland): ○ Rail connection: offers rail transport to and from the port; connections to Germany (3 hours to border) and other European destinations (transport time: max. 1 day); aim: transporting large volumes of cargo across long distances; rail shuttles for containers, general cargo and chemical products (250 weekly intermodal rail services); direct freight railway to Germany: dedicated railway line for cargo transport, connects Maasvlakte and port of Rotterdam to German railway network ○ Waterway connection: inland shipping for large volumes – transport per barge; Shipping lines to the Netherlands, Germany, Belgium, France, Switzerland, Austria – inland vessel transport via Maas and Rhine

Recommendation M001, M004, M011, M012, M013, M019, L052 **Development of new markets and gain new customers, Elaboration of marketing strategy and an action plan for the DBS Gateway Region**	
Description	In order to strengthen the competitive position of inland waterway transport and ports, a common marketing strategy is necessary to

	develop new markets, find ways for differentiation and improve financial results. Marketing measures can cover different areas: • Improved consultancy and assistance of customers of the Danube waterway (including ship operators, logisticians and the shippers) • Creation of neutral platforms to connect demand and supply • Joint working initiatives between ship operators and logisticians • Joint representation of the Danube logistic sector at exhibitions • Joint B2B-infromation and marketing events • Awareness raising campaigns to gain trust of shippers and forwarders towards waterborne transportation services • Incentives for eco-friendly transport modes (PERS certificate), raising awareness for sustainability/renewable energy
Beneficiaries	Who is benefitting from this measure and why? • Port authorities • National economies in the region Objectives of the measure • boost competitiveness of Gateway Region • promote offers of the ports and regions • development of new markets/customers
Responsible institution	Who is responsible for implementing the recommended action? • Business Agencies • Chambers of Commerce • Ministries Which other institutions should be involved? • Economic offices • Marketing agencies • Communication experts
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ Develop a common promotion strategy and joint brand ○ Organize events with focus on waterway to raise awareness for related issues • These are the stakeholders the responsible institution has to involve • This is what the responsible institution has to do first, second, third • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Successful creation of a joint brand ○ Development of marketing concept • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are

	useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Increased awareness for waterway and sustainable use of resources ○ Customer knowledge of the brand and the benefits of waterway transport
Horizon for implementation	Medium-term
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Brand design ○ Communication and marketing strategy ○ Marketing material (design) • Operation (yearly costs) ○ Marketing activities ○ Events for stakeholders ○ Marketing material (printing)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

Recommendation B010, C061 **Integration of IWW into regional planning procedures**	
Description	In order to strengthen the cooperation between local and other relevant stakeholders (port authorities, business) in urban planning, a cooperation platform or regional dialogue forum can be set up, which focuses on the exchange between representatives from ports, business and the urban planning community. These exchange formats can help integrate the needs of ports and port business into urban and regional planning activities and foster a shift from road-focused planning to multimodal infrastructure planning. Other relevant aspects can be: • public consultations that focus on planning activities, such as zoning planning or regional plans • sustainable transport planning (infrastructure)
Beneficiaries	Who is benefitting from this measure and why? • Port authorities and companies located at ports • Public administration Objectives of the measure • Target-oriented regional and local planning in terms of port development • Regularly exchange meetings between stakeholders • Focus on IWW-focus planning measures
Responsible institution	Who is responsible for implementing the recommended action? • Local/regional government

	• Port authorities Which other institutions should be involved? • City administrations • Business agencies
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ Definition of responsibilities among stakeholders ○ Definition of exchange process ○ Survey of best practices ○ Develop a guideline on exchange information for public planning actions ○ Establishing contact to relevant stakeholders • These are the stakeholders the responsible institution has to involve ○ City administrations ○ Business agencies ○ Infrastructure providers ○ Port authorities • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ Set up periodical meetings with relevant stakeholders • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data? ○ Regular reporting of local planning authorities ○ Review meeting of involved public authorities ○ Questionnaire about satisfaction with development of public planning activities (for ports, companies)
Horizon for implementation	Medium-term
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) • Operation (yearly costs)
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other • Galati Multimodal Platform MULTILOG: multilevel transnational network, project developed by a partnership between Port Authority and private operator

Recommendation **Connecting DBS Gateway Region with other projects/activities (e.g. New Silk Road)**	
Description	In order to connect the DBS Gateway Region with other projects, a platform for regular knowledge exchange has to be set up as a central contact point that allows its members to keep others up-to-date and to define relevant focus points for new developments and projects. Also topics such as financing of infrastructure can be discussed and new project ideas elaborated. Other tasks could be: • monitoring of project ideas proposed by members/partners followed by a common decision making process • collecting relevant data that might be useful for all members • promotion of the best practices
Beneficiaries	Who is benefitting from this measure and why? • Western European countries • All partners of DBS and other projects Objectives of the measure • Know-how exchange • Establishing new contacts • Cooperation for a better competitive position • Common financing of projects
Responsible institution	Who is responsible for implementing the recommended action? • Port authorities • Local authorities Which other institutions should be involved? • Research facilities / universities • EU commission (DG Move, DG Regio, DG Near)
Steps	What concrete steps will have to be taken in order to implement the whole recommendation? • This is what the responsible institution has to do as preparation ○ Establish a platform as official contact point ○ Involve relevant partners in the set-up process ○ Recruit personnel from existing organisations • These are the stakeholders the responsible institution has to involve ○ Business agencies ○ National governments within the transport sector • This is what the responsible institution has to do before the recommendation can be considered as successfully implemented ○ successful establishment of central contact point ○ staff recruitment ○ getting in contact with other projects • This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where

	are these data available or do we have to collect the relevant data? ○ Amount of exchange with other projects, requests ○ Amount of new projects/measures generated through cooperation between projects
Horizon for implementation	Basic set up: short-term, full establishment: medium-term
Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.) • Implementation (non-recurring costs) ○ Set-up of platform ○ Promotion of platform ○ IT solution • Operation (yearly costs) – covered by membership fees ○ Staff ○ (international) meetings: travel costs, location…
Good practice example	In case the measure is adopted from a different country, give reference to the example in order to facilitate communication and learning from each other

Recommendation L053 **Set up an harmonised pricing system for vessel's residues and waste discharged in ports to stimulate discharging and create a fair framework based on the "polluter pays" principle**	
Description	In order to support a green mode of transport, incentives have to be introduced to modernise transport infrastructure and fleets and to make them greener by reducing emissions. This can be achieved by introducing awareness-raising measures and setting up a harmonised pricing system for vessel's residues and waste discharged in DBS ports. A framework to strengthen "clean" transportation can be based on the "polluter pays" principle, which states that those, who produce pollution should bear the costs of managing it to prevent damage to the environment. Possible measures towards a harmonised pricing system are: • Tax revenues/incentives for waterway transport • Usage fees incentives for waterway transport (especially for environmental-friendly vessels) • Robust infrastructure financing for combined waterway and rail transport
Beneficiaries	Who is benefitting from this measure and why? • Port authorities • Infrastructure providers • Carriers • EU countries through less emissions Objectives of the measure • raise awareness for environmental-friendly modes of transport

	• support waterway transport • decrease environmental damage
Responsible institution	Who is responsible for implementing the recommended action? • City authorities • Ministries Which other institutions should be involved? • EU commission • Port authorities

Steps	What concrete steps will have to be taken in order to implement the whole recommendation?
	• This is what the responsible institution has to do as preparation
	  ○ Design a framework according to the "polluter pays" principle
	  ○ Promote funding options and incentives (awareness raising campaign)
	• These are the stakeholders the responsible institution has to involve
	  ○ EU commission – funding / fee regulations
	• This is what the responsible institution has to do before the recommendation can be considered as successfully implemented
	  ○ Definition of a legal framework (based on EU law)
	  ○ Definition of guidelines for the harmonised pricing system
	  ○ Making funding and fee regulations transparent to carriers / shipping companies
	• This is what the responsible institution has to do to monitor and evaluate the action (if applicable) → which criteria are useful for measuring good or poor implementation? Where are these data available or do we have to collect the relevant data?
	  ○ Environmental data (emissions, amount of waste…)
	  ○ Change in user behaviour (e.g. switch of carriers to more environmental mode of transport, increased use of "green" infrastructure…)

Horizon for implementation	Medium-term

Budget	Estimated necessary budget and (if possible) recommendation from where the budget can be generated (funding options etc.)
	• Implementation (non-recurring costs)
	  ○ Internal administration efforts
	  ○ External contract for preparation work (legal framework…)
	• Operation (yearly costs)
	  ○ Promotion activities, marketing, communication

Good practice example	Rhine countries