



**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

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Executive summary

In Romania, sea and river ports have developed with the development of cities, which have used their advantage to be located at the sea or on a waterway – Danube River and to develop transport relations with other cities, regions or even other continents.

Between 1960 and 1990 the ports were developed so as to serve the centralized industry of Romania, for the supply of raw materials or for the export of products or goods. These functions remained after 1990 although important changes happened at the industry level.

In the last 30 years, production capacities were reduced: ex. former Sidex complex in Galati, actually Liberty House. The mining industry, which was a major supplier of cargo to be transported on inland waterways, has faced an extensive industrial restructuring over the past 25 years, mainly after 2007, including declining of domestic production and the closure of most mines. In 2004 a Strategy for mining industry for 2004 – 2010 was approved through the Government Decision no. 615/2004. A draft of a Strategy for mining industry for 2017 – 2035 in Romania, elaborated by the Ministry of Economy was identified on an internet search. The strategy for 2017 – 2035 was not approved, do not provide good expectation for the perspective of the transport sector and will not be described in detail in this report and just mentioned here.

In agriculture sector, even the structure of the sector changed (small farmers replaced large producers), the industry remained a great supplier of cargo for ports and for inland waterway transport. Almost all ports in Romania have facilities for storage and transshipment of cereals.

The purpose of this report is to analyse regional economic development strategies, policies and programmes with regard to Danube ports. For Romania, the report will be developed only on the *Strategy on the National Policy Framework for the development of the market regarding alternative fuels in the transport sector and for the installation of the relevant infrastructure in Romania*. For other sectors of the economy, there were not identified approved and updated strategies involving ports and inland waterway transport.

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Fig.1 LNG Artery for Europe



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3 Abbreviations

Abbreviation	Explanation

4 Introduction

The current comprehensive programme of Romania is the Government Programme approved through the Parliament Decision no. 42/2021. The provisions related to naval transport were described in detail in the national report for D.T3.1.2 – *Analysis of Analysis of European & National Transport Policies, Strategies & Programs with regard to the Danube Ports*. According to the Government Programme, strengthening the economic and strategic position of the port of Constanta is one of the most important demand.

Port of Constanta is a large hub, which serve the Romanian and EU economy.

A large impact on the port development has the Strategy on the National Policy Framework for the development of the market regarding alternative fuels in the transport sector and for the installation of the relevant infrastructure in Romania. The strategy is in line with the current EU trends to reduce pollution using the alternative fuels in transportation. The strategy address all modes of transport.

5 Strategies with existing or potential influence on ports

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
Strategy on the National Policy Framework for the development of the market regarding alternative fuels in the transport sector and for the installation of the relevant infrastructure in Romania	X (Constanta and Galati)			x	

Table 1: Summary of economic development strategies and their influence on ports

5.1 Strategy on the National Policy Framework for the development of the market regarding alternative fuels in the transport sector and for the installation of the relevant infrastructure in Romania 1

The Strategy was approved by the Government Decision no. 87/2018, which establishes as well an Interministerial Coordinating Council for the development of the market for alternative fuels.

This Strategy on the National Policy Framework for the Development of the Market for Alternative Fuels in the Transport Sector and for the Installation of Relevant Infrastructure in Romania was developed by the Ministry of Energy, in collaboration with the Ministry of Transport and Infrastructure, Ministry of Environment, Ministry of Regional Development, Public Administration, Ministry of European Funds and the Ministry of Economy, as well as a number of other central public institutions authorized in the field, under the direct coordination of the General Secretariat of the Romanian Government.

The Strategy is elaborated in accordance with the provisions of Chapter II of Law no. 34 of March 27, 2017 on the installation of infrastructure for alternative fuels for the transposition of Directive no. 2014/94 / EU of the European Parliament and of the Council of 22 October 2014 on the installation of alternative fuels infrastructure.

EU Directive no. 2014/94 establishes a common framework of measures for the deployment of alternative fuels infrastructure in the Union in order to minimise dependence on oil and to mitigate the environmental impact of transport. This Directive sets out minimum requirements for the building-up of alternative fuels infrastructure, including recharging points for electric vehicles and refuelling points for natural gas (LNG and CNG) and hydrogen, to be implemented by means of Member States' national policy frameworks, as well as common technical specifications for such recharging and refuelling points, and user information requirements

The purpose of the National Policy Framework regarding alternative fuels is to support the development of alternative fuels infrastructure in Romania, so that all relevant modes of transport, methods and technologies can be used in a non-discriminatory manner in accordance with their efficiency, applicability and cost-effectiveness to ensure a transport system with a high continuity and minimal impact on the environment and public health, both in urban areas and along interurban infrastructure and European road, sea, inland waterway and air transport networks.

5.1.1 Current state

The Strategy contains an analysis of the current situation in terms of emission (for the naval transport references are made only to maritime ships), of the overall legal framework, targets to be achieved at national level, measures to be taken to achieve the national targets, financing possibilities – identified in Regional Operational Program 2014 – 2020.

The targets for naval transport are in line with the TEN-T Regulation 1315/2013. The TEN-T Regulation establish a comprehensive network and a core network of ports. The Regulation regulates clear that TEN-T ports on the core network should be equipped with installation for providing alternative fuels.

So the Strategy set as targets for the infrastructure in the sea and inland ports:

- by the end of 2025, the seaport of Constanța must have the LNG supply infrastructure installed for maritime navigation vessels. The supply installation must be realized by the port administration under the coordination of the Ministry of Transport and Infrastructure and the authorities and institutions with supervisory competences in the field.

- by the end of 2030, the port of Galati must have the LNG supply infrastructure for inland navigation vessels installed. The supply installation must be realized by the port administration under the coordination of the Ministry of Transport and Infrastructure and the authorities and institutions with supervisory competences in the field.

- Installations to provide electricity to the ships are currently in operation in all Romanian TEN-T ports. In accordance with the feasibility studies, until the end of 2025 it will be assessed the possibility of constructing or renovating the installations located in the central and comprehensive TEN-T ports in accordance with the technical specifications provided in Annex II, point 1.7 of Directive no. 2014/94/EU.

5.1.2 Desired state

In order to support the transports with LNG-powered ships, the development of two LNG terminals is being considered:

- in the port of Galati - a terminal which could offer a wide range of distribution services: LNG bunkers for inland and maritime shipping vessels, supply of LNG for road transportation as well as for other industries,
- in the seaport of Constanța, which should include a storage installation, loading installations for seagoing vessels and refueling of inland vessels.

In Romanian TEN-T core ports power outlets will be provided until 2025 for seaports (Constanța) and until 2030 for ports located on inland waterways (Galați, Drobeta Turnu Severin, Cernavoda, Giurgiu, Calafat).



Fig.1 LNG Artery for Europe (Source https://www.interreg-danube.eu/uploads/media/approved_project_public/0001/40/265a1e9db3ed53c88387a449d54569d5f1a89cbd.pdf)

According to the study, the LNG terminal in Galați was estimated to have a capacity of 4,000 m³ in semi-pressurised tanks with option to increase up to 8,000m³. The estimated value for the investment was 17 MEUR.

The small scale LNG terminal in Constanța was estimated to have a capacity of 5,000 m³ for storage, (un-) loading of (smaller) seagoing vessels, fuelling of inland vessels and trucks.

5.1.3 Gap identification

The Strategy itself does not have a gap.

The ports of Constanta and Galati were included in the strategy based on the results of the project LNG Master Plan for Rhin – Main – Danube, financed from TEN-T Program between 2012 and 2014 and because they are TEN-T core ports.

Concerning the development of the LNG terminals in Constanta and Galati, further analysis showed that economically was not feasible to invest in such facilities because fitting the ships for LNG fuels demonstrated to be not feasible and because of the market demands.

Currently under the EU package FIT 55 an impact assessment was realized for the proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council (AFID).

The Directive 2014/94/EU requires that LNG vessels can circulate along the TEN-T core network by 2025 (maritime) and 2030 (inland waterways) respectively without setting a clearer mandate as to which ports need to be equipped with LNG bunkering facilities. The directive also requires that each state should assess the need for shore-side electricity – at sea and inland ports – and that this be installed, unless there is no demand or costs are disproportionate.

The Directive 2014/94/EU defines a number of specific fuels as alternative fuels. Since the adoption of the Directive, some technology advancements have taken place. The 2020 update of the Commission's Report on advanced alternative fuels list new fuel technologies in waterborne transport, like: advanced biofuels, ammonia, methanol, hydrogen.

For the maritime sector, the FuelEU maritime initiative will lead to increased demand for alternative fuels, including LNG as a short-term available fuel alternative, while zero-emission sea-going vessels are targeted for 2030.

Concerning maritime transport and inland navigation, new standards are required to facilitate and consolidate the entry on the market of alternative fuels, especially in relation to fuel supply for electricity, hydrogen, advanced biofuel, methanol and ammonia bunkering, as well as communication exchange between vessel and infrastructure. Also for OPS further standards may be required considering the variety of ships at berth with different power demand.

The absence of common technical specifications in the areas addressed above risk that many recharging and refuelling services cannot develop in a competitive manner and instead proprietary solutions will develop. This will be detrimental to the internal mobility market, affecting directly consumers, infrastructure operators and service providers and vehicle manufacturers. In consequence, a lack of standardisation risks to harm the uptake of zero- and low-emission vehicles.

Also, AFID does not require 100% coverage of OPS calls in a port but rather 90%. This difference caters for calls which for technical reasons are also excluded from FuelEU

Maritime legal draft proposal (such as calls for emergency reasons, repairs etc. or calls from ships using zero-emission technologies). In addition, the maximum demand limit of AFID represents a realistic approach in that maximum energy demand need for a port may not be reached but for a few days in a year, thus a 100% demand would lead to underused investments. Furthermore, AFID introduces a minimum limit of calls below which a port would not be required to invest. This limit is set at quite low level, which indicates only occasional calls (less than once per week in most cases). The number of such calls on the one hand is low enough not to impact FuelEU Maritime initiative and on the other hand does not lead to excessive investments. With regard to the geographical scope (core, comprehensive or all ports) a narrower AFID scope as proposed under PO1 (where a mandate is introduced only on TEN-T core ports) would force a shift in traffic flows for vessels towards the OPS equipped ports as - after a small transitional period - FuelEU demands use of OPS or a penalty is imposed. Here however, it should be underlined that AFID does not restrict a port from investing in OPS, but it introduces in essence a minimum requirement. PO3 covers all ports whereas PO2 covers TEN-T core and comprehensive ports. However, despite the large number of non TEN-T ports, the impact of rerouting would be minimal to those ports. According to EMSA, of the total port calls in 2019 that would be covered under the requirements of the FuelEU Maritime only a small percentage would go to non TEN-T ports (11% of cruise vessels calls, 4% of container ships calls and 8% of Ro-Pax vessels calls).

5.1.4 Recommendations to close the gaps

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
	Alternative fuels infrastructure deployment (AFID)	<p>Action 1: research in order to establish the cost effective solution for the ships with lower emission</p> <p>Action 2: research in order to establish the requirements for the port related infrastructure</p>

Table 2: ROMANIA strategy gaps and actions to close them

In waterborne transport, ports are directly affected by the provisions of this policy initiative. Maritime and inland ports on the TEN-T core and comprehensive network have to invest into infrastructure for OPS connections for ships at berth (focussing on container ships, passenger ships and ro-pax vessels), which will also lead to an increase

in support from public authorities. Ports will also have to plan their long-term fuel mix strategies, including planning for specific infrastructure dedicated to hydrogen or ammonia or recharging of battery-electric ships. While maritime ports face no change in investment cost for LNG infrastructure in relation to the baseline, as the requirement of the current Directive continues, inland ports are relieved from investment into LNG as there is no longer a requirement for LNG infrastructure compared to the baseline. Ports will also face compliance cost in terms of reporting on their infrastructure provisioning and in view of their participation to strategy formation.

With respect to ports the existing legal provisions oblige Member States to ensure an appropriate number of LNG refuelling points to allow for circulation along the TEN-T core corridor by 2025 for maritime and 2030 for inland waterways. However, the present rate of growth in the network, that will also support the increasing replacement of LNG by biogas and synthetic gaseous e-fuels, appears to be slow. Furthermore, the development of OPS is only taking place in a small number of EU ports. There is a risk that deployment will continue to happen in a limited and uncoordinated manner. The Sustainable and Smart Mobility Strategy notes that zero-emission sea-going ships should be market-ready by 2030.

A non-coordinated approach is likely to not lead to effective identification of needs and preparation of adequate rollout strategies for infrastructure.

6 Gap analysis summary

6.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
	Alternative fuels infrastructure deployment (AFID)	RO has a strategy for 2020 – 2025, aligned to the EU objectives	Implementing facilities for alternative fuels in ports	Gap 1: cost effective solution for the ships with lower emission Gap 2: Technical requirements for AFID	Action 1: research in order to establish the cost effective solution for the ships with lower emission Action 2: research in order to establish the requirements for the port related infrastructure	Action 1: 2022 - 2030 Action 2: 2022 - 2030

Table 3: Gap analysis summary for ROMANIA

7 Conclusions

Ports, especially maritime ports, but inland ports have to be considered as well, are reflecting the economy of a country. Economic development strategies, policies and programs could help ports to adapt to the market requirements and to invest in terminals that generate profit.

For Romania, the European context offers an excellent opportunity for industrial and local development, with the real possibility of mobilizing significant investments in the new key areas. The European Union's ambitious program to reduce greenhouse gas emissions by 2030, as well as the projected increase in electricity demand in Europe, will lead to a growing demand for goods and services for environmental protection and resource management.

8 References

Low no. 34/2017 on the installation of alternative fuel infrastructure

Government Decision no. 87/2018 approving the Strategy on the National Policy Framework for the development of the market regarding alternative fuels in the transport sector and for the installation of the relevant infrastructure in Romania

LNG Master Plan for Rhine – Main Danube project (https://www.interreg-danube.eu/uploads/media/approved_project_public/0001/40/265a1e9db3ed53c88387a449d54569d5f1a89cbd.pdf)

IMPACT ASSESSMENT, Accompanying the Proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council (<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021SC0631&from=EN>)



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Analysis of regional economic
development strategies, policies
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Executive summary

The report analyses selected Austrian economic and spatial development plans, strategies and concepts with regard to Danube ports. These documents have different spatial and content characteristics. The aim of the analysis was to identify gaps in the strategies/plans regarding inland ports and find recommendations or measures to integrate issues and activities that improve the development of inland ports.

The Austrian **Recovery and Resilience Plan 2020-2026** is a response to the temporary EU recovery instrument “Recovery and Resilience Facility”, aiming to mitigate the economic and social impact of the coronavirus pandemic. Based on country-specific recommendations, Austria presented measures in 4 different components (sustainable development, digital build-up, knowledge-based building, equitable building). With regard to ports no specific measures were identified, but potential opportunities were identified in sub-component “environmentally friendly mobility”.

The **Austrian Spatial Development Concept 2030** is a joint steering instrument for all Austrian government levels for the spatial development of the country and is prepared by the *Austrian Conference on Spatial Planning*. The overall topic of the document is the impact of climate change regarding the spatial development of the country and how to achieve decarbonisation in all areas of life as the key challenge, especially concerning mobility habits. A central goal is the improvement of international and regional accessibility of business locations and making them climate-neutral and environmentally compatible. Ports are not explicitly mentioned as a key feature for this improvement, although increasing the quality of transport hubs and environmentally and urban friendly transport logistics are two of the defined calls to action. In these areas, fostering the conditions of inland ports could also play a significant role.

The strategy **Vienna 2030 – Economy & Innovation** aims to strengthen Vienna as a business location and create high-quality jobs. The strategy defined 6 *areas of leadership* and 10 *areas of strategic action* which form the framework of the future economic development of the city and its prioritised activities. It has been implemented through 50 flagship projects based on these identified priority areas. The port of Vienna is not directly addressed by any of the projects. As the strategy underlines the importance of a top-class and climate-friendly transport infrastructure, there would be a fitting opportunity here to include the importance of the port in this area.

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2 Abbreviations

Abbreviation	Explanation
EU	European Union
ÖREK	Österreichisches Raumordnungskonzept (Austrian Spatial Development Concept)
ÖROK	Österreichische Raumordnungskonferenz (Austrian Conference on Spatial Planning)

3 Introduction

The overall programme of the current Austrian government refers to the years 2020-2024 and is divided into 6 chapters. The chapter “Economy and Budget” comprises the key points of the envisaged economic development and its key activities.

Additionally to the general government programme, Austria set up the Recovery and Resilience Plan 2020-2026¹ on the basis of the temporary EU recovery instrument “Recovery and Resilience Facility”, aiming to mitigate the economic and social impact of the coronavirus pandemic. Austria is entitled to grants amounting to around € 3 billion. The planned measures are based on the country-specific recommendations to Austria and the objectives of the Recovery and Resilience Facility, while implementing sub-areas of the government programme. The Plan focuses on four main pillars: Green transition, digital transition, economic & social resilience.

The Austrian Spatial Development Concept (ÖREK 2030)² is a set of guidelines followed by all institutions represented in the Austrian Conference on Spatial Planning (Österreichische Raumordnungskonferenz – ÖROK). It is by nature a recommendation and serves as a voluntary agreement. It contains the mission statement, guiding principles and goals as well as the most important challenges for different spatial types in Austria. The action programme of the ÖREK contains relevant goals and tasks for action as well as possible measures and working formats at ÖROK level. In the 10-point programme, the substantive priorities for joint action until 2030 were agreed.

While the aforementioned programmes are set at national level, the strategy “Vienna 2030 – Economy & Innovation”³ deals with the specific development of the area of the capital of Austria and its actual location development.

These different documents were selected to analyse their impact on inland ports and identify gaps that could be filled to create benefits for the development and status of ports.

¹ <https://www.bundeskanzleramt.gv.at/dam/jcr:daa6ed52-1070-41d5-acf6-5f980dc6e0dd/Oesterreichischer-Aufbau-und-Resilienzplan-2020-2026.pdf>

² <https://www.oerok.gv.at/publikationen>

³ <https://www.wien.gv.at/wirtschaft/standort/strategie.html>

4 Strategies with existing or potential influence on ports

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
Austria's Recovery & Resilience Plan	-	x		x	
Austrian Spatial Development Concept 2030	-	x	x		
Vienna 2030 – Economy & Innovation	-	x		x	

Table 1: Summary of economic development strategies and their influence on ports

4.1 Austria's Recovery and Resilience Plan

As a reaction to the economic problems due to the Corona pandemic, the European Union introduced the € 750 billion "Next Generation EU" recovery instrument and the Reconstruction and Resilience Facility (ARF) with a volume of € 672.5 billion, of which € 312.5 billion in grants, a joint financial instrument to cushion the impact of the pandemic on the economy and society in the years to come.

The Recovery and Resilience Facility is based on six pillars: Green transition; digital transformation; smart, sustainable and inclusive growth and jobs; social and territorial cohesion; health and resilience; strategies for the next generation, children and youth, including youth, including education and skills.

The **Austrian Recovery and Resilience Plan 2020-2026** follows the requirements of the Regulation and the guidelines of the European Commission. The planned measures are based on the country-specific recommendations to Austria and the objectives of the Building and Resilience Facility, while at the same time implementing sub-areas of the government programme. In accordance with EU requirements, all measures were put into effect after 31 January 2020.

4.1.1 Current state

Austria submits measures in four priority areas, so-called **components**:

1. **Sustainable development**
2. **Digital build-up**
3. **Knowledge-based building**
4. **Equitable building**

The reforms and investments in the plan will help Austria become more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions. To this end, the plan consists of 32 investments and 27 reforms. They will be supported by €3.46 billion in grants. 59% of the plan will support climate objectives and 53% of the plan will foster the digital transition.

The plan is described as the result of a combination of reforms and investments which address its specific challenges. The reforms and investments address bottlenecks to lasting and sustainable growth. In particular, Austria's plan foresees to reform the tax system to make it greener and more social, increase digitalisation, protect the climate through zero-emission mobility, renovation and energy-efficiency measures, and improve education and training across the country. All reforms and investments have to be implemented within a tight timeframe, as the Regulation establishing the Recovery and Resilience Facility provides that they have to be completed by August 2026.

With regards to ports, component no. 1 **„Sustainable Development“** addresses objectives and initiatives concerning the transport sector. Sub-component **„environmentally friendly mobility“** includes the Mobility Masterplan 2030 and investments in emission-free infrastructure and vehicles. The plan focuses on passenger transport (e.g. introduction of nation-wide public transport ticket), funding of emission-free busses and utility cars, as well as the construction of new rail lines.

Objective of the sub-component „environmentally friendly mobility“: The mobility system is to be strategically reoriented towards achieving the Paris climate goals. This task is particularly challenging, as CO₂ emissions in the transport sector in Austria have not been reduced in the last decades, but rather have increased by almost 75% since 1990 until 2019. In order to achieve the necessary trend reversal, in addition to the necessary planning security for all actors (in the form of the new Mobility Master Plan 2030), it is particularly important to significantly expand the infrastructure as well as the fare and vehicle offers in the environmental alliance and to orient it towards complete climate neutrality. The core of all considerations is thus the creation of affordable and environmentally friendly mobility for everyone in the city and also in the rural regions.

4.1.2 Desired state

The Austrian Recovery and Resilience Plan could recognise inland waterway transport and inland ports as key elements for an energy-efficient transport sector and include measures to increase its share in the modal split. Ports can play a crucial role in shifting freight from road to more environmentally friendly transport modes. In addition to the expansion of railway lines and investments in zero-emission vehicles, ports can play an important role as transport hubs in a logistics chain that is less

dominated by road transport, by modernising in the direction of digitalisation and energy efficiency. To compete with road transport, inland waterways need efficient and flexible ports, that can handle the requirements of current and future transport needs.

4.1.3 Gap identification

Gap 1: Lack of mentioning inland waterways/inland ports in the chapter on environmentally-friendly mobility (Level 1)⁴

Gap 2: Focus on passenger transport, but no mentioning of freight transport (Level 3)

Gap 3: No reference to sustainable supply chains and how inland ports can contribute to it (Level 3)

4.1.4 Recommendations to close the gaps

Gap 1: Lack of mentioning inland waterways/inland ports in the chapter on environmentally-friendly mobility

Recommendation: Inclusion of inland waterways/inland ports in the field of environmentally-friendly mobility.

Explanation: Inland ports can play a crucial role in reducing transport emissions and contribute to a shift away from road transport. As a link between inland waterways and rail as well as a connecting hubs for last-mile transports within cities, ports can contribute to the green transition. Close cooperation with ports in elaboration of appropriate initiatives.

Timeline: 2020-2026

Participants: Federal Ministry of Finance, ports

Gap 2: Focus on passenger transport, but no mentioning of freight transport

Recommendation: Funding of initiatives that focus on freight transport, such as modernisation of terminals or ports

Explanation: Funding of investments focussing on freight transport with a focus on increasing the modal share of inland waterway transport. Including ports and the Ministry of climate action in the process of developing funding opportunities.

Timeline: 2020-2026

Participants: Federal Ministry of Finance, ports, Ministry of Climate Action

⁴ Level 1-5 (1= most critical/urgent; 5 = least urgent)

Gap 3: No reference to sustainable supply chains and how inland ports can contribute to it

Recommendation: Adding Initiatives that address the importance of inland ports for the development of sustainable supply chains.

Explanation: Sustainable supply chains require an efficient and eco-friendly handling of goods as well as transport hubs that ensure an efficient intermodal transport system. Therefore initiatives that improve the digitalisation and decarbonisation of ports should be funded. Including ports and the Ministry of climate action in the process of developing initiatives.

Timeline: 2020-2026

Participants: Federal Ministry of Finance, ports, Ministry of Climate Action

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
2	Lack of mentioning inland waterways/inland ports in the chapter on environmentally-friendly mobility	Inclusion of inland waterways/inland ports in the field of environmentally-friendly mobility
3	Focus on passenger transport, but no mentioning of freight transport	Funding of initiatives that focus on freight transport, such as modernisation of terminals or ports
4	No reference to sustainable supply chains and how inland ports can contribute to it	Adding Initiatives that address the importance of inland ports for the development of sustainable supply chains.

Table 2: Gaps in the Austrian Recovery and Resilience Plan 2020 and actions to close them

4.2 Austrian Spatial Development Concept 2030 (ÖREK 2030)

The Austrian Spatial Development Concept (ÖREK) is a joint steering instrument for all Austrian government levels for the spatial development of the country and revised every ten years. The concept is prepared by the Austrian Conference on Spatial Planning (ÖROK) that includes representatives of the federal government, governors of the nine provinces, the president of the Austrian Association of Cities and Towns, the President of the Austrian Association of Municipalities, and the economic and social partners. The ÖREK 2030 is primarily a voluntary agreement.

The structure of the concept starts with its overall guiding principle, which can be summarised by its motto “need for transformation” with regard to the climate crisis. This is followed by an elaboration of different trends with a high relevance for spatial development and planning (climate change, digitalisation, urbanisation, energy consumption, ...). Furthermore, links are drawn to external strategies and guidelines. Based on this, the most important challenges for future development are elaborated for different spatial types (cities, rural areas, corridors along high-priority transport routes, ...).

The ÖREK 2030 includes an action programme based on 4 pillars:

- Using spatial resources sparingly and efficiently
- Strengthening social and spatial cohesion
- Developing economic areas and systems climate-friendly and sustainable
- Developing vertical and horizontal governance

The basis for its implementation is a ten-point programme that is reviewed every three years and highlights the priorities of the ÖREK 2030:

- Focussing spatial development on climate-neutrality and energy transition
- Reducing land consumption and soil sealing
- Strengthening town and city centres and improving the design of the built-up environment
- Designing open spaces to conserve resources and mitigate climate change
- Ensuring accessibility and the transition to climate-neutral mobility
- Supporting climate change adaptation through spatial development and spatial planning
- Ensure a supply of basic services that supports equivalent living conditions and secures affordable housing
- Strengthening regional value chains and circular economy
- Exploiting the opportunities of digitalisation and strengthening regional innovation systems
- Integrating government and governance as cross-cutting themes

4.2.1 Current state

Pillar 3 of the action programme focuses on “developing economic areas and systems climate-friendly and sustainable”. It is primarily committed to the principles of economic sustainability, an equitable spatial distribution of opportunities and the

embedding of economic activities in the structure of interests of the common good with climate protection. In order to reach this objectives, 7 goals were developed which are based on adopted global, European and national agreements and programmes and respond to major challenges derived from relevant megatrends:

1. Developing Austria into a climate-neutral and climate-resilient location for businesses
2. Responding to the spatial opportunities and risks of digitalisation and combining these with efforts to strengthen regional innovation capacity
3. Improving international and regional accessibility of business locations and making them climate-neutral and environmentally compatible
4. Maintaining and strengthening competitiveness and resilience of Austria as a business location, and its regions, and supporting regional economic cycles
5. Developing sustainable regional tourism and leisure destinations in a climate-neutral and climate-resilient manner
6. Developing rural regions into specialised bioeconomy locations while preserving biodiversity and climate
7. Reducing regional disparities in competitiveness, economic performance and income levels

Goal 3 addresses the **improvement of international and regional accessibility of business locations and making them climate-neutral and environmentally compatible**.

To achieve this goal, 4 so-called “*calls to action*” were developed:

- Expand the capacity and quality of the rail network
- Increase the capacity and quality of transport hubs
- Offer business locations with rail connections
- Organisation of climate-neutral, environmentally and urban friendly transport logistics

These specific measures aim to make the overall accessibility less dependent on road and to develop a multimodal transport network. All of these actions are important and crucial, but focus on rail, e-vehicles or non-motorised transport. Especially with regard to transport hubs, urban logistics and connections to business areas, ports can also play an important factor.

4.2.2 Desired state

The development and modernisation of ports is another important aspect in improving the international and regional accessibility of business locations. It helps to increase the capacity and quality of transport hubs and a well-developed port connection of business areas improve their multi- and intermodal transport accessibility. Since most inland ports are part of cities or urban areas due to their location, they are an essential element of the urban logistics system and can be an important factor in intermodal urban freight transport network.

4.2.3 Gap identification

Gap 1: Lack of mentioning inland waterways/inland ports in order to increase the capacity and quality of transport hubs (Level 2)

Gap 2: Focus on rail connections for business areas, but no comment on port connection (Level 3)

Gap 3: No reference to the potential role of ports within the urban logistics system (Level 3)

4.2.4 Recommendations to close the gaps

Gap 1: Lack of mentioning inland waterways/inland ports in order to increase the capacity and quality of transport hubs

Recommendation: Adding the importance of inland waterways/inland ports in the call of action for increasing the capacity and quality of transport hubs.

Explanation: Inland ports can play a crucial role in reducing transport emissions and contribute to a shift away from road transport. As a link between inland waterways and rail as well as a connecting hubs for last-mile transports within cities, ports can contribute to the green transition. Including ports and port organisations into preparation process of revised/new ÖREK

Timeline: 01/2022 – 12/2030 (Revision of ÖREK)

Participants: ÖROK, ports

Gap 2: Focus on rail connections for business areas, but no comment on port connection

Recommendation: Promoting the development of business areas well-connected to ports resp. in port areas

Explanation: While rail connections are key to ensure intermodal transports in business areas, a combination with ports increases the quality of the accessibility of the area and contributes to a modal shift away from road transport. Including ports and port organisations into preparation process of revised/new ÖREK

Timeline: 01/2022 – 12/2030 (Revision of ÖREK)

Participants: ÖROK, ports

Gap 3: No reference to the potential role of ports within the urban logistics system

Recommendation: Including the importance of well-developed and sustainable ports to the call of action on climate-neutral, environmentally and urban friendly transport logistics.

Explanation: Ports can make an important contribution to an intermodal urban logistics chain. Including ports and port organisations into preparation process of revised/new ÖREK

Timeline: 01/2022 – 12/2030

Participants: ÖROK, ports

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps:

Gap level	Gap	Action (recommendation) to close the gap
2	Lack of mentioning inland waterways/inland ports in order to increase the capacity and quality of transport hubs	Adding the importance of inland waterways/inland ports in the call of action for increasing the capacity and quality of transport hubs.
3	Focus on rail connections for business areas, but no comment on port connection	Promoting the development of business areas well-connected to ports resp. in port areas
3	No reference to the potential role of ports within the urban logistics system	Including the importance of well-developed and sustainable ports to the call of action on climate-neutral, environmentally and urban friendly transport logistics.

Table 3: Gaps in the ÖREK 2030 and actions to close them

4.3 Vienna 2030 – Economy & Innovation

The strategy *Vienna 2030 - Economy & Innovation* by the city of Vienna aims to strengthen Vienna as a business location and create high-quality jobs. The strategy focuses on 6 thematic areas in which the city already enjoys a strong position, and which will provide answers to the big challenges of coming years.

These so-called *areas of leadership* are thematic areas that shall be developed into internationally competitive and highly visible areas:

- Smart solutions for life in the 21st-century city
- Vienna as a metropolis of health
- Digitalisation, Vienna-style
- Smart production in the big city
- A place of international encounter
- Vienna – a metropolis of culture and creativity

In addition, the following *areas of strategic action* are defined (qualities at the business location which, on the one hand, represent the basic structure for any economic and innovation activities, but on the other hand also contribute to the further development of the *areas of leadership* and to the location quality as a whole):

- Education
- Innovative municipal administration
- Labour market and top talent
- Innovative milieu
- Universities and research
- Regulatory framework
- Climate protection and adaptation to climate change
- Subsidy structures
- Vienna's infrastructure
- Location marketing

4.3.1 Current state

Since autumn 2019, the "VIENNA 2030" strategy has been implemented through 50 flagship projects. These tap into special potential for employment, value creation and innovation at the location in the 6 areas of leadership and 10 areas of strategic action.

For all *areas of leadership* and *areas of strategic actions* several specific objectives have been defined in order to reach the overall goal.

The following objectives could be identified with the highest relevance for the development of ports:

Objective 1.3.: Technological and social solutions for the CO₂-neutral urban and regional transport of passengers and goods are developed and implemented in, as well as exported from, Vienna. (Area of leadership: "*Smart solutions for life in the 21st-century city*")

Objective E.4: Vienna safeguards top-class goods and passenger transport services that are climate-friendly and offer tight links with the surrounding region. (area of strategic action: Vienna's infrastructure)

The strategy gives a broad overview of the central elements of Vienna's economic development plan. Priority areas are well-described without going too detailed into specific measures.

4.3.2 Desired state

Since the strategy focuses on a comprehensive overview of Vienna's future economic development identifying key areas to be improved, specific goals or objectives regarding ports cannot necessarily be expected. Some objectives could be formulated more precisely in terms of their implementation priorities. This would give an opportunity to further address the importance of a well-functioning inland port for top-class and climate-friendly transport infrastructure.

A flagship project with focus on digitalisation or decarbonisation of the port of Vienna would underline the significance of the port as a central part of the urban transport system.

4.3.3 Gap identification

Gap 1: Lack of specification of objective on CO₂-neutral transport of goods with regard to modes of transport (Level 3)

Gap 2: Lack of specification of objective on top-class and climate-friendly transport infrastructure with regard to modes of transport (Level 3)

Gap 3: No flagship project focussing on ports (Level 2)

4.3.4 Recommendations to close the gaps

Gap 1: Lack of specification of objective on CO₂-neutral transport of goods with regard to modes of transport (Level 3)

Recommendation: More precise description of the objective on CO₂-neutral transport of goods with regard to modes of transport. Underlining the role and the opportunities of ports in this aspect.

Timeline: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)

Participants: City of Vienna

Gap 2: Lack of specification of objective on top-class and climate-friendly transport infrastructure with regard to modes of transport (Level 2)

Recommendation: More precise description of top-class and climate-friendly transport infrastructure with regard to modes of transport. Highlighting the importance of ports in an urban transport system and they can contribute to an intermodal transport structure.

Timeline: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)

Participants: City of Vienna

Gap 3: No flagship project focussing on ports (Level 1)

Recommendation: Flagship project with focus on digitalisation or decarbonisation of the port of Vienna

Explanation: A flagship project with focus on digitalisation or decarbonisation of the port of Vienna would underline the significance of the port as a central part of the urban transport system. Developing a flagship project in close cooperation of the port of Vienna with respective department of the city of Vienna (MA23).

Timeline: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)

Participants: City of Vienna, port of Vienna

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
3	Lack of specification of objective on CO ₂ -neutral transport of goods with regard to modes of transport	More precise description of the objective on CO ₂ -neutral transport of goods with regard to modes of transport
2	Lack of specification of objective on top-class and climate-friendly transport infrastructure with regard to modes of transport	More precise description of top-class and climate-friendly transport infrastructure with regard to modes of transport
1	No flagship project focussing on ports	Flagship project with focus on digitalisation or decarbonisation of the port of Vienna

Table 4: Gaps in the strategy “Vienna 2030 - Economy & Innovation” and actions to close them

5 Gap analysis summary

5.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
Austria's Recovery and Resilience Plan 2020 - 2026	The aim is to mitigate the economic and social impact of the coronavirus pandemic and make Austria more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions.	<p>Austria submits measures in four priority areas, so-called components:</p> <ol style="list-style-type: none"> 1. Sustainable development 2. Digital build-up 3. Knowledge-based building 4. Equitable building <p>No reference to ports in funding of specific initiatives</p>	Recognition of inland waterway transport and inland ports as key elements for an energy-efficient transport sector and include measures to increase its share in the modal split.	<p>Gap 1: Lack of mentioning inland waterways/inland ports in the chapter on environmentally friendly mobility (Level 1)</p> <p>Gap 2: Focus on passenger transport, but no mentioning of freight transport (Level 3)</p> <p>Gap 3: No reference to sustainable supply chains and how inland ports can contribute to it (Level 3)</p>	<p>Action 1: Inclusion of inland waterways/inland ports in the field of environmentally friendly mobility.</p> <p>Action 2: Funding of initiatives that focus on freight transport, such as modernisation of terminals or ports</p> <p>Action 3: Adding Initiatives that address the importance of inland ports for the development of sustainable supply chains.</p>	<p>Action 1: 2020 - 2026</p> <p>Action 2: 2020 – 2026</p> <p>Action 3: 2020 - 2026</p>

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
Austrian Spatial Development Concept 2030	Joint steering instrument for all Austrian government levels for the spatial development of the country and revised every ten years. Overall guiding principle, which can be summarised by its motto “need for transformation” with regard to the climate crisis (high relevance for spatial development and planning)	Chapter on improvement of international and regional accessibility of business locations and making them climate-neutral and environmentally compatible mainly focused on rail and e-vehicles.	Development and modernisation of ports is another important aspect in improving the international and regional accessibility of business locations.	<p>Gap 1: Lack of mentioning inland waterways/inland ports in order to increase the capacity and quality of transport hubs (Level 2)</p> <p>Gap 2: Focus on rail connections for business areas, but no comment on port connection (Level 3)</p> <p>Gap 3: No reference to the potential role of ports within the urban logistics system (Level 3)</p>	<p>Action 1: Adding the importance of inland waterways/inland ports in the call of action for increasing the capacity and quality of transport hubs.</p> <p>Action 2: Promoting the development of business areas well-connected to ports resp. in port areas</p> <p>Action 3: Including the importance of well-developed and sustainable ports to the call of action on climate-neutral, environmentally and urban friendly transport logistics.</p>	<p>Action 1: 01/2022 – 12/2030 (Revision of ÖREK)</p> <p>Action 2: 01/2022 – 12/2030 (Revision of ÖREK)</p> <p>Action 3: 01/2022 – 12/2030 (Revision of ÖREK)</p>

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
Vienna 2030 – Economy & Innovation	Strengthening of Vienna as a business location and create high-quality jobs to meet the major challenges of the coming years - from climate change to digitalisation,	Implementation through 50 flagship projects; definition of 6 “areas of leadership” to be strengthened and 10 areas of strategic action	More specific description of objectives regarding top-class and climate-friendly transport service, including the importance of ports; development of a port-related flagship project	<p>Gap 1: Lack of specification of objective on CO2-neutral transport of goods with regard to modes of transport (Level 3)</p> <p>Gap 2: Lack of specification of objective on top-class and climate-friendly transport infrastructure with regard to modes of transport (Level 3)</p> <p>Gap 3: No flagship project focussing on ports (Level 1)</p>	<p>Action 1: More precise description of the objective on CO2-neutral transport of goods with regard to modes of transport</p> <p>Action 2: More precise description of top-class and climate-friendly transport infrastructure with regard to modes of transport</p> <p>Action 3: Flagship project with focus on digitalisation or decarbonisation of the port of Vienna</p>	<p>Action 1: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)</p> <p>Action 2: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)</p> <p>Action 3: 01/2022 – 12/2030 (Revision of strategy Vienna 2030)</p>

Table 5: Gap analysis summary for (Austria)

6 Conclusions

The analysed plans and strategies differ in their thematic and geographic areas, but all address aspects that are relevant for the development of ports. A lot of measures and goals have indirect effects on ports, but no document explicitly mentions inland ports as a key element to be strengthened. The general theme of the strategies/plans is how to respond to climate change and which areas need to be addressed in order to achieve specific goals. The importance of inland ports and inland waterways in an environmentally-friendly and intermodal transport structure needs to be promoted and highlighted in the specification of these goals. While rail and e-vehicles legitimately get a lot of attention, ports do not play a significant role in the intended transformation of the transport infrastructure.

The number of analysed documents is limited due to the scope of the project, but presents a good overview of the main priority areas in terms of economic and spatial development in Austria. With regard to the needs of ports, it can be stated that representatives need to be integrated in the elaboration and preparation of these strategies and plans. A decisive factor is convincing decision-makers of the importance of well-functioning ports that are integrated into the transport network.

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(accessed: 12Feb 2022)

Vienna 2030 – Economy & Innovation:

City of Vienna:

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**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

Deliverable D.T3.1.1

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Country report



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Executive summary

The main priorities and strategic goals of the development of the Slovak Republic as an EU member state are based on integration and the basic values on which the EU is founded. The main priority of Slovakia's economic development with a vision until 2030 is therefore to ensure economic growth, which will enable faster convergence and the elimination of differences in the quality of life and environment of the Slovak population compared to the countries of Western Europe. Recent complex view on economy, however, is not focused solemnly on growth. Economy should not bring only increased GDP. We can see the trend that environmental questions are being more and more integral part of strategies and their objectives.

This document serves as overview of Slovak economic development strategies, policies and programmes with regard to Danube ports. Even though Danube ports might not be directly mentioned in the documents, they might have smaller or bigger impact on ports and port activities. Objective is to analyse mentioned strategies and policies, evaluate their relation and/or impact on ports (in case of Slovakia, inland ports), identify the relevant goals and objectives and provide the gap analysis.

Even though, analysed documents are from various sectors and under the responsibility of various subjects, topics as necessity of high-quality infrastructure and decarbonisation are present in multiple of them. Another very important sector worth mentioning is education. On hand, in general, as necessity to connect publicly provided education with market needs, on the other hand directly focusing on nearly alarming situation with experts and experienced workforce in the sector of water transport, transshipment, ports and port management.

Country report is structured in the particular way to provide clear overview allowing comparison on the DIONYSUS project consortium level. Country report lists major strategical documents with brief introduction and then extracts relevant information and attributed to fit the structure adopted.

To elaborate this document, following policies, plans and strategies were analysed:

- Financial administration development strategy 2014-2020
- National Investment Plan of the Slovak Republic for the years 2018 - 2030 PILOT VERSION
- Economic Policy Strategy of the Slovak Republic until 2030
- Strategy of the Environmental Policy of the Slovak Republic until 2030
- Concept for the development of urban public transport in Bratislava for the years 2013-2025
- Tourism development strategy until 2020
- Smart concept of regional development of the Nitra self-governing region until 2027

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3 Abbreviations

Abbreviation	Explanation
SVP	Slovenský vodohospodársky podnik (Slovak Water Management Enterprise)
VV	Vodohospodárska výstavba, š.p. (Water management construction, state enterprise)
VPAS	Verejné prístavy, a.s. the project partner PP5
SR	Slovak republic

4 Introduction

Current official description of economic programme of the Slovak republic can be found in the Program Statement of the Government of the Slovak Republic for the period 2021 – 2024.

The basic goal of economic policy is considered to be the increase in the competitiveness of Slovak entrepreneurs and companies, with which other policies of the Government of the Slovak Republic will also be in line. The main prerequisite for a successful economy and at the same time a condition for the competitiveness of the Slovak economy is a favourable business environment with greater economic freedom, a lean and efficient state. Such an environment subsequently motivates the implementation of competitive business activities through rules applicable to all. Another very important part of the statement, and for the purpose of this document relevant, is the goal of transport that supports sustainable economic growth.

Policies and developments strategies relevant for this document might be divided by their levels. On top there are concepts and strategies on the sectoral (ministerial) level and below there are local / regional strategies elaborated under responsibility of municipalities and / or territorial units (self-governing regions). Common denominator of these documents is impact and/or relevance to public inland ports (Bratislava and Komárno) and port operation. Despite the fact that analysed documents were elaborated and are under the responsibility of different entities, the necessity of sustainable exploitation of modern infrastructure and decarbonisation are present cross-sectoral.

5 Strategies with existing or potential influence on ports

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
Financial administration development strategy 2014-2020		x		x	
National Investment Plan of the Slovak Republic for the years 2018 - 2030 PILOT VERSION	x				x
Economic Policy Strategy of the Slovak Republic until 2030		x		x	
Strategy of the Environmental Policy of the Slovak Republic until 2030		x		x	
Concept for the development of urban public transport in Bratislava for the years 2013-2025	x		X		
Tourism development strategy until 2020	x		x		
Smart concept of regional development of the Nitra self-governing region until 2027	x			x	

Table 1: Summary of economic development strategies and their influence on ports

5.1 Financial administration development strategy 2014-2020 (2013)

The Financial Administration, which consists of the Financial Directorate of the Slovak Republic, tax offices, customs offices and the Criminal Office of the Financial Administration, was established on 01.01. 2012 by merging the tax administration and the customs administration on the basis of the reform intentions of the Government of the Slovak Republic.

The main goal of the financial administration is to ensure the fulfilment of the state budget and the EU budget. The Financial Management Development Strategy, which defines the basic strategic goals of the organization, serves to support effective planning of the further direction and development of financial management in the medium to long term.

The financial administration development strategy provides an overview of the direction in which the financial administration will go in the period 2014 - 2020. It is prepared in accordance with Act no. 333/2011 Coll. on state administration bodies in the field of taxes, fees, and customs, as amended (hereinafter referred to as

no. 333/2011 Coll.”). The strategic goals arising from it will be transferred and elaborated in the Concept of Development of Financial Administration for the years 2014 - 2020 prepared in accordance with Act no. 333/2011 Coll.

5.1.1 Current state

As part of this national project, the "Target Financial Management Model" was developed, which describes the individual development plans supporting the improvement of service quality as well as increasing the efficiency of tax and customs administration. The "financial management target model" is one of the starting points for defining and implementing development plans and supports the four basic pillars of the financial management reform plans:

- Simplify the living situations of citizens and businesses by reducing the burden of bureaucracy and administration in voluntary tax and customs compliance, providing new products to clients, and raising awareness in the field.
- Further electronic services and the provision of new proactive services to support the correct and easier payment of taxes and duties, thus reducing the need for personal communication between FS clients and financial administration.
- The fight against tax and customs fraud and the protection of the financial interests of the Slovak Republic and the European Union implemented mainly through the development of analytical and forecasting activities of the CF, risk management in the tax and customs area and through streamlining control activities.
- Efficient use of internal human resources and optimization of internal processes in order to create a customer-oriented CF that will provide quality services, improve its tax and customs administration results and become an attractive employer.¹

The goal of the Ministry of Finance of the Slovak Republic is to develop financial management so that it can keep pace with organizations of the same type in individual EU member states, to achieve a respected position in society as well as in international structures and organizations and to ensure development and efficiency in all its areas of activity.

¹ ANNUAL REPORT on financial management activities for 2019

To achieve this goal, the following strategic objectives are set for financial management:

1. Strategic objective - "Ensure the fulfillment of the state budget and the budget of the European Union"
2. Strategic objective - "Increase the level of services provided by financial management"
3. Strategic goal - "Streamline external communication"
4. Strategic objective - "Facilitate international trade"
5. Strategic objective - "Increase the efficiency of the main financial management processes"
6. Strategic objective - "Increase the level of the fight against fiscal and customs crime"
7. Strategic objective - "Take effective measures to increase security"
8. Strategic goal - "Efficient use of funding sources and assets in the management of the organization"
9. Strategic goal - "Streamline internal communication"
10. Strategic objective - "Increase the professionalism and integrity of financial administration staff"
11. Strategic goal - "Increase the level of IT support of financial management"
12. Strategic objective - "Modernize customs crossings"
13. Strategic objective - "Continue the transformation of financial management"

5.1.2 Desired state

From abovementioned strategic priority's Strategic objective 12. "Modernize customs crossings" may be relevant to the increase of waterway transportation and transshipment from/to river.

The modernization of infrastructure and capacity building in customs will achieve the fulfilment of basic tasks that result for the Slovak Republic from both strategic European documents and the Program Statement of the Government of the Slovak Republic. Only highly efficient customs authorities can create a comprehensive system of protection at the EU's external border and at the same time effectively improve the conditions for business entities to import, export or transit through Slovak territory without causing greater delays at the border.

Emphasis is placed in particular on increasing the performance of customs offices in relation to services provided to Member States, businesses and companies at both national and EU level, improving cooperation between customs offices and other public administrations in the implementation of other policies (especially agricultural policy), environmental policy, trade policy, foreign policy, neighbourhood policy, property protection policy, including intellectual property rights, etc.), stepping up action to combat smuggling of goods at the EU's external borders, making the best use of available resources at EU level, in particular in the field of development of information and communication technology systems and human capacity building, modernization of working methods, wider use of detection technologies, increasing the level of electronic customs procedures, development of methods based on risk analysis and development of employees' ability to fulfil the stated objectives.

Major commodity transhipped in public port of Bratislava is iron ore that comes from Russia / Ukraine on the rail and the is transhipped to vessels to continue to steel mill in Austria. Overall modernization of infrastructure on the border would support international transport and, in consequence, may support the transhipment towards waterway. Identified beneficiaries are owners / transporters of commodity.

5.1.3 Gap identification

Financial administration development strategy 2014-2020 (2013) defines it´s objectives broadly. Modernisation is understood as ongoing process and direct steps are not defined. Consequently, GAP analysis cannot be performed for the purpose of direct impact on ports and/or port activities.

5.1.4 Recommendations to close the gaps

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap

Table 2: Financial administration development strategy 2014-2020 strategy gaps and actions to close them

5.2 National Investment Plan of the Slovak Republic for the years 2018 - 2030 PILOT VERSION

The National Investment Plan of the Slovak Republic 2018 - 2030, pilot version (hereinafter NIP SR) has the nature of a supra-ministerial and integrated strategic document, defining priority themes and key programs until 2030, documented by indicative projects through which new economic and social infrastructure will be built, or the condition of the existing infrastructure will be improved, with the aim of gradually meeting the long-term needs of the Slovak Republic.

In connection with the goals of sustainable development of the UN 2030 Agenda, the NIP SR contains characteristics of the current state, the desired state in 2030 and key investment programs and projects in the following areas:

- **transport,**
- energy,
- informatization and electronic communications,
- research and innovation,
- healthcare,
- environment,
- agriculture and forestry,
- social inclusion and employment,
- regional development.

However, it should be noted that the development plans of the ministries concerned have not yet substantially assimilated the objectives of the UN 2030 Agenda, and at the same time these development plans are almost exclusively based on the European Structural and Investment Funds 2014-2020. 2030 was therefore, with some exceptions, very difficult. The projects included in the NIP SR are therefore indicative and were designed on the basis of existing sector strategies.

The determination of the investment gap in the priority sectors of the NIP SR is based on a macroeconomic comparison of the volume of investments in Slovakia and other countries according to the methodology of the European Investment Bank.

Long-term development strategies of the Slovak Republic are emerging only today (for example Economic Policy Strategy of the Slovak Republic until 2030 and Greener Slovakia - Environmental Policy Strategy of the Slovak Republic until 2030, Low Carbon Strategy of the Slovak Republic until 2030, with a view to 2050) a participatory process of setting the long-term vision and priorities of the Slovak Republic within the implementation of the Agenda 2030 for Sustainable Development.

5.2.1 Current state

If we rank countries according to gross domestic product per capita in purchasing power parity, Slovakia was in 40th place in 2016. It sounds more dramatic if we realize that more than 85% of the world's population lives in countries that are poorer than Slovakia, which has surpassed 6% of the world's population in 25 years. How do we

ensure that the next 25 years are similarly favourable? In which areas do the gaps remain that Slovakia should fill? What challenges will we face in the near future?

The basic problem in evaluating the results of any country is to select benchmarks against which it is appropriate to compare the country. One option is to choose a developed country so that Slovakia can have a realistic aspiration to catch up in the long run. An example of such a country could be Austria, as a country with a similar history, which differs little from Slovakia in size or geography. But in what time horizon should Slovakia reach the Austrian standard of living. It is also difficult to estimate which areas of economic policy need to focus on in order for us to converge successfully. Slovakia's gross domestic product (GDP) per capita, measured in purchasing power parity (PPP), reached 60% of the Austrian level (and 88% of the Czech Republic) in 2016. In the case of other indicators, it is relevant to ask whether Slovakia reaches at least a level in the given indicator that corresponds to the level of economic development at which it is currently located.

Current state of Chapter Transport / Sub-section of water transport

On a European scale, inland waterway transport has seen an adequate increase in its use for the needs of the economies of individual member states, including the Slovak Republic. The increase in Europe since 1996 was about 6%. In Slovakia, water transport is carried out mainly along the international river Danube and partly along the unfinished Váh waterway. The share of water transport in the total volume of traffic has been low for a long time, and there is no gradual improvement in this unfavorable situation. The development of water transport infrastructure in the Slovak Republic is permanently undersized, funds from the state budget were insufficiently provided only to the watercourse administrator for the necessary maintenance of the Danube waterway.

5.2.2 Desired state

Desired state of Chapter Transport / Sub-section of water transport

The goal of the development of water transport in Slovakia is to achieve its share in the total transport market at three times the current value, to 4.5% of total transport. The possibilities of the Slovak Republic are clearly in ensuring the usability of the Danube waterway, and its navigable tributary on the Váh waterway, for the transport needs of the Slovak economy, as well as in fulfilling the coastal countries of the transcontinental corridor of the TEN-T core network in the North Sea - The Black Sea.

5.2.3 Gap identification

- Gap 1: Low share of water transport on the market Level: 5

5.2.4 Recommendations to close the gaps

Gap 1: Low share of water transport on the market

Action 1: Improve navigation parameters and eliminate bottlenecks on the Danube River.

Implementation strategy: Feasibility study in preparation

Timeline: 2030

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of transport and construction, SV.

Action 2: Modernize the public ports of Bratislava and Komárno

Implementation strategy: investments in infrastructure, transshipment areas and facilities, provision of intermodal transport, construction of new storage and handling technologies in public ports. It will be necessary to take into account the strategy of connecting seaports to inland ports

Timeline: 2030

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of transport and construction, VPAS.

Action 3: Complete the Váh waterway

Implementation strategy: completion of the Váh waterway included in the TEN-T Core network (implementation of the Hlohovec - Sereď waterworks). Feasibility study in preparation

Timeline: 2030

Participants: Ministry of transport and construction, SVP, VV, VPAS.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
5	Low share of water transport on the market	<ul style="list-style-type: none"> Action 1: Improve navigation parameters and eliminate bottlenecks on the Danube River Action 2: Modernize the public ports of Bratislava and Komárno Action 3: Complete the Váh waterway

Table 3: 5.2 National Investment Plan of the Slovak Republic for the years 2018 - 2030 gaps and actions to close them

5.3 Economic Policy Strategy of the Slovak Republic until 2030

The vision of economic policy is to increase the competitiveness of the Slovak economy by 2030, enabling a flexible response to new global trends and technologies built on the principles of sustainable development.

Based on the key areas of economic policy identified by the strategies, in order to ensure medium to long-term competitiveness and economic growth, area-specific measures are proposed, which will be developed in the form of tasks through action plans.

- **Key Area 1 - Human Capital Development**
- Key area 2 - technological changes and support of the innovative potential of the Slovak Republic
- **Key Area 3 - Environmental and Energy Efficiency of the Economy**
- Key Area 4 - Business Environment Development
- Key Area 5 - Regional Development and Agriculture

5.3.1 Current state

- **Key Area 1 - Human Capital Development**

In order to maintain the critical skills, it is necessary, inter alia, to promote the training of water transport workers, in particular crew members. Currently, there is a shortage of skilled workers, with a large proportion of them retiring in the near future. This is mainly due to lack of professional learning opportunities in education, as well as the critical employment situation in this sector.

The number of employees in the water transport segment is declining in the long run, due to the low number of students targeting this type of transport, as well as the retirement of experienced employees. The low attraction of new workers is also due to the low attractiveness of this transport and the unclear prospect of its use.

This issue needs to be addressed by a generally increased interest in water transport from the state and by supporting existing educational institutions and new study programs.

- **Key Area 3 - Environmental and Energy Efficiency of the Economy**

The results of the study point to the fact that the Slovak Republic's progress in the implementation of eco-innovation is slow. This trend is naturally also reflected in the activities of the public port Bratislava, where ecological footprint is mitigated using water transport and the electric power for the transshipment technologies, but the implementation of actual eco-innovations does not take place, as most of the vessels, facilities and objects in the port are obsolete and in technically unsuitable state.

Although the City of Bratislava may be a potential source of inspiration, because of its infrastructure, as well as companies dealing with the subject, eco-innovations do not yet concern the port itself. The port suffers from a lack of investments in the modernization of port infrastructure, buildings as well as transshipment facilities, and the resources spent serve to keep the necessary elements in operation.

5.3.2 Desired state

- **Key Area 1 - Human Capital Development**

Without quality education, Slovakia feels the lack of professionally educated people, which is a barrier to economic development itself. Water transport sector is no exception. In the field of education, it is therefore necessary to focus on the effectiveness of the entire system, its financing and the development of professional skills of pupils and students with an orientation towards practice and labor market requirements. Dual education should be extended to the level of tertiary education. Part of this process, depending on the focus of the study, is also completing the internship during the study. In the conditions of the Slovak Republic, however, employers place emphasis primarily on completing internships during their studies, which is often determined by the absence of the practical side of teaching.

The effectiveness of the interconnection of the labor market with schools and academia will lie in the ability of the education system to produce graduates of applicable for employers. This requires the opening of schools to practitioners and to work with them to achieve comprehensive and practical training at both regional and national levels.

- **Key Area 3 - Environmental and Energy Efficiency of the Economy**

Economic policy in the coming period should be based on the competitiveness of outputs, which means the country's ability to bring its citizens more than GDP. Such an approach considers, in addition to the traditional measurability of competitiveness, environmental and social outcomes. In this context, therefore, one of the key areas can also be considered environmental efficiency, which must turn the contradictions between economic growth and the environment into synergies.

The issue of environmental efficiency and related issues are dealt with, inter alia, in particular by the Energy Policy of the Ministry of Economy of the Slovak Republic and the prepared low-carbon strategy, Environment Strategy 2030, Air Protection Strategy, as well as the Strategy

to improve air quality of the Ministry of the Environment of the Slovak Republic. In order to ensure sustainable development, economic policy will thus be in line with the objectives set out in these documents.

5.3.3 Gap identification

- Gap 1: Lack of human capital in waterway transport Level: 4
- Gap 2: Underutilized potential of water transport Level: 5

5.3.4 Recommendations to close the gaps

Gap 1: Lack of human capital in waterway transport

Action: Streamline and simplify the vocational education and training system in regional education.

Implementation strategy: Simplify the conditions for entry of employers and secondary vocational schools into the dual education system and increase the level of practical and general skills of pupils with a connection to the labour market.

Timeline: 2030

Participants: Employers, logistic operators, Educational institutions, Municipalities

Action: Take measures to improve the quality of higher education and increase its relevance to market needs.

Implementation strategy: Introduction of professionally oriented study programs at universities with practical education in vocational fields, which the student chose from the options offered by the school in agreement with companies, in order to increase the employability of graduates in the field. To promote water transport as a perspective segment in educational programs

Timeline: 2030

Participants: Employers, logistic operators, Educational institutions, Municipalities

Action: Reassess the effectiveness of conditions for managed labour immigration from abroad with their subsequent adjustment to the next period in a way that suits the economic interest of the Slovak Republic and its population

Implementation strategy: Reassess the effectiveness of conditions for managed labour immigration from abroad with their subsequent adjustment to the next period in a way that suits the economic interest of the Slovak Republic and its population.

Timeline: 2030

Participants: Employers, logistic operators, Educational institutions, Municipalities

Gap 2: Underutilized potential of water transport

Action: Diversify sources and transport routes for natural gas, oil and electricity where necessary in terms of energy security, economic efficiency and competitiveness of energy consumers

Implementation strategy: To assess potential of water transport for transport of environmentally friendly resources (for example LNG) in the context of global supply chains

Timeline: 2030

Participants: fleet operators, consumers of alternative fuels (associations), VPAS.

Action: To support the use of domestic renewable energy sources, biomass and hydropower potential of the Slovak Republic, taking into account the requirements of air quality (especially in the case of the use of biomass).

Implementation strategy: Ports may serve as important logistic hubs for distribution of renewable energy resources (biomass, hydropower).

Timeline: 2030

Participants: producers of inputs for production of renewable energy, port administration

Action: Strengthen the construction, development and efficiency of transport infrastructure, public passenger transport, non-motorized transport and electrified public transport in order to reduce energy efficiency and reduce emissions and improve air quality.

Implementation strategy: ports should serve as hubs for passenger and cargo transportation in order to achieve ideal modal split (water, rail, road)

Timeline: 2030

Participants: transport operators, municipalities, port administration

Action: Stimulate the development of technologies and infrastructure using alternative forms of fuels in passenger motor transport to a competitive and affordable level e.g. in the field of electromobility.

Implementation strategy: ports may serve as logistic hubs for distribution of renewable energy such as LNG, hydrogen, or electricity

Timeline: 2030

Participants: port administration, municipalities, transport operators

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
4	Lack of human capital in waterway transport	<ul style="list-style-type: none"> • Streamline and simplify the education • Simplify the dual education system • Improve the quality of higher education • Reassess conditions for managed labor immigration
5	Underutilized potential of water transport	<ul style="list-style-type: none"> • diversify sources and transport routes • support the use of domestic renewable energy sources • strengthen the construction, development and efficiency of transport infrastructure • stimulate the development of technologies and infrastructure

Table 4: 5.2 Economic Policy Strategy of the Slovak Republic until 2030 gaps and actions to close them

5.4 Strategy of the Environmental Policy of the Slovak Republic until 2030

Slovakia currently faces many environmental challenges. We have problems with air quality, low waste recycling rates, but also with the protection of ecosystems. Air pollution alone causes more than 5,000 premature deaths a year. At the same time, environmental problems have an increasing impact on the economy, employment, but also the comfort of life of the inhabitants. In addition, as in the whole world, Slovakia is already affected by climate change with visible impacts that will have serious environmental, economic and health problems in the future. According to estimates, in 2013 alone, economic losses in Slovakia from the extremes of climate change amounted to more than 1.3 billion euros.

The environmental challenges facing Slovakia require a long-term vision and strategic direction. The need for a new, modern environmental policy strategy that reflects the current situation and urgent environmental problems is also emphasized by the fact that the current State Environmental Policy Strategy, Principles and Priorities were approved in 1993 and have not been updated since.

The strategy of the environmental policy of the Slovak Republic until 2030 defines the vision until 2030 taking into account possible, probable and desired future development, identifies basic systemic problems, sets goals for 2030, proposes framework measures to improve the current situation and contains basic result indicators to verify achieved results.

5.4.1 Current state

The biggest current environmental problems in Slovakia can be considered the issues of waste management, air quality and protection of habitats and species, especially in forest, meadow, and wetland ecosystems. Based on internationally comparable indicators that measure the level of results achieved in individual areas of the environment, Slovakia lags behind developed countries the most in waste management and air quality. Municipal waste recycling rates are one of the lowest in the EU, while landfilling is still the dominant form of waste management and is one of the highest in the EU. Air quality has been lowered for a long time due to excessive dust, ground-level ozone, high concentrations of nitrogen dioxide and benzo (a) pyrene. There is a gradual but too slow improvement in both areas. Insufficiently secured protection of rare habitats and species within forest ecosystems (such as mountain deafblind), balancing their protection and economic development, legal security of rare localities (such as beech forests) and insufficient approximation of EU directives to the Slovak legal system in relation to nature protection and forest management have been criticized by institutions such as the European Commission or UNESCO.

5.4.2 Desired state

The biggest environmental challenges in Slovakia and thus the areas that will be prioritized within the environmental policy until 2030 are the issues of waste management, air quality and protection of habitats and species, especially in forest, meadow, and wetland ecosystems.

Within the framework of air protection, Slovakia will achieve the set goals. Air quality will improve in 2030 and will not have a significant negative impact on human health and the environment. This will be achieved by a drastic reduction in emissions compared to 2005 - SO₂ by 82%, NO_x by 50%, NMVOC by 32%, NH₃ by 30% and PM_{2.5} by 49%. Domestic heating and urban transport will move towards more environmentally friendly alternatives. A green fiscal reform will be considered, shifting the burden of taxation towards environmental taxes in line with the "polluter pays" principle. Environmentally harmful subsidies and regulations, such as subsidies for the extraction and combustion of domestic brown coal, will be eliminated.

Compared to OECD countries, environmental legislation in Slovakia was assessed as above average, and the competitiveness of Slovak companies remains key. According to the World Bank, we are lagging behind in the quality of regulations and law enforcement. Slovakia also achieves long-term below-average results in research and development, both in the field of patents and citations in scientific journals in the field of the environment.

5.4.3 Gap identification

Within the framework of 5.3 Strategy of the Environmental Policy of the Slovak Republic until 2030, following relevant gaps have been identified:

- Gap 1: Gaps in Climate change and air protection Level: 3
- Gap 2: Gap in Flood protection Level: 2
- Gap 3: Gap in Clean air policy Level: 4

5.4.4 Recommendations to close the gaps

Gap 1: Gaps in Climate change and air protection

By climate change we mean a change in the long-term nature of the weather in a certain area, which may be reflected in an increase in average temperatures, a more frequent occurrence of extreme natural phenomena or a decrease in total precipitation. Climate change is mainly caused by the greenhouse effect. This effect occurs when shortwave sunlight passes through the atmosphere. Upon impact with the earth's surface, the radiation is absorbed in the atmosphere (a small part) or is reflected and absorbed by the earth's surface

and the atmosphere (larger part). The absorbed part is transformed into long-wave radiation.

The problem is that as the concentration of greenhouse gases increases, so does the amount of heat captured, which changes the energy conditions in the atmosphere. This process is proceeding faster than history has shown so far, and the main cause of the current changes is human activity, especially the burning of fossil fuels, but also other activities. Global climate change is a global problem, but there are measures that can mitigate and even prevent its impact in Slovakia. In our environment, it is mainly in the area of reducing greenhouse gas emissions, protecting and revitalizing ecosystems, reducing and mitigating the risk of floods and soil erosion. The current challenge is also to prevent and address the consequences of drought and other adverse effects of climate change.

Action: Implement sustainable transport solutions

Implementation strategy: Fuel prices should reflect their environmental impact. For fossil fuels, therefore, the tax burden on petrol and diesel will be gradually balanced, with regard to competitiveness and the provision of support for alternative fuels, together with the construction of infrastructure. The impact on the business environment will need to be taken into account when setting appropriate rates. In the process of procuring new means of transport and transport solutions, it will be necessary to analyse their impact on climate and air quality, taking into account cost-effectiveness or the value for money principle. Long-term sustainable solutions will be preferred. Part of the promotion of sustainable transport solutions is the effort to change the overall division of transport work. In freight transport, the transfer of transport work from road to rail or water transport and in passenger transport on the transfer of transport work from individual car transport to public, city, bicycle and pedestrian transport.

Timeline: 2030

Participants: municipalities, Ministry of transport and construction of the Slovak republic, Ministry of environment of the Slovak republic

Action: Build green infrastructure

Implementation strategy: The principle of applying "nature-friendly solutions" based on the use of green infrastructure will be observed in the implementation of new projects and in reconstruction works. The possibility of applying such solutions will be obligatorily analyzed in the project design of the solution. Examples of such projects can be greening of roofs and public spaces, increasing rainwater harvesting, linking the construction of transport projects with nature, or expanding urban parks and urban greenery, and promoting biodiversity in urban areas. Building green infrastructure in agricultural land can also help adapt to climate change.

Timeline: 2030

Participants: Ministry of transport and construction of the Slovak republic, municipalities

Gap 2: Gap in Flood protection

Slovakia will ensure the protection of life and health of people, their property, the environment, cultural heritage and economic activities against floods, drought and water scarcity, using all available measures and resources. The use of green measures will increase, which, together with the necessary technical infrastructure, will be an integral part of the flood protection system. Damage will be prevented by mitigating the causes of their occurrence and also by adhering to land use plans based on flood maps.

Action: Increase the use of green measures

Implementation strategy:

Where possible and effective, green measures will be preferred to slow the flow of water from the ground into watercourses, increase the retention capacity of the river basin or promote the natural accumulation of water. Green measures will be implemented throughout the country, not only on the river, but also in the built-up, agricultural and forest land. In the case of the implementation of new and reconstruction of the existing technical infrastructure, mitigation measures close to nature will also be implemented.

One of the priorities will be the revitalization of watercourses, wetlands, the opening of dead branches and functional inundation. This will create space for the river and natural river processes in selected areas in order to slow down runoff. Flood protection measures will not transmit or increase the risk of floods in downstream areas.

Timeline: 2030

Participants: Ministry of transport and construction of the Slovak republic, Ministry of environment of the Slovak republic

Action: Not allowing construction in areas at risk of floods

Implementation strategy: Strictly adhered to land use plans will be an effective tool before flood damage occurs. Construction and inappropriate activities in the floodplain will no longer be permitted. Accurate and freely available flood risk maps and flood risk maps, which are updated every 6 years, will serve in particular for this purpose. Construction and other activities should not increase flood risk. Consideration will be given to introducing an investor's obligation to retain rainwater on its own land and to dispose of it efficiently so as not to endanger neighboring land and foreign property. Stimuli that worsen the flood position are removed. The state, based on the "user pays" principle, will find a way to involve vulnerable populations in financing their flood protection. One option is financing from flood insurance.

Timeline: 2030

Participants: municipalities, SVP

Gap 3: Gap in Clean air policy

Air quality in 2030 will be significantly better and will not have a significant adverse effect on human health and the environment. This will be achieved by reducing emissions compared to 2005 - SO₂ by 82%, NO_x by 50%, NMVOC by 32%, NH₃ by 30% and PM_{2.5} by 49%. Gradually, the production of electricity from coal will be reduced. Domestic heating and urban transport will move towards more environmentally friendly alternatives. The principle of applying BAT in industry, energy, but also in agriculture and other sectors will also be strengthened for smaller installations. The National Pollution Reduction Program will focus on cost-effective emission reduction measures. Air protection will be guided by the "polluter pays" principle. The introduction of an emissions trading scheme for air pollutants will be considered. The system of charges for air pollution will be set up efficiently and motivately.

Action: Gradually reduce electricity production from coal

Implementation strategy:

Coal combustion releases emissions of solid pollutants, sulphur oxides, nitrogen, and carbon, which put negative pressure on local air quality and public health. The production of electricity and heat from domestic coal will gradually cease, with a positive trend of reducing the total amount of coal, which is one of the key goals of the transition to a low-carbon economy. The mechanisms resulting from the revised Emissions Trading Directive and other mechanisms will be used as much as possible to gradually reduce the production of electricity and heat from coal.

Timeline: 2030

Participants: energy producers, national legislation body, transporters / owners of commodity (coal).

Action: Increase the share of low-emission transport

Implementation strategy: A mechanism to support low-emission transport based on electromobility and other alternative fuels with minimal impact on air quality will be established and other low-emission forms of transport will become more attractive. Transport, especially cars, has a growing share of total greenhouse gas emissions, but also of pollutants, especially nitrogen oxides. It accounts for almost half of all nitrogen oxide emissions. In residential areas, low-emission public passenger transport and urban bicycle transport will be preferred. In interurban transport, low-emission public passenger transport will be supported, especially the pure form of rail, tram, and electro-bus transport. Municipalities will be able to charge for the entry of cars into the centres and conditions will be created to reduce individual car traffic, e.g. in the form of the creation of traffic calming zones. In addition, emission zones with access for vehicles meeting emission classes will be differentiated in cities. The tax system already favours low-emission transport. In the context of the tax system, therefore, the debate in support of environmental objectives in the field of transport will focus on higher taxation of environmentally harmful transport.

Timeline: 2030

Participants: Ministry of transport and construction of the Slovak republic, Ministry of environment of the Slovak republic, port administration, transport providers.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
3	Gaps in Climate change and air protection	<ul style="list-style-type: none"> • Implement sustainable transport solutions • Build green infrastructure
2	Gap in Flood protection	<ul style="list-style-type: none"> • Increase the use of green measures • Not allowing construction in areas at risk of floods
4	Gap in Clean air policy	<ul style="list-style-type: none"> • Gradually reduce electricity production from coal • Increase the share of low-emission transport

Table 5: 5.3 Strategy of the Environmental Policy of the Slovak Republic until 2030 strategy gaps and actions to close them

5.5 Smart concept of regional development of the Nitra self-governing region until 2027

The purpose of the concept paper is to use innovative smart approaches, methods, technologies, and solutions to meet the objectives of the Integrated Territorial Development Strategy of the Nitra self-governing region, to create conditions for further improving the quality of life of the self-governing region, quality of economy and attractiveness for visitors using efficient and sustainable own resources and reflecting current challenges for its sustainable development.

According to the assignment, the aim of elaborating the smart strategy of regional development of the Nitra self-governing region is to obtain a basis for systematic grasping of smart development issues as a deepening of integrated territorial strategy and program of economic development and social development of the region focused on medium-term development of Nitra self-governing region as part of smart metropolitan region Vienna-Bratislava. At the same time, the task of this document is to verify the potential of smart solutions in accelerating and ensuring the efficiency and sustainability of the Nitra self-governing region, which has the potential to become the basis of competitiveness of the Nitra self-governing region and the starting point for processing other strategic development documents. on the support of partial activities and projects.

The document has the ambition to identify and, based on the analysis and evaluation of demographic, territorial-technical, economic, social, and environmental conditions of the Nitra self-governing region, recommend the use of smart approaches in the development of production sectors, infrastructure and services, public sector and administration, community life, protection, development and use of natural, human and other resources, the environment and other areas.

The first phase focused on analyses aims to map the starting points and potentials in individual areas, especially in relation to the formulation and implementation of the development strategy of the Nitra self-governing region by 2027 with a view to 2030 in the vision of Slovakia's vision and development strategy until 2030 development.

5.5.1 Current state

Document does not contain the description of the current state. It refers to the port of Komárno in terms of possible implementation of “concepts of the smart city / smart region.”

5.5.2 Desired state

Increased intensity of the use of freight shipping in the port of Komárno, increased number of businesses located in the industrial zone of the port of Komárno, increased number of visitors to Komárno, improving infrastructure for passenger and freight transport, better connection of shipping to other modes of transport, improving the quality-of-life environment in the town of Komárno (especially in the locality of the port).

5.5.3 Gap identification

- Gap 1: Use of the Danube waterway (as a cross-border link), including smart tourism
Level: 5

5.5.4 Recommendations to close the gaps

Gap 1: Use of the Danube waterway (as a cross-border link) including smart tourism.

Action: Transformation of the port of Komárno - smart logistics centre Komárno

Implementation strategy: Increasing the intensity of the use of freight shipping in the port of Komárno, increasing the number of businesses located in the industrial zone of the port, improving the infrastructure for passenger and freight shipping, better connection of shipping to other modes of transport, improving the quality of the environment in Komárno (especially in the port).

Timeline: 2027

Participants: port administration, city of Komárno

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
5	Use of the Danube waterway (as a cross-border link) including smart tourism	Transformation of the port of Komárno - smart logistics centre Komárno

Table 6: 5.4 Smart concept of regional development of the Nitra self-governing region until 2027 gaps and actions to close them

6 Gap analysis summary

6.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
5	Market share increase	The share of water transport in the total volume of traffic has been low for a long time, and there is no gradual improvement in this unfavourable situation.	4.5% market share for water transport	Low share of water transport on the market	<p>Action 1: Improve navigation parameters and eliminate bottlenecks on the Danube River.</p> <p>Action 2: Modernize the public ports of Bratislava and Komárno</p> <p>Action 3: Complete the Váh waterway</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p> <p>Action 3: 2030</p>
4	Human Capital Development	Key Area 1 - Human Capital Development: Shortage of skilled workers, many retiring in near future, lack of professional learning opportunities	- Efficient ties between education and labour market	Lack of human capital in waterway transport	<p>Action 1: Streamline and simplify the vocational education and training system in regional education.</p> <p>Action 2: Take measures to improve the quality of higher education and increase its relevance to market needs</p> <p>Action 3: Reassess the effectiveness of conditions for managed labour immigration from abroad with their subsequent adjustment to the next period in a way that suits the</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p> <p>Action 3: 2030</p>

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
					economic interest of the Slovak Republic and its population	
5	Environmental and Energy Efficiency of the Economy	Key Area 3 - Environmental and Energy Efficiency of the Economy: Slow progress in the implementation of eco-innovations, most of the vessels, facilities and objects in the port are obsolete and in technically unsuitable state.	- Economy policy bringing more value that GDP	Underutilized potential of water transport	<p>Action 1: Diversify sources and transport routes for natural gas, oil and electricity where necessary in terms of energy security, economic efficiency and competitiveness of energy consumers</p> <p>Action 2: To support the use of domestic renewable energy sources, biomass and hydropower potential of the Slovak Republic, taking into account the requirements of air quality (especially in the case of the use of biomass).</p> <p>Action 3: Strengthen the construction, development and efficiency of transport infrastructure, public passenger transport, non-motorized transport and electrified public transport in order to reduce energy efficiency and</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p> <p>Action 3: 2030</p> <p>Action 4: 2030</p>

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
					<p>reduce emissions and improve air quality.</p> <p>Action 4: Stimulate the development of technologies and infrastructure using alternative forms of fuels in passenger motor transport to a competitive and affordable level e.g. in the field of electromobility.</p>	
3	Mitigation of climate change impact and strengthening of air protection	Issues with waste management, air quality and protection of habitats and species, especially in forest, meadow and wetland ecosystems.	Reduction of greenhouse gas emissions, protection and revitalization of ecosystems, reduction, and mitigation of risk of floods and soil erosion	Gaps in Climate change and air protection	<p>Action 1: Implement sustainable transport solutions</p> <p>Action 2: Build green infrastructure</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p>
2	Strengthening flood protection	<p>Lowered air quality for long period of time.</p> <p>High concentrations of nitrogen dioxide and benzo pyrene.</p>	Protection of life and health of people, their property, the environment, cultural heritage and economic activities against floods, drought and water scarcity	Gap in Flood protection	<p>Action 1: Increase the use of green measures</p> <p>Action 2: Not allowing construction in areas at risk of floods</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p>
4	Strengthening clean air policy		Emission reduction compared to 2005 - SO ₂ by 82%, NO _x by 50%, NMVOC by 32%, NH ₃ by 30% and PM _{2.5} by 49%	Gap in Clean air policy	<p>Action 1: Gradually reduce electricity production from coal</p> <p>Action 2: Increase the share of low-</p>	<p>Action 1: 2030</p> <p>Action 2: 2030</p>

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
					emission transport	
5	Implementation of innovative smart approaches, methods, technologies	n/a	<ul style="list-style-type: none"> -Increased intensity of the use of freight shipping -increased number of businesses located -increased number of visitors -improving infrastructure for passenger and freight transport -better connection of shipping to other modes of transport -improving the quality-of-life environment 	Use of the Danube waterway (as a cross-border link), including smart tourism	Action (recommendation to close the gap): Transformation of the port of Komárno - smart logistics center Komárno	Action 1: 2027

Table 7: Gap analysis summary for Slovakia

7 Conclusions

For the past years, the primary strategic document related to the transport was *Strategic plan for the development of transport in the Slovak Republic until 2030*. This document has been analysed in *T3.1.2 Analysis of European & National Transport Policies, Strategies & Programs with regard to the Danube Ports* elaborated within the DIONYSUS project. Other strategies, whether development, economical, monetary etc... are under the responsibility of different ministries. Despite that, strategies for particular sectors are not independent so at the end, they may cover similar agendas, analyse similar gaps and propose similar actions.

Transport, either water transport or transport in general is a very good example of that. Even though main strategy for the resort is abovementioned *Strategic plan for the development of transport in the Slovak Republic until 2030*, transport agenda and relevant targets are set also within strategical documents elaborated under the Ministry of finance of the SR, Ministry of environment of the SR, Ministry of Investment, Regional Development and Informatization of the SR. Entities approach to transport agenda from their respective point of view but according co provided analysis with more or less the same major focus points. The priority is to build sustainable and green infrastructure and increase the market share of green transport modes.

Separate category of strategies are local ones, elaborated on regional level or municipal level. Interesting, however negative observation is that despite being integral part of cities for centuries, ports are mentioned very rarely in respective strategies. Municipalities are focused on improvement of public passenger and cargo transportation, tackling traffic congestions and negative environmental impact road transportation. In the same time, the potential of water transport and its positive impact on municipalities is being ignored. One of the very few exceptions is *Smart concept of regional development of the Nitra self-governing region until 2027*, document mentioning the public port of Komárno, but mostly with an objective to increase tourism and tourism related business.

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Interreg



Danube Transnational Programme
DIONYSUS

**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

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Executive summary

The Danube River is the longest stream in the EU and the main artery for millions of people and unique natural habitats. It serves as a 2,857 km long route of transport, trade, energy, migration, and cultural exchange across borders. Touching ten different countries, it is the world's most international river and a natural field of transnational cooperation.

In order to achieve Smart & Sustainable Multi-modal & Intermodal Transport Chains in the Danube region a comprehensive strategy is needed, which covers the main development aspects related to river ports. As ports are deeply integrated in every national economy the analysis of the regional economic development strategies, policies and programmes with regard to Danube ports is essential.

Related to the Hungarian river ports 3 economy development strategies were identified which aims different port related sectors of the economic system. The National Clean Development Strategy 2020-2050 is the key document in Hungary for reaching climate neutrality through investing in green economy while minimalising greenhouse gas emissions. The sustainable and climate resilient economy development is the pathway of the future, where ports are needed to find their own role and benefits.

National Development and Spatial Development Concept 2014-2030 sets out a common direction for policies in terms of national and regional development which serves as a basis for the partnership agreement between the EU and Hungary, thus contribute to the creation of the 2014-2020 Operational Programmes. While the Concept outlines the main development goals of Hungary, specific areas are not covered for instance innovation and policy harmonising of transportation systems.

The most related document to the port development is the National Port Development Master Plan Strategy 2020-2030. The Master Plan outlines the necessary steps to the development of the existing services and making the ports ready to deal with the increased trade volumes while on the other hand it does not mention the changing role of ports in the pathway toward industry 4.0 and climate neutrality.

The mentioned strategies were analysed focusing on the current and willing to achieve state in order to the development gaps could be identified and recommendations were proposed for closing them.

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2 Introduction

The economy of Hungary has faced various challenges in the last decades from economic and pandemic crises, decreasing demographic statistics to changing legal, financial, and environmental circumstances. Effective countermeasures cannot be implemented without a comprehensive sectorial and cross-sectorial strategic planning. With identifying synergies and gaps port development measures could become more resource efficient and it provides information to national decision makers on the potentials in waterborne transportation.

In this paper the National Clean Development Strategy 2020-2050, National Development and Spatial Development Concept 2014-2030, National Port Development Master Plan Strategy 2020-2030 and the BUDAPEST 2030 Long-term Urban Development Concept were analysed in order to identify the main economic development goals and interventions with particular reference to the Hungarian ports.

For the creation of the analysis of the 4 economic strategies, the main elements of the Hungarian sectorial strategies were examined focusing on its connections to ports. In general, waterborne transportation was mainly an eco-friendlier alternative to freight traffic, although it faces setbacks because of the worsening infrastructure conditions. The analysis of the coherence between the examined strategies showed that cross-sectorial planning and complementary actions are hardly present.

The current and the desired state of selected four strategies lead to the identification of the development gaps, for which interventions, recommendation were proposed.

3 Strategies with existing or potential influence on ports

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
National Clean Development Strategy 2020-2050 ¹	X				X
National Development and Territorial Development Concept 2014-2030 ²	X			X	
National Port Development Master Plan Strategy	X				X
BUDAPEST 2030 Long-term Urban Development Concept ³	X		X		

Table 1: Summary of economic development strategies and their influence on ports

¹ Complete document (HUN):

<https://cdn.kormany.hu/uploads/document/5/54/54e/54e01bf45e08607b21906196f75d836de9d6cc47.pdf>

Executive summary (ENG):

<https://cdn.kormany.hu/uploads/document/6/66/666/666e0310ef20606fba9f96f4fbf0d74bbaa1638e.pdf>

² http://www.terport.hu/webfm_send/4616

³ https://budapest.hu/Documents/varosfejlesztési_koncepcio_bp2030/Budapest_2030_varosfejlesztési_koncepcio.pdf

3.1 National Clean Development Strategy 2020-2050

3.1.1 Current state

In accordance with Article 4, paragraph 19, of the Paris Agreement, all Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

The National Clean Development Strategy (hereinafter referred to as the Strategy) is Hungary's long-term plan for reaching climate neutrality by 2050. It outlines a 30-year vision of socioeconomic and technological development pathways while focusing on the well-being of the Hungarian people and ensuring the protection of natural assets and economic development. The key objective is reaching economic development without increasing CO₂ emissions thus decreasing the contribution toward climate change. Multisectoral modelling was used to explore the specificities of the different sectors and their system-wide, cross-sectoral dynamics.

To reach climate neutrality by 2050 all sectors must minimalise their greenhouse gas emissions (while the unavoidable emissions have to be compensated by using carbon sinks (e.g. forests or other artificial solutions)). The Strategy outlines the main directions for interventions in the areas of energy production, storage and consumption, agriculture, industrial processes and product use, transportation, waste sector. As a milestone to the climate neutrality, Hungary has committed to decrease its greenhouse gas emissions by 55% until 2030. Ambitious steps should be made in cross-sectoral areas too as research and development, education and (re)training. With large-scale and early investments in the green economy may results in 20,7% higher GDP by 2050 and the creation of 183 000 new jobs.

The Strategy mentions the contribution of the Hungarian ports to the green transition of the economy as they key facilities of the transportation of certain products of climate neutrality. In order to limit the increase of the global mean temperature not only ceasing the emission of CO₂ and other greenhouse gases but their capturing from the atmosphere is needed. Ports will have an important role of the transportation of the captured CO₂, renewable energy created hydrogen and other products between inland and seaports in the EU and other countries.

Regarding the existing transportation of goods, the Strategy states that inland waterway transport is a climate friendly alternative to road and air transport, but infrastructural developments are needed especially along the Tisza River.

3.1.2 Desired state

Reaching climate neutrality by 2050 have utmost importance not only for the elements of the biosphere, habitats, but the human society and built infrastructure too. With higher global mean temperature climate change more likely to cause extreme weather events, draughts and heatwaves which may results in loss of human lives and GDP.

The answer for this challenge is the transition to a sustainable, green economy which have over 95% less greenhouse gas emission, material and energy efficient and have waste free circular processes. With the creation and implementation of the European Green Deal⁴ the EU is the leader of this transition which secures its position in the global competition.

⁴ https://ec.europa.eu/clima/eu-action/european-green-deal_en

Waterway transport has a dedicated role in the future green economy. It is known that in the field of transportation of goods, using waterways is more climate friendly than road or railway transportation. In order to fulfil the greenhouse gas emission reduction goals in transportation, the whole chain of transportation should be altered from using fossil fuels to alternative sources for instance electricity or renewable energy created hydrogen. Hydrogen is suitable for not only for the propulsion of goods carrying vessels but where pipelines are not available solution for transporting hydrogen waterway transportation has a key role.

As ports are the areas of the intermodality and logistic centres they are one of the leaders of promoting electric mobility. Providing electric charging stations, energy storage solutions ports have outstanding importance in creating low- or zero emission zones in urban areas.

3.1.3 Gap identification

The Strategy aims to outline the key steps which lead to a sustainable and carbon neutral economy, but serious gaps can be identified in how it can be achieved.

Gap 1: Technology readiness

Level: 2

Ports are envisioned to have major role of electric mobility and transportation of hydrogen and CO₂, although the Strategy mentions that it has infrastructural development needs. The technology for carbon capturing, energy and hydrogen storage, electric charging of different equipment/vehicles are at experimental or early market phase which may delay the introduction of the new systems or increase the costs of the transition.

Applying the new technologies may have not only financial challenges, but employees in ports need to get proper education or (re)training. In a sector which is already suffering from the quantity and quality of the available workforce this could be a great challenge.

Gap 2: Financial support or who pays the transition?

Level: 1

The abovementioned infrastructural development in connection of ports requires large number of financial investments. The available financial resources for the infrastructural development may cause inequalities in the national and international market of transportation, where Hungarian ports may suffer from competitive handicap.

In order to initiate the transition earlier, involvement of the support of EU and national funds are needed.

Gap 3: Cooperation between ports

Level: 3

In green economy ports may have a key role, although to reach that they have to lay the foundation of the future transportation system and their services in it. Strong cooperation between EU ports is recommended in sharing best practices, technologies.

3.1.4 Recommendations to close the gaps

In order to port can fulfil their role in a future green economy, technological, financial and cooperation related gaps should be bridged with the following guidelines.

Gap 1: Technology readiness

Action: the port related future technologies should be analysed, prototypes and experimental developments should be financed.

Implementation strategy: technological assessments and feasibility studies should be made on the market ready new technologies and the workforce of the ports should be trained. Based on the results the feasible technology should be prototyped in Hungarian conditions.

Timeline: the action involves two phases – in 2023-2024 elaborating assessments and studies and in 2025-2030 implementation of prototypes and experimental systems.

Participants: Ports and other transportation companies, electricity suppliers, ministries.

Gap 2: Financial support or who pays the transition?

Action: assessing the investment costs related to new technologies in Hungarian ports and creation of funds.

Implementation strategy: The assessment of Hungarian ports will result in a detailed list of investment needs (different ports may have different opportunities and goals) and creation of an innovation fund for ports may accelerate the technological transition.

Timeline: the action involves two phases – in 2023 the assessment of investment needs and in 2024-2030 establishing and operating an innovation fund.

Participants: Ports and other transportation companies, banks, ministries.

Gap 3: Cooperation between ports

Action: Sharing best practices and technologies between Hungarian and European ports.

Implementation strategy: Creation of an online platform for ports and study trips for experience and best practice sharing.

Timeline: creation and operation of the online platform in 2023-2030, study trips in 2023-2024.

Participants: Ports and other transportation companies, banks, ministries.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
2	Technology readiness	Technology assessments, prototyping and trainings.
1	Financial support	Assessment of investment needs, creation of an innovation fund.
3	Cooperation between ports	Online platform for experience, best practice sharing, study trips.

Table 2: National Clean Development Strategy 2020-2050 gaps and actions to close them

3.2 National Development and Spatial Development Concept 2014-2030

3.2.1 Current state

Based on the Hungary's economic, social or sectorial and territorial development needs the National Development and Spatial Development Concept (hereinafter referred to as the Concept) outline a long-term vision, development goals and principles until 2030. The main objective of the Concept, besides describing the focus point of national and sectoral policies, is to select the priorities for the 2014-2020 programming period in Hungary – in accordance with EU's Europe 2020 Strategy.

The Concept is in line with the national strategic planning documents, sets out a common direction for policies in terms of development policy and spatial development, and support the creation and implementation of key national development objectives. The goals and principles outlined in the Concept serve as a basis for the partnership agreement between the EU and Hungary, thus contribute to the creation of the 2014-2020 Operational Programmes and the efficient use of the national development-oriented funds.

As describing the current state, the Concept assess the economic, social and environmental challenges and opportunities which Hungary has to face in the future. Regarding economy, Hungary is highly expose to global economic processes and external impacts, it has to make a stand in an ever-changing international competition. Increasing the employment rate, securing economic growth without overusing our natural resources is the greatest challenges which is reachable with high added values-based paradigm shift in economic strategy. The main messages related to social processes are in connection with the worsening demographic status, the challenged health and education infrastructure.

Regarding transportation the Concept mentions the increasing commercial activities and changes in production methods lead to an expansion in road transportation with environmental impacts, decreasing air qualities, noise pollution. It states that there is unused potential in waterborne transport.

3.2.2 Desired state

The Concept describes the desired development state for Hungary in 2030 which is the following: Hungary is one of the leading economic and intellectual centres with a competitive economy which uses sustainable resources and granting livelihoods, while the population, the quality of life and the natural environment is improving, the communities strengthening.

This development state can be achieved implementing the following economic, social and environmental goals. Hungary will have the one of the most attractive economic and business environments, which attracts foreign direct investments and increase the national employment and strengthen the supplier Hungarian small and medium enterprises. Increasing capacities in agriculture and food industry will have a higher contribution to the national economic performance and export values, while developing rural areas and communities. Environment friendly transportation infrastructure will be efficiently built and maintained which will contribute to the sustainable economic development. Investments in education, research and development, accessibility to and cultural assets and services and use of information communication technologies will promote the intelligent growth social inclusion. The sustainable use of the resources will result not only in economic growth, but it protects biodiversity, natural environment and decrease the contribution to global climate change.

Creation of sustainable transport systems is desired, in accordance with the logistic and transit economy development goals. The Concept focus on the further development of the TENT-T core network and the especially on railway infrastructure and its electrification. In order to increase the efficiency of waterborne transportation the following developments should be implemented: upgrade the fleet and equipment, improving the national port network align with EU standards, development of ferryboats and harbours, and promoting intermodal logistic investments.

3.2.3 Gap identification

One of the main goals of the Concept is to identify development policy gaps for which the funds in the 2014-2020 Operational Programmes could be efficiently used. Regarding waterborne transportation the following gaps are mentioned:

Gap 1: Environment friendly transport infrastructure development Level: 4

Transportation needs are increasing in Hungary which lead to congestions in the outdated infrastructure and increasing environmental impacts. The Concept does not mention the principles or exact interventions with which waterborne transportation can be more efficient, can serve greater transportation needs without resulting in higher environmental impacts.

Gap 2: Innovation and technology in transport infrastructure Level: 2

Ports and the related infrastructural elements are needed to be developed using the funds of the 2014-2020 Operational Programmes, but the Concept does not mention what innovation and new technological advancements should be involved in the investments. Such innovations have to focus on not only the built-in equipment or the created system, but the training of the employees and key stakeholders.

Gap 3: Harmonising the transportation policies Level: 1

The Concept mentions various transportation developments from road to waterborne or air transportation, but the exact measures are not described which ensures that the different interventions will not be implemented separately, but jointly under a common concept.

3.2.4 Recommendations to close the gaps

Ports in Hungary are involved in the fabric of spatial development, they serve as important commerce and transportation hubs which contributes to national economic performance and livelihood of significant number of families. In order to keep that position and improve their efficiency the following recommendation are advisable to close the identified gaps:

Gap 1: Environment friendly transport infrastructure development

Action: assessment of environmental impacts of waterborne transport and technology analysis for the mitigation of the negative effects.

Implementation strategy: creation of an environment impact assessment on the existing waterborne transportation with focus on the challenges and potential technological development opportunities and. Based on the indicated development needs a technological assessments and feasibility studies should be made on the market ready new technologies and the workforce of the ports should be trained. Based on the results the feasible technology should be prototyped in Hungarian conditions. Based on international trends, port could be suitable places for electrification and energy storage which decrease the fossil fuel emissions of the transportation.

Timeline: the action involves two phases – in 2023-2024 elaborating assessments and studies and in 2025-2030 implementation of prototypes and experimental systems.

Participants: Ports and other transportation companies, environment protection associations, electricity suppliers, ministries.

Gap 2: Innovation and technology in transport infrastructure

Action: the port related future technologies should be analysed; prototypes and experimental developments should be implemented.

Implementation strategy: technological assessments and feasibility studies should be made on the market ready new technologies and the workforce of the ports should be trained. Based on the results the feasible technology should be prototyped in Hungarian conditions.

Timeline: the action involves two phases – in 2023-2024 elaborating assessments and studies and in 2025-2030 implementation of prototypes and experimental systems.

Participants: Ports and other transportation companies, electricity suppliers, ministries.

Gap 3: Harmonising the transportation policies

Level: 2

Action: extensive consultation with key stakeholders of national transportation sector in order to harmonise the different development needs and interventions.

Implementation strategy: creation/review of waterborne transportation-oriented masterplan and project generation accordingly (for that purpose the National Transport Infrastructure Development Strategy and the National Port Development Master Plan Strategy were created).

Timeline: the action involves two phases – in 2023-2024 creation/review the transportation related strategies and in 2025-2030 project generation and implementation.

Participants: Ports and other transportation companies in other sectors, professional organisations, ministries.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
4	Environment friendly transport infrastructure development	Creation of an environment impact assessment and technological assessments, then introduction of new technologies.
2	Innovation and technology in transport infrastructure	The port related future technologies should be analysed, prototypes and experimental developments should be implemented.
1	Harmonising the transportation policies	Creation/review of waterborne transportation-oriented masterplan and project generation accordingly

Table 3: National Development and Spatial Development Concept 2014-2030 gaps and actions to close them

3.3 National Port Development Master Plan Strategy 2020-2030

The National Port Development Master Plan Strategy (hereinafter referred to as the Master Plan) is a specialised document on both the economic and transportation development of ports, therefore it will be assessed both in D.T3.1.1. and D.T3.1.2. from different aspects.

3.3.1 Current state

The Master Plan for the Hungarian Danube section is a gap-filling, comprehensive policy document that sets out the directions for the development of port infrastructure and port services along the Danube, as well as the entire sector until 2030. With the involvement of the key stakeholders the Master Plan outline five strategic goals: changes in the mode of transportation; further generation of demand; creation of the financial system; development of human resources; creating a sustainable regulatory environment.

The abovementioned goals are based on the assessment of economic, human resource and technological challenges of the Hungarian ports and reflects the most crucial development needs. The main challenges of ports and waterborne transportation comes from both external and internal sources. Ports, as part of a globalised economic sector, are significantly exposed to the changes in international commerce (both in regarding quantity and quality), the influence of new upcoming innovations and technological needs and last but not least to global climate change (navigability, infrastructure and storage). These external impacts could meet the internal existing challenges, namely the ageing infrastructure, technological backwardness and lacks in quantity and quality of human resources. Efficient and successful port developments are further compounded by the lacks in regulatory environment.

3.3.2 Desired state

The development goals and interventions listed in the Master Plan would like to increase the usage of ports, therefore the income related to expansion of international transportation needs while the human and built infrastructure are both developed to efficiently satisfy the identified needs.

From the aspect of economy development, these intensions would like to increase the economic weight of waterborne transportation and ports. The Master Plan outlines the necessary steps to the development of existing services, and making the ports ready to deal with the increased trade volumes. Without close cooperation with other sectors (e.g. agricultural and industrial actors) these process can't be made possible.

3.3.3 Gap identification

The Master Plan envisions a broader, more significant role of Hungarian ports for which it proposes interventions in infrastructure, technological, human resource developments, changing in legal environment. Although the proposed interventions are crucial in short and mid-term, other external impacts are taking place which should be also covered by the Master Plan. These are the followings:

Gap 1: Ports in favour of climate neutrality

Level: 2

The European Union and most of their member states have committed itself to achieve climate neutrality by 2050. According to sectorial analyses such a huge ambition can't be fulfilled without all

the member states and its different sectors effective cooperation and effort sharing. The climate neutrality goal forces every sector to rethink their position in the future green and sustainable economy. By this changing external influence Hungarian ports should redefine their position, role and opportunities in order to retain or develop their position in the international economic competition.

3.3.4 Recommendations to close the gaps

Gap 1: Ports in favour of climate neutrality

Action: defining the place of ports in the future green economy and project generation.

Implementation strategy: the revision of the Master Plan needed with involvement of the relevant key stakeholders. The revision has to have an assessment on the challenges and opportunities of green economy in connection with ports and a best practice analysis. The indicated practices should be prototyped in the Hungarian conditions.

Timeline: the action involves two phases – in 2023-2024 revision of the Master Plan and in 2025-2030 implementation of prototypes and experimental systems.

Participants: Ports and other transportation companies, professional organisations, ministries.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
2	Ports in favour of climate neutrality	Revision of the Master Plan and prototyping

Table 4: National Port Development Master Plan Strategy 2020-2030 gaps and actions to close them

3.4 BUDAPEST 2030 Long-term Urban Development Concept

The BUDAPEST 2030 Long-term Urban Development Concept (hereinafter referred to as the Budapest Concept) is an urban policy document (defined in Act LXXVIII of 1997, adopted by the Budapest General Assembly) which defines the future development pathway of Budapest. The Budapest Concept, based on the environmental, social and economic conditions of the Budapest, outlines long-term development goals and changes. The document serves a conceptual basis for mid- and short-term economic, social and environmental strategies and plans therefore has a significant impact on residents, actors of economy, and infrastructure.

3.4.1 Current state

The Budapest Concept describes 17 development goals which contributes to four desired states

- Budapest is strong member of the European city network;
- Value- and knowledge-based sustainable economy;
- Harmonic, diverse city environment;
- Improving quality of life, harmonic coexistence.

According to their nature and their role in urban development, the objectives can be divided into the following 4 types:

- **Initiative urban development:** the key to effective urban planning and management;
- **New challenges:** address the environmental, economic and social challenges which now emerge as a social need, such as the competitive position and opportunities for cooperation of Budapest, climate protection, finding a way out of the economic crisis, or ageing society;
- **Territorial development:** fundamentally a new, sustainable approach to the development of urban areas based on their possibilities and necessities;
- **Responsibility:** along the values and human expectations, they primarily point the way to the development of human infrastructure, pointing out the justification of society's activity, the need for change and the importance of inclusiveness in the field of social responsibility of the capital.

The Budapest Concept as a long-term and comprehensive document covers economic, social, environmental and infrastructural challenges and development ideas in connection with the Hungarian capital. Regarding international cooperation, economic and transportation connections and increasing the European economic role of Budapest waterborne transportation of passengers and goods the Budapest Concept recognise the importance of ports.

3.4.2 Gap identification

Regarding waterborne transportation of goods, the Budapest Concept has two main goals, developing the railway and road connections of the freeport of Csepel and the creation of a DILK along the Danube. Although these two goals are essential to the development of the mentioned ports, it creates significant gaps regarding to potential of ports in urban commerce and fulfilling the needs of tackling XXI. century challenges. The following gaps are identified:

Gap 1: Futureproof development of port(s) in Budapest

Level: 3

The development of the port infrastructure in the freeport of Csepel is important but in order to secure the position in international trade and fulfil future needs more specific development goals should be created. Budapest as other great cities in Europe is facing serious economic and environmental challenges which may rearrange their competitiveness. In connection with decarbonisation of transportation, climate adaptation and creating a sustainable economy port of Csepel has a significant role. As a main logistic hub, the port could be a suitable place for developments regarding electric mobility, creation and storage of renewable energy and alternative fuels (e.g., hydrogen). These elements could support climate neutral ambitions of Budapest and generate profit in the port.

3.4.3 Recommendations to close the gaps

Gap 1: Lack of futureproof development vision for port(s) in Budapest

The role of the Csepel freeport is significant in the economy of Budapest which makes it crucial to have a common development vision between the leadership of the capital and the actors connected with the port. A development plan which describes the future position of the port in the economy of Budapest is needed where common goals and development opportunities are described. Based on the common vision pilot projects should be implemented for instance in electric mobility.

Timeline: the action involves two phases – in 2023-2024 the creation of common port development plan with the cooperation of the Municipality of Budapest and the operator of Csepel freeport and implementation of pilot projects in 2025-2030. As a result of these measures the Budapest Concept should be revised in few years.

The following table summarizes the gaps identified in (title of strategy), as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
3	Lack of futureproof development vision for port(s) in Budapest	Creation of a common development plan and implementation of pilot projects.

Table 5: BUDAPEST 2030 Long-term Urban Development Concept gaps and actions to close them

4 Gap analysis summary

4.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
2 1 3	Reaching climate neutrality by 2050	The existing economy system is unsustainable, economic development leads to the increasing greenhouse gas emissions which contributes to the global climate change.	The green economy development preserves natural resources, creates new jobs, while does not contribute to climate change.	Gap 1: The readiness of green technologies Gap 2: Who pays the transition? Gap 3: Cooperation between ports.	Action 1: Assessing and financing future technologies Action 2: Creation of an Innovation Fund for ports: Action 3: Best practice sharing and creation of an online platform	Action 1: 2023-2024 elaborating assessments – 2025-2030 prototyping Action 2: in 2023 assessment of investment needs and in 2024-2030 establishing an innovation fund. Action 3: creation and operation of the online platform in 2023-2030, study trips in 2023-2024
4 2 1	Hungary is one of the leading economic and intellectual centres in Europe	Worsening demographic status, the challenged health and education infrastructure while Hungary faced economic crisis in 2008-2009.	Increasing the employment rate, securing economic growth without overusing our natural resources	Gap 1: How can infrastructural development be more (environment) efficient Gap 2: What path should be followed in technology development? Gap 3: Unharmonised port development	Action 1: creation of an environment impact assessment and feasibility on market ready new technologies Action 2: future technologies should be analysed, prototyped Action 3: Harmonising port development	Action 1: 2023-2024 elaborating assessments – 2025-2030 prototyping Action 2: 2023-2024 elaborating assessments – 2025-2030 prototyping Action 3: 2023-2024 creation/review strategies and in 2025-2030 project generation and implementation

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
2	Increased share of ports in the transportation sector	Infrastructural, human resource and legal obstacles in front of a comprehensive port development	Increase the economic weight of waterborne transportation and ports.	Gap 1: Undescribed role of ports in climate neutrality	Action 1: defining the place of ports in the future green economy by revising the master plan and prototyping.	Action 1: 2023-2024 revision of the Master Plan and in 2025-2030 implementation of prototypes and experimental systems
3	Futureproof development of port(s) in Budapest	The Budapest Concept mentions only basic infrastructural development in connection with ports in Budapest	Ports in Budapest have a common development vision with the leaders of the city	Gap 1: Lack of futureproof development vision for port(s) in Budapest	Action 1: creation of common port development plan Action 2: implementation of pilot projects	Action 1: 2023-2024 Action 2: 2025-2030

Table 6: Table Gap analysis summary for Hungary

5 Conclusions

In economy and regional development strategies waterborne transportation plays a marginal role, although it is a suitable alternative for transportation of goods. The analysed documents are describing development visions for 2030 and 2050, which will essentially influence ports.

The general view on ports mentions underdeveloped infrastructural systems and equipment which hinders the development of the sector. According to all documents, the development of port infrastructure is needed both nationally and in Budapest, the question is how and with what technology will it be developed. These questions lead to the role and potential services of port in the future which could contribute to the promotion of green economy and reaching climate neutrality.

The identified gaps in the examined documents can be handled by assessing the future technologies and requirements ports have to meet, while with prototyping and sufficient financial supporting the introduction of the new systems will result in efficiency in Hungarian circumstances.

6 References

- BUDAPEST 2030 Long-term Urban Development Concept
https://budapest.hu/Documents/varosfejlesztesi_koncepcio_bp2030/Budapest_2030_varosfejlesztesi_koncepcio.pdf
- European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
- National Clean Development Strategy 2020-2050 (ENG):
<https://cdn.kormany.hu/uploads/document/6/66/666/666e0310ef20606fba9f96f4fbf0d74bbaa1638e.pdf>
- National Development and Spatial Development Concept:
[http://www.terport.hu/webfm_send/4616;](http://www.terport.hu/webfm_send/4616)



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Danube Transnational Programme
DIONYSUS

**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

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Executive summary

Strategic documents that are of importance for Republic of Croatia and represent the basis for the development could be divided as national general strategic documents and specific strategies for each specific field. There are also strategic documents on regional level which could be also general or with specific focus.

At this moment, many of state level strategic documents expired and new versions are not prepared¹ so there is always a gap in continuity, what should be avoided. Same situation is with regional level documents. Some of documents are in the state of preparation for 2 or more years.

By analyse of different economic strategic documents, that are not directly for the transport sector, but could be of relevance for it, the main gaps are lack of cross-sector harmonization in the sense of validity of the strategic documents that is not aligned, and there is no methodology for sector specific projects. Sometimes projects overlap so one is obstacle to another. That should be avoided by cross-sector cooperation and by involving all relevant subjects in strategic documents preparation. It is also important to recognize significance of the inland navigation and inland transport as of importance for the overall economy development of the Republic of Croatia. It could be of importance for the agricultural sector, as agricultural products transport is in the close connection to inland transport, at least it should be.

Same is with spatial planning, where port development should have the back up and documents of such level should not be an obstacle for the development.

Tourism on rivers, especially river cruising and nautical tourism are of the great perspective and that should be considered when preparing strategic documents.

¹ Agricultural Strategy, Tourism Strategy, Industrial Development Strategy, ...

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2 Abbreviations

Abbreviation	Explanation
NDSRC	National Development Strategy of Republic of Croatia until 2030
NRRP	National Recovery and Resilience Plan 2021-2026
MSTI	Ministry of the Sea, Transport and Infrastructure
SPDS	Spatial Development Strategy
WMS	Water Management Strategy
EDS	Energetic Development Strategy
VSCDS	Vukovar-Srijem County Development Strategy
ACS	Agricultural Strategy

3 Introduction

The basic and overall strategic document is National Development Strategy for the Republic of Croatia until 2030 (Official Gazette 13/2021) (further NDSRC) which represents the strategic framework and contains the vision of the development of Republic of Croatia until 2030. It presents the development needs and potentials, defines national development directions until 2030, defines key preconditions for the stable and sustainable development of Croatia and it also defines strategic objectives for the mentioned period. Strategic objectives are named as follows: competitive and innovative economy; educated and employed citizens; effective and efficient justice, public administration and national property management; global recognition and international position and Croatian role strengthen; healthy, active and quality life; demographic revitalization and better position of the family; security for the stable development; ecological and energetic transition for the climate neutral; food self-sufficiency and bio-economy development; sustainable mobility; digital transition of the society and economy; development of the aided areas and areas with development specifics; to strengthen regional competitiveness. NDSRC contains indicative list of strategic planning acts that uphold strategic framework for NDSRC implementation.

Government Program 2020-2024 is a short-term act which is of national significance. It defines priorities of the Government during its mandate. It represents the framework for national reform program, convergence program National Recovery and Resilience Plan (further NRRP) and implementation programs of the state administration. Priorities are social security (health, solidarity, fairness); prospective future (competitive, vital, educated Croatia); economic sovereign (independent, sustainable, and green Croatia); reinforced statehood (efficient, resistant, and digital Croatia); global recognizability (proud, safe and influential Croatia). Transport infrastructure is one of the priorities of the Government Program. One of the statements is development of inland ports (Osijek, Vukovar, Slavonski Brod, Sisak) and inland waterways transport (Drava, Danube, Sava).

Competitive, energetically sustainable, and efficient transport system is one of the main objectives of NRRP 2021-2024. The Plan is based on the EU Recovery Plan which has been prepared to help the member countries to eliminate economic and social consequences that aroused because of COVID 19 pandemic. Recovering and Resilience Facility is going to enable grant funds and loans for reforms and connected investments to fasten the recovery and enable the economic resilience. NRRP is a precondition for the planned reforms and investments for period between 2021-2026 which are to be implemented latest until 31. August 2026. NRRP consists of components and subcomponents - main reforms. For each reform the measures are defined. Main components of NRRP are economy, public administration, administration of justice and state assets, education, science and research, market and social welfare, health care system, incentive: building innovation.

Transport system and its development is one of the sub-components of the economy part. One of the objectives is reform of the inland waterways to achieve competitive, energetically sustainable, and efficient transport system.

The most relevant strategic document for transport sector is National Transport Strategy 2017-2030 (Official Gazette 84/2017) which gives the basic objectives and measures for the transport sector and its development.

Strategic Plan of the Ministry of Sea, Transport and Infrastructure 2020-2022 is a strategic document which defines a short-term objective for the scope of Ministry activities.

Cross-sector coordination and different development strategies matching is of the great importance for the strategic and coordinated development. No matter how specific field for the any of strategies could be, they should always be aligned and directed in the same way or, at least, they should not be in collision. They should be in line with the EU strategies and action plans and in line with NDRSC and other specific strategic documents. By this, we also can reflect on ports where strategies from different transport sectors effect one another (for example inland navigation and railways) and if they are not aligned the development could be impossible or, at least, difficult.

4 Strategies with existing or potential influence on ports

Economic development strategies, policies and programs on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

It is important to mention that many of strategies in our country are, now, out of date and some of them are under preparation. We will mention some of them which are under preparation and could be on significance for inland navigation and inland ports development.

Economic development strategies, policies, and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
National plan for Recovery and Resilience 2021-2026	X				
Water Management Strategy until 2038	X				
Agricultural Strategy 2020-2030 (draft)				X	
Strategy for Spatial Development until 2030	X				
Tourism Strategy until 2020		X		X	
Energetic Development Strategy until 2030 looking to 2050		X			
Waste Management Strategy until 2025		X			
Master Plan for the Functional Region East Croatia - draft		X			
Vukovar-Srijem County Development Strategy until 2020	X				
Strategy for Reconstruction and Development of the City of Vukovar 2014-2020	X				

Table 1 Summary of economic development strategies and their influence on ports

4.1 Water Management Strategy

4.1.1 Current state

Water Management Strategy (Official Gazette 91/2008) (further: WMS) was prepared in 2009 and it covers period until 2038. It is a long-term strategic document which gives the vision, mission, goals, and assignments of the State policy in the field of water management. It gives strategic commitments and directions towards water management development. It gives the framework for strategies and zoning plans preparation, environmental protection, nature protection and other sectors which depend on waters. Water management relates to socio-economic environment.

The contents of the WMS are water condition, water management condition, objectives and determinants and implementation.

Inland waterways are included in the water management part, they are covered with the Chapter 3.4.5. This Chapter describes inland waterways in Croatia, gives the statistics about the transshipment volumes mentioning relevant national Inland Navigation and Ports Act and international documents. It is stated that waters and hydro-constructions projects in the frontier region on inland waterways on Drava, Sava and Danube are done in close cooperation with neighbouring countries, except Serbia, in line with international bilateral agreements.

Inland waterways development should be based on mid-term development plans for the inland waterways and ports which are to be in line with water area management plans.

4.1.2 Desired state

WMS should support and enable inland waterways and ports development and it also should give the main directions considering the water management that is the field covered with Water Act (Official Gazette 66/19, 84/21) and is under competence of Croatian Waters. Ministry of Sea, Transport and Infrastructure, inland port authorities and Croatian Waters should all benefit from the divided jurisdiction and from cooperation.

Strategic documents from water and inland sector should be harmonized in the period of their validity. Projects that are of interest for both, water and inland navigation sector should be up to date and coordinated.

4.1.3 Gap identification

- Gap 1: cross sectoral strategic documents validity period harmonization
Level 3
- Gap 2: methodology for sector specific projects coordination
Level 1

WMS is from 2009 and it covers the period until 2038. It is a long time period, and it could be expected that legal acts change (Water Act changed few times and Inland Navigation and Ports Acts had also been changed few times). Inland Transport Development Strategy had expired and new is under preparation. Mid-term Plan for Waterways and Inland ports was valid from 2009-2016. At this moment Mid-term Plan is also under preparation.

In the meantime, one significant change in Water Act was that public water resources which are part of port areas are under the jurisdiction of port authorities (it was changed in 2015). Management of the public water resources within the port area is regulated by Inland Navigation and Ports Act (Official Gazette 144/21). WMS does not cover this significant change.

In practice, water management and waterway and inland ports management are in close connection, and it happens that projects from both sectors overlap and one is obstacle to another. For example, there is a significant project of the water management sector in Vukovar that includes riverbank. Building permit is valid for this project and for other projects that might include works on water bank building permission could not be issued and such projects are stopped.

4.1.4 Recommendations to close the gaps

Gap 1: cross sector strategic documents validity period harmonization

Action (recommendation to close the gap): Harmonization of the strategic documents of the same level that could influence one another and harmonization of their validity period.

Implementation strategy: cooperation between two sectors and harmonization

Timeline: 2031-2032

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Economy and Sustainable Development and Ministry of the Sea, Transport, and Infrastructure.

Gap 2: methodology for sector specific projects coordination

Action: Active involvement of all sectors during the strategic documents preparation in order to avoid specific projects overlapping.

Implementation strategy: cooperation between two Ministries in order to synchronize projects and their priorities that could affect one or another sector

Timeline: for all future documents

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Economy and Sustainable Development and Ministry of the Sea, Transport, and Infrastructure.

The following table summarizes the gaps identified in WMS, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
3	Cross sector strategic documents validity period harmonization	Harmonization of the strategic documents of the same level that could influence one another and harmonization of their validity period.
1	Methodology for sector specific projects coordination	Active involvement of all sectors during the strategic documents preparation to avoid specific projects overlapping.

Table 2 WMS gaps and actions to close them

4.2 Agricultural Strategy 2020-2030

4.2.1 Current state

Strategy is still under preparation, procedure is ongoing.

Agricultural Strategy (further: ACS) is based on four basic objectives: increase of productivity and climate change resistance of agricultural production; competitiveness empowerment of agricultural and food sector; renewal of the natural economy and improvement of the life conditions in rural areas and investments encouragement within the agricultural and food sectors.

The common vision for the agricultural sector is to: increase the production of the higher amounts of the nutritious and high-quality food on competitive prices, sustainable management of the natural resources in changeable climate conditions and to contribute to employment growth in rural areas.

4.2.2 Desired state

ACS in its objectives should foresee development in the connection with the transport sector to use the most eco-friendly and the cheapest modes of transport. It should make the preconditions for state-of-the-art infrastructure for agricultural products and logistic centres within the ports building in the close connection with environmental welfare.

4.2.3 Gap identification

- Gap 1: foster the development by using the more environmentally friendly and cheapest modes of transport Level 3

One of the aspects for agricultural sector development is to foresee development of the suitable transport modes and to plan the development within the ports as logistic hubs all in line and closely connected with environmental welfare.

4.2.4 Recommendations to close the gaps

Gap 1: foster the development by using the more environmentally friendly and the cheapest modes of transport

Action (recommendation to close the gap): Include and stimulate agricultural sector development to encourage development of the logistic hubs in ports, to use the most eco-friendly mode of transport. Plan and include within objectives B1 - Backing of the agricultural solutions that are acceptable for environment, climate & animal welfare; C4 - Development of the agricultural food logistic centres and E1 - Increase of the rural areas' connection with market.

Implementation strategy: send the strategy to all connected sectors to give their suggestions/opinion

Timeline: during preparation

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Economy and Sustainable Development and Ministry of the Sea, Transport, and Infrastructure.

The following table summarizes the gaps identified in ACS, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
3	Foster the development by using the more environmentally friendly and the cheapest modes of transport	Include and stimulate agricultural sector development to encourage development of the logistic hubs in ports, to use the most eco-friendly mode of transport. Plan and include within objectives B1 - Backing of the agricultural solutions that are acceptable for environment, climate & animal welfare; C4 - Development of the agricultural food logistic centres and E1 - Increase of the rural areas' connection with market.

Table 3: ACS gaps and actions to close them

4.3 Spatial Development Strategy

4.3.1 Current state

Spatial Development Strategy (Official Gazette 106/17) (further SPDS) is a basic State document for space development guidance. Based on the assessed based values for the Croatian space, spatial development system and determined spatial state and the process strategy, it gives the basic objectives for the spatial development until 2030 including development starting point, priorities, orientations, and implementation framework.

Rivers (Danube, Drava, Sava...) are considered as natural resources. SPDS is a document which represents a guidance for spatial development in line with needs and options given with basic State documents. It is stated that main principles of the EU spatial policies have already been implemented in space legal acts.

EU Strategy for Danube Region is mentioned together with its main objectives recognized in Republic of Croatia (connecting Danube Region with Adriatic Coast by strengthening intermodal transport; region-economic competitiveness strengthening of the bases on its natural potentials; environmental protection - by the risk prevention and by the renewable energy resources share increase; human resources strengthening. ICPDR is mentioned in the Danube basin context together with Sava River Framework Agreement, Adriatic Ionian Strategy and Baltic-Adriatic-Black Sea Transnational Incentive.

It is stated that river transport infrastructure is not used enough. National and regional spatial plans should foresee the extension of the existing port areas. River transport

characteristics: inland waterways disorder; lack of accepted long term plan for the ports and waterways; Danube-Sava Canal incompleteness; interstate relations disorder.

Spatial planning system is based on the cross-sector adjustments.

Objectives for the river sector are defined under 4.3.1.3: international legal border system implementation; diverting cargo to rivers; future Danube-Sava Canal start to be foreseen; enable touristic navigation on rivers.

Main projects of the river sector are also named in the SPDS: renewal of the international waterways; New Port East Vukovar I phase; research of the inland navigation development on Sava, Kupa and Drava.

4.3.2 Desired state

SPDS should be the basis for the spatial planning documents on national and regional level. It should define main objectives for each sector and for each specific field of the State interest - that public river ports areas are - which is stated by the Inland Navigation and Ports Act.

4.3.3 Gap identification

- Gap 1: Lack of cross-sectoral harmonization Level: 1

4.3.4 Recommendations to close the gaps

Gap 1: Lack of cross-sector harmonization

Action (recommendation to close the gap): update the strategic projects list and harmonize all strategic documents that have cross-sector impact

Implementation strategy: form the joint committee which will include experts from all economic fields (including transport)

Timeline: 2028-2030 - expected new SPDS and Transport Strategy preparation

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Physical Planning, Construction and State Assets and MSTI

The following table summarizes the gaps identified in SPDS, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	Lack of cross-sector harmonization	Update the strategic projects list and harmonize all strategic documents that have cross-sector impact

Table 4: SPDS strategy gaps and actions to close them

4.4 Tourism Strategy until 2020

4.4.1 Current state

Tourism Strategy (Official Gazette 55/13) represents the basic development document for tourism. It gives the status quo analysis with key development principles defining, gives the vision and strategic goals and assignments which are to be reached until 2020. In the chapter that refers to transport infrastructure inland navigation or passenger ports infrastructure is not mentioned (2.1.4.).

Chapter 2.1.5.2 mentions touristic products with significant development perspective (health tourism, cycling tourism, gastronomy...), but it does not recognize river cruising or river nautical tourism as touristic potentials.

4.4.2 Desired state

To recognize river cruising and river nautical tourism as a potential and to prepare the basis for their development in strategic documents.

4.4.3 Gap identification

- Gap 1: defining river cruising and river nautical tourism as touristic potentials
Level: 1

4.4.4 Recommendations to close the gaps

Gap 1: defining river cruising and river nautical tourism as touristic potentials

Action (recommendation to close the gap): when preparing the new Tourism Strategy reconsider other touristic potentials connected with inland navigation and rivers as a potential

Implementation strategy: during the preparation of new Touristic Strategy cooperation with other Ministries and looking into tourism results and trends in previous years

Timeline: 2022 - expected new Tourism Strategy to be prepared

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Tourism and MSTI

The following table summarizes the gaps identified in TS, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	Defining river cruising and river nautical tourism as touristic potentials	when preparing the new Tourism Strategy reconsider other touristic potentials connected with inland navigation and rivers as a potential

Table 5: TS strategy gaps and actions to close them

4.5 Vukovar-Srijem County Development Strategy until 2020

4.5.1 Current state

Vukovar-Srijem County Development Strategy (further: VSCDS) was in force until 2020. It represents the County strategic document with all development priorities and objectives for the Vukovar-Srijem County.

There are three main strategic objectives of the VSCDS: Sustainable economy; Development of the human resources and high level of the life quality; Modern infrastructure and environmental protection.

Within the strategic objective Modern infrastructure and environmental protection one of the projects identified is 3.2. Integration and Modernization of the Transport Infrastructure. Two separate measures have been identified as part of this objective: 3.2.3 Maintenance, building and modernization of the inland waterways and water

transport development and 3.2.4 Development of the multimodal infrastructure and transport.

As part of the 3.2.3 Measure project of the Upgrade and Reconstruction of the Infrastructure for the Vukovar Port - New Port East. This project is no longer valid, at least not in that form.

4.5.2 Desired state

To have updated County strategic development documents with updated list of projects.

- Gap 1: Lack of state and regional harmonization Level: 2

4.5.3 Recommendations to close the gaps

Gap 1: Lack of state and regional harmonization

Action (recommendation to close the gap): update the strategic projects of relevance for the County and harmonize all strategic documents that have cross-sectoral impact

Implementation strategy: update the project list when preparing the new County strategy

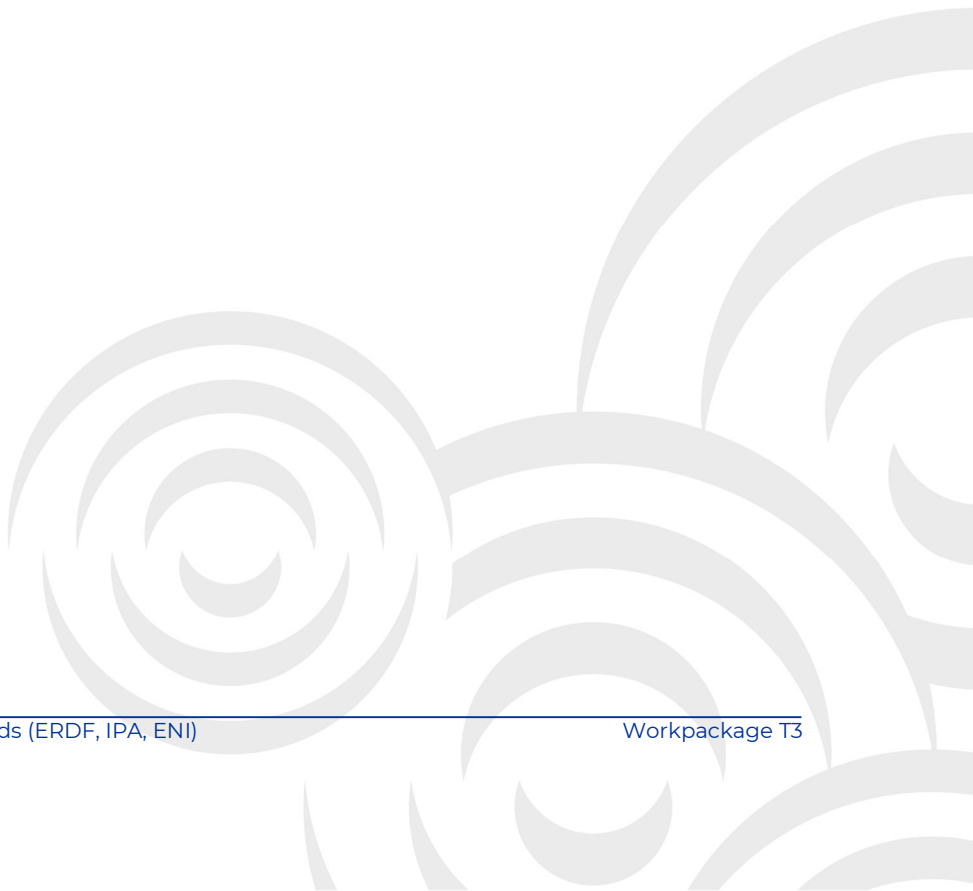
Timeline: 2022-2023

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Vukovar-Srijem County and Port Authority Vukovar

The following table summarizes the gaps identified in VSCDS, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
2	Lack of state and regional harmonization	Update the strategic projects of relevance for the County and harmonize all strategic documents that have cross-sectoral impact

Table 6: VSCS gaps and actions to close them



5 Gap analysis summary

5.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
3	List the objectives	Water Management Strategy (Official Gazette 91/2008) (further: WMS) was prepared in 2009 and it covers period until 2038. It is a long-term strategic document which gives the vision, mission, goals, and assignments of the State policy in the field of water management. It gives strategic commitments and directions towards water management development. It gives the framework for strategies and zoning plans preparation, environmental protection, nature protection and other sectors which depend on waters. Water management	Strategic documents from water and inland sector should be harmonized in the period of their validity. Projects that are of interest for both, water and inland navigation sector should be up to date and coordinated.	Cross sectoral strategic documents validity period harmonization	Harmonization of the strategic documents of the same level that could influence one another and harmonization of their validity period.	2031-2032

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		relates to socio-economic environment.				
1		Water Management Strategy (Official Gazette 91/2008) (further: WMS) was prepared in 2009 and it covers period until 2038. It is a long-term strategic document which gives the vision, mission, goals, and assignments of the State policy in the field of water management. It gives strategic commitments and directions towards water management development. It gives the framework for strategies and zoning plans preparation, environmental protection, nature protection and other sectors which depend on waters. Water management	Strategic documents from water and inland sector should be harmonized in the period of their validity. Projects that are of interest for both, water and inland navigation sector should be up to date and coordinated.	Methodology for sector specific projects coordination	Active involvement of all sectors during the strategic documents preparation to avoid specific projects overlapping.	For all further documents

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		relates to socio-economic environment.				
3	<p>B1 - Backing of the agricultural solutions that are acceptable for environment, climate & animal welfare; C4 - Development of the agricultural food logistic centres and E1 - Increase of the rural areas' connection with market.</p>	<p>Strategy is still under preparation, procedure is ongoing.</p> <p>Agricultural Strategy (further: ACS) is based on four basic objectives: increase of productivity and climate change resistance of agricultural production; competitiveness empowerment of agricultural and food sector; renewal of the natural economy and improvement of the life conditions in rural areas and investments encouragement within the agricultural and food sectors.</p> <p>The common vision for the agricultural sector is to:</p>	<p>ACS in its objectives should foresee development in the connection with the transport sector to use the most eco-friendly and the cheapest modes of transport. It should make the preconditions for state-of-the-art infrastructure for agricultural products and logistic centres within the ports building in the close connection with environmental welfare.</p>	<p>Foster the development by using the more environmentally friendly and the cheapest modes of transport</p>	<p>Include and stimulate agricultural sector development to encourage development of the logistic hubs in ports, to use the most eco-friendly mode of transport. Plan and include within objectives B1; C4; E1 -</p>	<p>During the preparation</p>

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		increase the production of the higher amounts of the nutritious and high-quality food on competitive prices, sustainable management of the natural resources in changeable climate conditions and to contribute to employment growth in rural areas.				
1	defined under 4.3.1.3:	Objectives for the river sector are defined under 4.3.1.3: international legal border system implementation; diverting cargo to rivers; future Danube-Sava Canal start to be foreseen; enable touristic navigation on rivers. Main projects of the river sector are also named in the SPDS: renewal of the	SPDS should be the basis for the spatial planning documents on national and regional level. It should define main objectives for each sector and for each specific field of the State interest - that public river ports areas are - which is stated by the Inland Navigation and Ports Act.	Lack of cross-sector harmonization	update the strategic projects list and harmonize all strategic documents that have cross-sector impact	2028-2030 - expected new SPDS and Transport Strategy preparation

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		international waterways; New Port East Vukovar I phase; research of the inland navigation development on Sava, Kupa and Drava.				
1		Tourism Strategy (Official Gazette 55/13) represents the basic development document for tourism. It gives the status quo analysis with key development principles defining, gives the vision and strategic goals and assignments which are to be reached until 2020. In the chapter that refers to transport infrastructure inland navigation or passenger ports infrastructure is not mentioned	To recognize river cruising and river nautical tourism as a potential and to prepare the basis for their development in strategic documents.	Defining river cruising and river nautical tourism as touristic potentials	when preparing the new Tourism Strategy reconsider other touristic potentials connected with inland navigation and rivers as a potential	2022

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
2	3.2.3	<p>Within the strategic objective Modern infrastructure and environmental protection one of the projects identified is 3.2. Integration and Modernization of the Transport Infrastructure. Two separate measures have been identified as part of this objective: 3.2.3 Maintenance, building and modernization of the inland waterways and water transport development and 3.2.4 Development of the multimodal infrastructure and transport.</p> <p>As part of the 3.2.3 Measure project of the Upgrade and Reconstruction of the Infrastructure for the Vukovar Port - New Port East. This project is no longer valid, at least</p>	To have updated County strategic development documents with updated list of projects.	lack of state and regional harmonization	update the strategic projects of relevance for the County and harmonize all strategic documents that have cross-sector impact	2022-2023

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		not in that form.				

Table 7: Gap analysis summary for Croatia

6 Conclusions

State level and regional level strategic documents are based on legal acts. There are long-term strategic documents and mid or short-term strategic documents - implementation documents. There are strategic documents which could be of state or on regional interest.

By this analysis most of the strategic documents expired and new are not prepared on time, so there is a gap in continuity. There is also a gap in validity period of certain strategic documents that have a cross-sectoral impact. Period of their validity should be harmonized.

And finally, there is a lack of cross-sectoral content harmonization, so some projects overlap, and it could cause serious problems for projects realization.

7 References

- National Development Strategy for the Republic of Croatia until 2030;
- National Transport Strategy 2017-2030 (Official Gazette 84/2017)
- Strategic Plan of the Ministry of Sea, Transport, and Infrastructure 2020-2022
- National Recovery and Resilience Plan 2021-2026;
- Spatial Development Strategy (Official Gazette 106/17)
- Energetic Development Strategy of the Republic of Croatia until 2030 looking to 2050 (Official Gazette 25/2020)
- Inland Navigation and Ports Act (Official Gazette 144/21)
- Water Management Strategy (Official Gazette 91/2008)
- Water Act (Official Gazette 66/19, 84/21)
- Vukovar-Srijem County Development Strategy
- Tourism Strategy (Official Gazette 55/13)
- Agricultural Strategy 2020-2030 - draft





**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

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Executive summary

In this document, Port Governance Agency analyzed the most significant strategies, policies and programmes which could have impact on development of Danube ports in the Republic of Serbia. The strategies which are the subject of national report are: Draft of Spatial plan of the Republic of Serbia from 2021 to 2035, The Strategy for Agriculture and Rural Development of the Republic of Serbia from 2014 to 2024 and Industrial policy strategy of the Republic of Serbia from 2021 to 2030. Special attention was paid to the measures for including the development of ports into the existing, or future strategies.

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3 Abbreviations

Abbreviation	Explanation
PGA	Port Governance Agency
IWT	Inland Waterway Transport
RS	The Republic of Serbia

4 Introduction

The economic policy in the Republic of Serbia has given an adequate response to the crisis caused by the coronavirus pandemic. Two years of struggle in the health and economic field have given satisfactory results. Thanks to the previously achieved macroeconomic stability, space has been created for the response of economic policy to be adequate in scope and structure. Fiscal policy provides a comprehensive package of measures that helped the economy and the population and whose positive effects are reflected in macroeconomic indicators. The provided value of the package of measures to help the economy and the population in 2020 is estimated at 12.8%¹ of gross domestic product (hereinafter: GDP). The prolonged duration of the unfavourable epidemic situation in 2021 has conditioned another, significant amount of aid to the economy and the population, in order to provide conditions for complete recovery and growth of the economy. The aid package provided in 2021 is estimated at 4.2% of GDP.²

Economic reform program represents an overview of macroeconomic, fiscal and monetary policy, stating that economic policy in the Republic of Serbia has provided an adequate response to the crisis caused by the coronavirus pandemic, which was contributed by previously achieved macroeconomic stability. Fiscal policy has provided a comprehensive package of measures that helped the economy and the population and whose positive effects are reflected in macroeconomic indicators. The aim of the programme is to face the challenges such as: public finance management, green transition, digital transformation, business environment and reduction of gray economy, research, development and innovation, reforms in economic integration, energy market reforms, transport market reforms, agriculture, industry and services, education and skills, employment and labour market, social protection and inclusion and health care systems. Within the mentioned areas, three key challenges have been identified, which prioritizes them and implies a clear commitment to address them at the highest level in the next three years, namely: Increasing employment, especially of young people, and aligning qualifications with labour market needs. environment more favourable for investments as well as more efficient use of energy with further opening of the energy market. The implementation of the reforms is important both for improving competitiveness, encouraging new jobs and facilitating social inclusion, and for meeting the economic criteria in the process of joining the European Union.

¹ Economic reform program 2022-2024

² Economic reform program 2022-2024

5 Strategies with existing or potential influence on ports

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
Draft of Spatial plan of the Republic of Serbia from 2021 to 2035	X				
The Strategy for Agriculture and Rural Development of the Republic of Serbia from 2014 to 2024		x			
Industrial policy strategy of the Republic of Serbia from 2021 to 2030		x			

Table 1: Summary of economic development strategies and their influence on ports

5.1 Draft of Spatial plan of the Republic of Serbia from 2021 to 2035

5.1.1 Current state

The Spatial Plan of the Republic of Serbia from 2021 to 2035 will be the main planning document of spatial planning and development in the state, which determines a long-term strategic framework for the directing and management of spatial development. It is carried out through regional spatial plans, spatial plans for special purpose areas and urban plans. The time horizon is 2035, but the long-term strategy, conception and certain planning solutions of spatial development are planned in the long term and not limited to the time horizon of the planning document. The document is expected to be adopted during 2022.

The document develops realistic scenario of changes towards more balanced and even spatial development and improvement of the quality of life of the population in the Republic of Serbia. The aim of this scenario is to point out the optimal realistic planning solutions and their effects in the future, as well as to set out the policies, measures and directions that need to be implemented in this regard. The scenario is based on the analysis of development tendencies in Serbia and their inherent limitations, uncertainties, advantages and possibilities.

The spatial development scenario includes three essential dimensions: geographical (option between the choice of location structures that determine the concentration or,

conversely, the dispersion of settlements and activities); political (implementation or non-implementation of sectoral policies and spatial planning at the level of Serbia); and the economic dimension (strong or weak economic growth).

According to the document, plans for the development of waterway transport in Serbia have been improved by European Union infrastructure policy, which promotes integral transport. Rhine-Danube Corridor as one of 9 European the TEN-T network corridor passes through the Republic of Serbia. The corridor connects important railways and roads of central and south eastern Europe with the industrial centers of Germany and France. Such a system enables the connection and integration of transport infrastructure, including ports, removal of technical and administrative barriers in multimodal transport and provides uninterrupted flow of information in navigation on rivers and canals.

5.1.2 Desired state

The vision of long-term spatial development of the Republic of Serbia is more balanced developed territory of the Republic of Serbia on the principles of economic, social and territorial cohesion, with a higher and more uniform quality of life and environment, preserved identity and diversity of the space that is adapted to climate change. The general goal is sustainable and more balanced spatial development, mitigation of regional differences and greater degree of territorial cohesion in order to improve the quality of life, slow down unfavourable demographic processes and create conditions for young people to stay in the country, while improving competitiveness, accessibility, strengthening territorial capital and preserving activities in space and settlements on climate change.

Specific objectives include reducing territorial disparities in the level of development, especially in terms of lagging behind critically underdeveloped, recessive and demographically depleted areas, mitigating negative demographic trends, especially reducing the emigration of young, skilled people; prevention of fragmentation and disintegration of space, especially underdeveloped areas, integration of less developed environment, in parallel with further development of the most developed areas; traffic, infrastructure, economic and cultural connection of Serbia with the neighbouring / Balkan, European and wider environment; encouraging the development of more promising rural areas; stopping and legalizing illegal construction wherever possible; limiting the expansion of construction areas / lands of urban settlements and centres; reassignment of brownfield sites; preservation of regional, urban and rural identity; development and gradual application of circular production / economy; protection of cultural and natural heritage and natural resources (agricultural land, forests, water resources, biodiversity).

The planned development of waterway transport and waterways includes construction of new ports; implementation of solutions that define the Danube as a strategic water and development direction; implementation of the management concept and development of basic technical-technological ones subsystem; integration with the environment and other modes of transport into the national and international transport network; activating the potential of the Sava and Tisza rivers; and implementation of waterway training projects. It is planned to continue activities on

improving navigation conditions and port capacity, redefining border crossings for water transport, and common procedures (Border Police Administration and Customs Administration) for vessels in international traffic for which the port of embarkation or destination is port in the Republic of Serbia. Improving waterways implies respect for the principles of the environmental protection related to ecological corridors of international importance on navigable rivers with their coastal belts (Danube, Sava, Tisza, etc.), with the preparation of appropriate study documentation for potential waterways that are not in use.

5.1.3 Gap identification

- Gap 1: Insufficient and uneven connection, accessibility and equipment of parts of the territory with traffic, communal and social infrastructure
- Gap 2: Great regional differences in the level of industrial development, there is a spatial polarization and dominant concentration of industry in the metropolitan areas

5.1.4 Recommendations to close the gaps

Some of these negative tendencies have been mitigated and slowed down by the state's efforts in economic recovery, social development and infrastructure construction (especially transport).

Gap 1: Insufficient and uneven connection, accessibility and equipment of parts of the territory with traffic, communal and social infrastructure

Action: Further development of transport infrastructure – roads, railways, inland waterways.

Strategy: Realization of infrastructure projects.

Timeline: 2025

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Government of the Republic of Serbia, relevant ministries.

Gap 2: Great regional differences in the level of industrial development, there is a spatial polarization and dominant concentration of industry in the metropolitan areas

Action: Stronger regional competitiveness and regional economic development, more balanced regional economic and social development, reduced share of underdeveloped areas;

Strategy: Support to the polycentric development of urban and rural structures, the concentration of activities and population in large urban centers is mitigated and the role of regional and subregional urban centers and settlements in their functional environment is strengthened.

Timeline: 2025.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Government of the Republic of Serbia, relevant ministries, local self-governments.

The following table summarizes the gaps identified in the Draft of Spatial plan of the Republic of Serbia from 2021 to 2035 as well as recommended actions to close those gaps:

Gap level	Gap	Action (recommendation) to close the gap
1	Insufficient and uneven connection, accessibility and equipment of parts of the territory with traffic, communal and social infrastructure	Further development of transport infrastructure – roads, railways, inland waterways.
2	Great regional differences in the level of industrial development, there is a spatial polarization and dominant concentration of industry in the metropolitan areas	Stronger regional competitiveness and regional economic development, more balanced regional economic and social development, reduced share of underdeveloped areas

Table 2: Draft of Spatial plan of the Republic of Serbia from 2021 to 2035 strategy gaps and actions to close them

5.2 The Strategy for Agriculture and Rural Development of the Republic of Serbia 2021-2024

5.2.1 Current state

In an effort to trace the direction of future reforms as clearly as possible of the agricultural sector as part of the external and internal challenges it faces, as well as to define measures and activities for the reconstruction and activation of development potential of rural areas, the Ministry of Agriculture of the Republic of Serbia initiated the development of a strategic document. The result is the Strategy of Agriculture and Rural Development of the Republic of Serbia for the period 2014 - 2024 (hereinafter: the Strategy), which as a basic and long-term strategic document which defines the goals, priorities and frameworks of political and institutional reforms in the field of agriculture and rural development. In addition, this document defines the framework of budget support (total and by pillars of measures), which unequivocally reflects the development commitment of the new Strategy. This document will be established the foundations of the new agricultural policy, defined in accordance with the principles of modern public policy management and on the line of a clear commitment of the

Ministry of Agriculture, Forestry and Water Management to gradually adopt the model of European support for agriculture.

5.2.2 Desired state

To successfully address many challenges, the Strategy aims to define directions of future development of agriculture and food industry, based on the concept of sustainable development, which affirms the preservation of the environment and sustainable management of natural resources; a model of support that would lead to the acceleration of the development of the agri-food sector, which has significant potential for increasing the volume of production and long-term sustainable growth of competitiveness in an environment wider than local and regional; directions of future reforms of agricultural policy and institutional framework, in the three most important segments: 1. reform of agricultural policy in terms of introduction of agricultural policy instruments that enable dynamic restructuring of the agricultural sector, effective approximation to EU integration through gradual harmonization of policy with the principles of the Common Agricultural Policy and modern role of the state in agricultural and rural development; 2. adoption and full implementation of the legislative framework that provides a legal basis for the implementation of the Strategy itself, as well as for the harmonization of national legislation with EU legislation - Acquis communautaire; 3. institutional reforms which, by reforming the existing and building the missing parts of the institutional structures, would enable the achievement of strategic goals, efficient implementation of the selected policy and harmonization of administrative structure with EU requirements.

5.2.3 Gap identification

- Gap 1: The document does not cover the subject of transport of agricultural goods by inland waterways
- Gap 2: Lagging in technological development compared to the competing countries
- Gap 3: Inefficient confrontation of the agricultural sector with the effects of climate change
- Gap 4: The need to increase the efficiency of the food chain and competitiveness of the agri-food sector

5.2.4 Recommendations to close the gaps

Gap 1: The document does not cover the subject of transport of agricultural goods by inland waterways

Action: Include the chapter regarding the possibilities of transport of agricultural goods by inland waterway transport.

Strategy: Start the initiative for updating the document in the field of transport of agricultural goods by inland waterway transport. As an argument, present the current traffic flows, the throughputs of agricultural products in the ports located in the

Danube Basin region and the role of the IWT for the transportation of the agricultural products.

Timeline: 2024.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Government of the Republic of Serbia, relevant ministries, agricultural associations, port operators.

Gap 2: Lagging in technological development compared to the competing countries

Action: Improving the competitiveness of the agri-food sector requires support for restructuring, development and innovation along the entire food chain. Modernization and technological development of the sector (except capital investments in resources, physical capital and knowledge transfer), implies the application of modern production technologies in the processing sector. Of special importance for the agriculture of the Republic of Serbia is the improvement of the competitiveness of the processing sector, which should be based as much as possible on domestic raw materials and achieving as much added value as possible, in order to increase export competitiveness.

Strategy: The main support mechanisms in this area will be focused on increasing productivity and efficiency in food production and processing. The support will be used to grow the capacity of the agro industry in order to meet quality standards and enable producers to participate in quality schemes and promotional activities. Incentives will be available producers who voluntarily participate in EU or national programs designed to improve the quality of agricultural products and processes, which guarantee the quality of their products in terms of: protected geographical indications and designations of origin for agricultural and food products, certificates of specific characteristics of agricultural and food products, organic production and appropriate indications for it, etc. In addition, support will be possible for the activities of producer groups intended to inform consumers and promote products produced under quality schemes. At the same time, farmers will be encouraged to adapt to the introduction of demanding EU standards, which are not yet included in national legislation, especially regarding environmental protection, public health, animal and plant health, animal welfare and food safety. By establishing a system of support and intensive cooperation with scientific research organizations, PSSS and competent authorities, promote the creation and transfer of new knowledge and technologies in the field of agriculture and rural development.

Timeline: 2024.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: The Government of the Republic of Serbia, relevant ministries, Chamber of Commerce, Producers.

Gap 3: Inefficient confrontation of the agricultural sector with the effects of climate change

Action: Operational objectives that should help more efficiently facing food production with this challenge are monitoring climate change, creating adaptation measures and adequate measures aimed at reducing greenhouse gas emissions from agricultural

production; improvement and adaptation of production technology; technical improvements of land, facilities and equipment; raising awareness of climate change, its consequences and needs for their solution.

Strategy: Adaptation of agriculture sector to the effects of climate change will be encouraged by institutional solutions in the field of defining standards and systems for permanent monitoring of the effects of climate change, support for scientific innovation and dissemination of knowledge and information in this area. Support for investments in the agricultural sector will encourage application of technologies with low environmental consequences and global warming. Technologies and practices (application of agro-technical measures, assortment, cultivation and management systems) that contribute to reducing the impact of global warming will have priority, and innovative solutions will be especially rewarded and encouraged.

Timeline: 2024.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: The Government of the Republic of Serbia, relevant ministries, Chamber of Commerce, Producers.

Gap 4: The need to increase the efficiency of the food chain and competitiveness of the agri-food sector

Action: Operational goals leading to the realization of this priority are: development of new services in the food chain and strengthening of logistics food production infrastructure; increasing the capacity of agricultural holdings to join global market chains (supply trade chains); strengthening the motivation of producers for various forms of association; strengthening the capacity of cooperatives to become financial, market and advisory service of cooperatives; strengthening the visibility and recognizability of domestic products on the market; strengthening the export performance of the agricultural sector; strengthening horizontal and vertical links in the production chain, based on market principles; reducing the presence of the gray economy; strengthening and development of market organizations.

Strategy: The task of agricultural policy is to formulate and implement measures and solutions that will contribute to improving the efficiency of the market chain. In this regard, the state will undertake several activities to improve the institutional framework and support all forms of business connections and associations. State support for strengthening the production chain will be implemented through support for strengthening the capacity and efficiency of market organizations and their infrastructure, development of market information systems, as well as support to producers in the field of association, marketing and process management after the harvest. State support for strengthening the integration of the production chain will be aimed at helping co-financing initial administrative costs and marketing activities. Special attention should be paid to the support of producer associations and training for participation in quality schemes. With a set of legal solutions and control mechanisms, the state will permanently work on suppressing the gray economy.

Timeline: 2024.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: The Government of the Republic of Serbia, relevant ministries, Chamber of Commerce, Producers.

The following table summarizes the gaps identified in 5.2 The Strategy for Agriculture and Rural Development of the Republic of Serbia 2021-2024 as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	The document does not cover the subject of transport of agricultural goods by inland waterway	Include the chapter regarding the possibilities of transport of agricultural goods by inland waterway transport.
2	Lagging in technological development compared to the competing countries	Improving the competitiveness of the agri-food sector requires support for restructuring, development and innovation along the entire food chain. Modernization and technological development of the sector (except capital investments in resources, physical capital and knowledge transfer), implies the application of modern production technologies in the processing sector. Of special importance for the agriculture of the Republic of Serbia is the improvement of the competitiveness of the processing sector, which should be based as much as possible on domestic raw materials and achieving as much added value as possible, to increase export competitiveness.
3	Inefficient confrontation of the agricultural sector with the effects of climate change	Operational objectives that should help more efficiently facing food production with this challenge are monitoring climate change, creating adaptation measures and adequate measures aimed at reducing greenhouse gas emissions from agricultural production; improvement and adaptation of production technology; technical improvements of land, facilities and equipment; raising awareness of climate change, its consequences and needs for their solution.
4	The need to increase the efficiency of the food chain and competitiveness of the agri-food sector	Operational goals leading to the realization of this priority are: development of new services in the food chain and strengthening of logistics food production infrastructure; increasing the capacity of agricultural holdings to join global market chains (supply trade chains); strengthening the motivation of producers for various forms of association; strengthening the

		<p>capacity of cooperatives to become financial, market and advisory service of cooperatives; strengthening the visibility and recognizability of domestic products on the market; strengthening the export performance of the agricultural sector; strengthening horizontal and vertical links in the production chain, based on market principles; reducing the presence of the gray economy; strengthening and development of market organizations.</p>
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Table 3: The Strategy for Agriculture and Rural Development of the Republic of Serbia 2021-2024 strategy gaps and actions to close them

5.3 Industrial policy strategy of the Republic of Serbia from 2021 to 2030

5.3.1 Current state

This public policy document contains comprehensive reform steps in the field of industrial development aimed at enhancing the competitiveness of the domestic industry, which will give a significant contribution to a highly sustainable economic development.

The implementation of the Strategy will allow for raising the technological level of the industry and its transformation towards digitalisation and automatization, raising the contribution of scientific-technical and innovative solutions, as well as the total volume of investments in industry, while securing balance in the structure and quality of the investments.

Implementation of strategic goals pertaining to the industrial development of the Republic of Serbia by 2020 encompassed delivery of numerous measures, with key measures being focused on the institutional framework building, business climate improvement, reduction in administrative and other barriers, formation of the national financial institution for industrial development (development bank, etc.), development of the knowledge-based society and lifelong learning, implementation of innovation, research and development (hereinafter referred to as R&D) and ICT application, aimed at strengthening the competitiveness of the economy, accelerated development of entrepreneurship, attracting foreign direct investments, sustainable regional development, faster implementation of restructuring and privatisation processes.

Many products found in the market are the lower value-added products, which reduced the total value of industrial export. Export restructuring in direction of increasing the share of high domestic value-added products could have a positive effect on export and thus also on ports.

The factors limiting certain sectors to use maximum export potentials also affect sector share in the total export value. These are often import duties on components,

inadequate legislation and access to raw material in the export domain. Insufficient export subsidies.

The existing infrastructure is not sufficiently developed to support economic model transformation, primarily current energy and utility infrastructure, unreliable and outdated infrastructure; industrial zones are often at a dissatisfactory level of utility infrastructure development. Also, currently there are no developed industrial zones in the hinterland of ports.

5.3.2 Desired state

The overall goal of industrial policy is to raise the competitiveness of Serbian industry. This goal directly supports the achievement of the previously defined vision. Specifically, competitive Serbian industry significantly contributes to high sustainable economic growth, measured by the national GDP growth rate and better living standard of Serbian citizens, measured by the GDP level per capita.

In order to improve the performance of the economy and provide conditions for faster growth, it is necessary to intensify the implementation of measures and activities determined by the Strategy. In that sense, it will strive to get closer to innovative and technologically intensive sectors, and moving away from labour-intensive sectors; will strive to attract investment is less and less based on cheap labour and with greater investment in improving human resources through better education and training in accordance with the requirements economy and circular economy; the creation of innovative products will be encouraged greater added value while taking advantage of digital technologies in business and economic cooperation of domestic companies with European and international partners.

5.3.3 Gap identification

- Gap 1: The document does not cover the subject of ports (i.e. establishing industrial zones in the hinterland of ports)
- Gap 2: Still present infrastructure gaps
- Gap 3: Major imbalance in the development level of different regions
- Gap 4: Total volume of industrial investments, accompanied by the improved quality of investments
- Gap 5 High share of low value-added products in exports
- Gap 6: Technological structure of exports

5.3.4 Recommendations to close the gaps

Gap 1: The document does not cover the subject of ports (i.e. establishment of industrial zones in the hinterland of ports)

Action: Include the chapter regarding the establishment of industrial zones in the hinterland of ports

Strategy: Start the initiative for updating the document in the field of establishing of industrial zones in the hinterland of ports. Present the importance of industrial zones in the hinterland of ports for regional and national economic development.

Timeline: 2030.

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Government of the Republic of Serbia, relevant ministries, the Chamber of Commerce and Industry

Gap 2: Still present infrastructure gaps

Action: Support to development and improvement of production processes via industrial institutional infrastructure projects. The purpose of this measure is to support institutional infrastructure projects (clusters, business incubators, science and technology parks, accredited regional development agencies, associations, etc.) aimed at improving production processes. The measure can support provision of specialised consulting services and educational services for introduction of new production processes, namely, procurement, installation and launch of modern manufacturing processes, same as staff training.

Strategy: Support programme for development of infrastructure for the needs of industrial zones. The purpose of this measure is improvement of industrial infrastructure by creating better conditions for doing business in industrial zones in the Republic of Serbia. Ensuring better connection of industrial zones. Improving existing and constructing new energy capacities focusing on energy efficiency. Development of digital, broadband infrastructure.

Gap 3: Major imbalance in the development level of different regions

Action: Balancing regional industrial development.

Strategy: Adjusting criteria for public and private investments to support more balanced allocation of funds to regions, through continued financial support by the Serbian Development Agency and Development Fund of the Republic of Serbia, but in a way so as for the subsidy approval criteria to be harmonized with the smart specialization strategy and development level of the regions.

Gap 4: Total volume of industrial investments, accompanied by the improved quality of investments

Action: Incentive programme for investments in industrial production. The purpose of this measure is to allocate grants to domestic and foreign companies investing in industrial production with increased domestic value added via the Serbian Development Agency, inclusion of domestic companies in international inter-sector value chains, investments using more domestic factors (labour, knowledge, raw material, etc.), investments in the area of high technologies increasing value added in Serbia (namely, result in more sophisticated products and services) and are aware of environmental protection. The expected effect of this measure is improved employment in the country, higher employment rate of skilled labour, creating conditions for better linking of SME sector with industrial companies and significant

effects on environmental protection. The effects of this measure will be measured by the investment volume and user satisfaction.

Strategy: Adjusting the criteria for attracting industrial investments aimed at increasing the share of domestic gross value added. In the existing regulations for attracting investments, through criteria of attracting investments support investments increasing domestic value added, inclusion of domestic companies in international inter-sector value chains, investments using more domestic factors (labour, knowledge, raw material, etc.), investments in the area of high technologies increasing value added in the Republic of Serbia (namely, result in more sophisticated products and services) and are aware of environmental protection. Concluding double taxation evasion agreements with countries investing in the Republic of Serbia. Further work on promotion of the Republic of Serbia as an attractive investment destination.

Gap 5: High share of low value-added products in exports

Action: Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing. The purpose of this measure is to stimulate export-intensive industrial sectors, same as those with the high export potential, to increase in their export the share of newly added, primarily domestic value.

Strategy: Promotion of the Republic of Serbia as an investment destination open to new investments of domestic and foreign companies with higher value added. The purpose of this measure is to inform potential domestic and foreign investors about the regulatory framework, support programmes, infrastructure and human potentials for industrial investments in the country. The measure envisages participation in fairs, professional conferences, organization of events in the country and abroad, media and expert visits and tours of industrial zones and parks. The expected effect of this measure is the increased number of domestic and foreign industrial investments increasing domestic value added, inclusion of domestic companies in international inter-sector value chains, investments using more domestic factors (labour, knowledge, raw material, etc.), investments in the area of high technologies increasing value added in Serbia (namely, result in more sophisticated products and services) and are aware of environmental protection.

Gap 6: Technological structure of exports

Action: Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing. The purpose of this measure is to stimulate export-intensive industrial sectors, same as those with the high export potential, to increase in their export the share of newly added, primarily domestic value (use of domestic inputs, engaging highly educated labour force, use of domestic patents and innovation with a special focus on increasing technological level).

Strategy: Support programme for industrial companies to enter supplier chains of multinational companies. The purpose of the measure is to provide financial support to companies from targeted sectors (automotive industry, sector of machinery and equipment for other purposes, metal processing, rubber and plastics, manufacturing of home appliances, electrical and electronic systems) for development of capacities and harmonisation of quality standards so as to be included in international value chains.

Timeline for all gaps: 2021 - 2030

Participants (or stakeholders) responsible for and taking part in implementing necessary corrective actions: Ministry of Economy, Chamber of Commerce of Serbia, Development Agency of Serbia

The following table summarizes the gaps identified in 5.3 Industrial policy strategy of the Republic of Serbia from 2021 to 2030 as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	The document does not cover the subject of ports (i.e. establishment of industrial zones in the hinterland of ports)	Include the chapter regarding the establishment of industrial zones in the hinterland of ports
2	Present infrastructure gaps	Support to development and improvement of production processes via industrial institutional infrastructure projects. Support programme for development of infrastructure for the needs of industrial zones
3	Major imbalance in the development level of different regions	Balancing regional industrial development.
4	Total volume of industrial investments, accompanied by the improved quality of investments	Incentive programme for investments in industrial production. Adjusting the criteria for attracting industrial investments aimed at increasing the share of domestic gross value added.
5	High share of low value-added products in exports	Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing. Promotion of the Republic of Serbia as an investment destination open to new investments of domestic and foreign companies with higher value added.
6	Technological structure of exports	Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing. Support programme for industrial companies to enter supplier chains of multinational companies.

Table 4: Industrial policy strategy of the Republic of Serbia from 2021 to 2030 strategy gaps and actions to close them

6 Gap analysis summary

6.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
	Specific objectives include reducing territorial disparities in the level of development, especially in terms of lagging behind critically underdeveloped, recessive and demographically depleted areas, mitigating negative demographic trends, especially reducing the emigration of young, skilled people; prevention of fragmentation and disintegration of space, especially underdeveloped areas, integration of less developed environment, in parallel with further development of the most developed areas; traffic, infrastructure, economic and cultural connection of Serbia with the neighbouring / Balkan, European and	The Spatial Plan of the Republic of Serbia from 2021 to 2035 is the main planning document of spatial planning and development in the state, which determines a long-term strategic framework for the directing and management of spatial development. It is carried out through regional spatial plans, spatial plans for special purpose areas and urban plans. The time horizon is 2035, but the long-term strategy, conception and certain planning solutions of spatial development are planned in the long term and not limited to the time horizon of the planning document.	The vision of long-term spatial development of the Republic of Serbia is more balanced development territory of the Republic of Serbia on the principles of economic, social and territorial cohesion, with a higher and more uniform quality of life and environment, preserved identity and diversity of the space that is adapted to climate change. The general goal is sustainable and more balanced spatial development, mitigation of regional differences and greater degree of territorial cohesion in order to improve the quality of life, slow down unfavourable demographic processes and create conditions for young people to stay in the country, while	Gap 1: Insufficient and uneven connection, accessibility and equipment of parts of the territory with traffic, communal and social infrastructure Gap 2: Great regional differences in the level of industrial development, there is a spatial polarization and dominant concentration of industry in the metropolitan areas	Action 1: Further development of transport infrastructure – roads, railways, inland waterways. Action 2: Stronger regional competitiveness and regional economic development, more balanced regional economic and social development, reduced share of underdeveloped areas;	2025-2030

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
	wider environment; encouraging the development of more promising rural areas; stopping and legalizing illegal construction wherever possible; limiting the expansion of construction areas / lands of urban settlements and centres; reassignment of brownfield sites; preservation of regional, urban and rural identity; development and gradual application of circular production / economy; protection of cultural and natural heritage and natural resources (agricultural land, forests, water resources, biodiversity).		improving competitiveness, accessibility, strengthening territorial capital and preserving activities in space and settlements on climate change.			
	In an effort to trace the direction of future reforms as clearly as possible of the agricultural sector as part of the external and internal challenges it faces, as well as to define measures and	This document will be established the foundations of the new agricultural policy, defined in accordance with the principles of modern public policy management and on the line	To successfully address many challenges, the Strategy aims to define directions of future development of agriculture and food industry, based on the concept of sustainable development,	Gap 1: The document does not cover the subject of transport of agricultural goods by inland waterway transport Gap 2: Lagging in technological development compared to	Action 1: Include the chapter regarding the possibilities of transport of agricultural goods by inland waterway transport. Action 2: Improving the competitiveness of the agri-	2024

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
	<p>activities for the reconstruction and activation of development potential of rural areas, the Ministry of Agriculture of the Republic of Serbia initiated the development of a strategic document. The result is the Strategy of Agriculture and Rural Development of the Republic of Serbia for the period 2014 - 2024, which as a basic and long-term strategic document which defines the goals, priorities and frameworks of political and institutional reforms in the field of agriculture and rural development</p>	<p>of a clear commitment of the Ministry of Agriculture, Forestry and Water Management to gradually adopt the model of European support for agriculture.</p>	<p>which affirms the preservation of the environment and sustainable management of natural resources;</p>	<p>the competing countries</p> <p>Gap 3: Inefficient confrontation of the agricultural sector with the effects of climate change</p> <p>Gap 4: The need to increase the efficiency of the food chain and competitiveness of the agri-food sector</p>	<p>food sector requires support for restructuring, development and innovation along the entire food chain. Modernization and technological development of the sector (except capital investments in resources, physical capital and knowledge transfer), implies the application of modern production technologies in the processing sector.</p> <p>Action 3: Operational objectives that should help more efficiently facing food production with this challenge are: monitoring climate change, creating adaptation measures and adequate measures aimed at reducing greenhouse gas emissions from agricultural production; improvement and adaptation of production technology; technical improvements of land, facilities and equipment; raising awareness of climate change,</p>	

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
					<p>its consequences and needs for their solution.</p> <p>Action 4: Operational goals leading to the realization of this priority are: development of new services in the food chain and strengthening of logistics food production infrastructure; increasing the capacity of agricultural holdings to join global market chains (supply trade chains); strengthening the motivation of producers for various forms of association; strengthening the capacity of cooperatives to become financial, market and advisory service of cooperatives; strengthening the visibility and recognizability of domestic products on the market; strengthening the export performance of the agricultural sector; strengthening horizontal and vertical links in the production chain, based on market principles; reducing the</p>	

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
					presence of the gray economy; strengthening and development of market organizations.	
	The implementation of the Strategy will allow for raising the technological level of the industry and its transformation towards digitalisation and automatization, raising the contribution of scientific-technical and innovative solutions, as well as the total volume of investments in industry, while securing balance in the structure and quality of the investments.	Implementation of strategic goals pertaining to the industrial development of the Republic of Serbia by 2020 encompassed delivery of numerous measures, with key measures being focused on the institutional framework building, business climate improvement, reduction in administrative and other barriers, formation of the national financial institution for industrial development (development bank, etc.), development of the knowledge-based society and lifelong learning, implementation of innovation, research and development (hereinafter referred to as R&D) and ICT application, aimed at strengthening the	The overall goal of industrial policy is to raise the competitiveness of Serbian industry. This goal directly supports the achievement of the previously defined vision. Specifically, competitive Serbian industry significantly contributes to high sustainable economic growth, measured by the national GDP growth rate and better living standard of Serbian citizens, measured by the GDP level per capita.	<p>Gap 1: The document does not cover the subject of ports (i.e. establishing industrial zones in the hinterland of ports)</p> <p>Gap 1: Still present infrastructure gaps</p> <p>Gap 2: Major imbalance in the development level of different regions</p> <p>Gap 3: Total volume of industrial investments, accompanied by the improved quality of investments</p> <p>Gap 4: High share of low value-added products in exports</p> <p>Gap 5: Technological structure of exports</p>	<p>Action 1: Include the chapter regarding the establishment of industrial zones in the hinterland of ports</p> <p>Action 2: Support to development and improvement of production processes via industrial infrastructure projects. Support programme for development of infrastructure for the needs of industrial zones</p> <p>Action 3: Balancing regional industrial development.</p> <p>Action 4: Incentive programme for investments in industrial production. Adjusting the criteria for attracting industrial investments aimed at increasing the share of domestic gross value added.</p>	2030

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		<p>competitiveness of the economy, accelerated development of entrepreneurship, attracting foreign direct investments, sustainable regional development, faster implementation of restructuring and privatisation processes.</p> <p>Many products found in the market are the lower value-added products, which reduced the total value of industrial export. Export restructuring in direction of increasing the share of high domestic value-added products could have a positive effect on export and thus also on ports.</p> <p>The factors limiting certain sectors to use maximum export potentials also affect sector share in the total export value. These are often import duties on components, inadequate legislation and access to raw material in the</p>			<p>Action 5: Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing.</p> <p>Promotion of the Republic of Serbia as an investment destination open to new investments of domestic and foreign companies with higher value added.</p> <p>Action 6: Identifying and stimulating export-oriented industrial sectors entailing higher stages of processing.</p> <p>Support programme for industrial companies to enter supplier chains of multinational companies.</p>	

Level	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
		<p>export domain. Insufficient export subsidies.</p> <p>The existing infrastructure is not sufficiently developed to support economic model transformation, primarily current energy and utility infrastructure, unreliable and outdated infrastructure; industrial zones are often at a dissatisfactory level of utility infrastructure development.</p>				

Table 5: Gap analysis summary for The Republic of Serbia

7 Conclusions

All the above-mentioned documents are aimed at the further improvement of commercial activities in the Republic of Serbia. In accordance with their update, the possibility is created for ports to become logistics centres that will not only be in the function of import and export traffic, but also capable of accepting significant transit traffic and providing a range of logistics services. To achieve the full potential of ports, it is necessary to consider the plans for industrial zones, free zones and multimodal centres in the scope of port development projects. In this way, with the existing infrastructure projects, the development of industry in the hinterland of ports will enable them to become more competitive, and the hinterlands could attract foreign and domestic businesses, all for the sake of raising of overall economic standards.

8 References

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Interreg



Danube Transnational Programme
DIONYSUS

**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Analysis of regional economic
development strategies, policies
and programmes with regard to
Danube ports

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Executive summary

The current report provides an in-depth analysis of economic development strategies, policies and programmes on a national and regional level, that have impact on waterborne transport in Bulgaria. The strategic documents that were selected for examination mainly focus on socio-economic development and nevertheless are to a certain degree relevant to port activities.

First, the report introduces the overall economic programme of Bulgaria's executive authorities with a brief overview of some of the main policies that determine the country's course of development. Those strategies that have direct or indirect impact on river ports are chosen for further and more detailed examination.

Each of the selected documents is then studied thoroughly in its respective subchapter, where its main features are explained with a special focus on how that policy is or could be important for the development of ports. Further there is a comparison between the current and the desired state of the strategy where the most significant gaps between the two are being identified and examined. Each subchapter ends with recommendations on how to close the existing gaps.

The first examined document is the **National Recovery and Resilience Plan**. Its goal is to facilitate economic and social recovery from the crisis caused by the COVID-19 pandemic and at the same time to lay the foundations for a green and digital transformation of the economy. Our analysis showed that the most significant gaps in the plan are the lack of focus on port development and insufficient attention to road infrastructure in port areas. To close these we recommended amendments to particular sections of the plan, so that they would bring additional focus on ports and infrastructure. This could also be achieved through updates of other national strategies for transport development, which is one of the measures included in the current version of the plan.

Further we examined the **National Strategy for Small and Medium-sized Enterprises 2021-2027** which sets the government's vision for support and development of small and medium-sized companies. The gaps we identified in this strategy are related to the lack of measures to improve transportation and storage services and insufficient financial support for export-orientated SMEs. To bridge the gaps we recommended measures such as construction of storage areas, development of logistics software tools for warehouse management, allocation of a larger share of the strategy's budget for investments in support of export activities etc.

The **Interreg VI-A Romania-Bulgaria Programme** aims to stimulate cross-border cooperation by investing in projects that help improve the social and economic conditions of the border region between the two countries. In this document we identified lack of incentives to reduce air pollution caused by ships and lack of measures in support of cruise industry. Our recommendations include development of projects for implementation of regulations on shipping emissions, development of charging infrastructure for alternative fuels, investments in the improvement of road infrastructure in the area of tourist sites, development of health protocols, and others.

The last examined documents are the **Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027**. They are part of Bulgaria’s system of strategic documents for spatial planning and regional development. Our study showed that in both programmes there is lack of incentives in support of cruise industry, for which we recommend building river cruise exclusively dedicated terminals and modernisation of the existing ones, promotion of cruise tourism and popularisation of tourist sites in the area of port cities.

Last, the report provides a table that summarizes all the important information regarding the examined documents and ends with conclusions on the government’s economic programme and its level of commitment in regard to port development. In general, the report adheres to the approach of balancing between the need to present the strategies in sufficient detail and simultaneously examine them with precision, which relies in great deal to the authors’ ability to estimate the actual importance of the programmes based on analytical proficiency.

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3 Abbreviations

Abbreviation	Explanation
BSO	Business support organisations
IRBP	Interreg VI-A Romania-Bulgaria Programme
ITDS	Integrated Territorial Development strategy
ITS	Integrated Transport Strategy
NCR	North Central region
NDPB	National Development Programme BULGARIA
NRRP	National Recovery and Resilience Plan
NSSME	National Strategy for Small and Medium-sized Enterprises
NWR	North West region
SME	Small and medium-sized enterprises

4 Introduction

Currently Bulgaria is administered by a caretaker government which has limited powers regarding the country's governing and is almost entirely focused on organizing the upcoming parliamentary elections. Nevertheless, strategic policies require long-term engagements and processes regarding their development and implementation often maintain their continuity regardless of the current state of the administrative authorities.

This said, Bulgaria's short to mid-term priorities in the economic sector, are focused on recovery and stabilization from the COVID-19 pandemic, which includes financial support for the healthcare system, the country infrastructure and the business, and actions to reduce unemployment and poverty, due to the economic crisis. Further, the country's strategic focus for economic development lies in accordance with EU's policies for green transition and digitalization.

In today's immensely globalized and highly dynamic environment intersectoral approach is of vital importance for the development of the country. This is why strategic documents in any field have been prepared in coordination with policies in other sectors. Management of ports as a topic is no exception, considering their overall influence on transport, trade, tourism and socio-economic development on a regional and national level in general.

5 Strategies with existing or potential influence on ports

From an administrative perspective Bulgaria's territory is divided into provinces which in turn include a certain number of municipalities. Therefore, economic strategies are developed and implemented on three separate levels – national, regional and municipal.

Some of the more important strategies on a national level with a focus on the economy are the National Development Programme; the National Strategy for Small and Medium-sized Enterprises; the Innovation Strategy for Intelligent Specialization of the Republic of Bulgaria; the Employment Strategy of the Republic of Bulgaria; the National Strategy for Poverty Reduction and Promotion of Social Inclusion. On a regional and municipal level the most important documents are the strategies for the regional/local development of the particular region or municipality. Some of the national policies include regional subdocuments as well. It should be taken into account that a great deal of the strategies focused the next programming period (2021 – 2027) are still in the preparation phase and only their draft versions are currently available for examination.

Economic development strategies, policies and programmes on the national and sub-national level identified to have substantial or more than marginal influence on ports are listed in the following table.

Economic development strategies, policies and programmes	Mentioning ports	Not mentioning ports, but could or should affect ports	Low influence on ports	Medium influence on ports	Strong influence on ports
National Recovery and Resilience Plan	X			X	
National Strategy for Small and Medium-sized Enterprises 2014-2020	X		X		
Interreg VI-A Romania – Bulgaria Programme	X				X
Integrated Territorial Development strategies – NorthWest and North Central regions (NUTS 2) 2021-2027	X				X

Table 1: Summary of economic development strategies and their influence on ports

5.1 National Recovery and Resilience Plan

5.1.1 Current state

The National Recovery and Resilience Plan of the Republic of Bulgaria is a strategic document, developed by the country's government as a funding instrument within the European Union's economic mechanism *Next Generation EU*. Its main objective is to facilitate economic and social recovery from the crisis caused by the COVID-19 pandemic and at the same time to lay the foundations for a green and digital transformation of the economy in the context of the ambitious goals of the European Green Pact. On October 15th Bulgaria's Recovery and Resilience Plan was submitted to the European Commission and is currently pending for approval. It is still available for comments and amendments.

The NRRP aims to achieve its objectives through a set of measures and reforms that aim at restoring, developing and increasing the potential for economic growth. The short-term ambition is to increase the sustainability of the national healthcare system, to mitigate the socio-economic consequences of the health crisis through measures to support enterprises and employment, as well as to ensure safe working conditions.

The plan has a total budget of 12 919 417 000 BGN and is structured in four thematic pillars. The first one is **Innovative Bulgaria**, which aims at increasing the competitiveness of the economy and its transformation into an economy based on knowledge and smart growth by taking measures in three main directions, each discussed in the respective subchapters – *Education and Skills*, *Research and Innovation* and *Smart Industry*. The pillar makes up to 26.9% of the total budget. **Green Bulgaria** focuses on sustainable management of natural resources and is divided into the subchapters *Low-carbon Economy*, *Biodiversity* and *Sustainable Agriculture*. It takes 38.1% of the plan's budget. The third pillar **Connected Bulgaria** aims to increase competitiveness of the country's regions, based on the specific local potential. It includes the subchapters *Digital Connectivity*, *Transport Connectivity* and *Local Development* with a 17.4% of the budget. **Fair Bulgaria** has a special focus on disadvantaged groups and individuals and its target is to achieve a more inclusive and sustainable growth and shared prosperity for all, with an emphasis on building effective and responsible public institutions. It has three subchapters as well – *Business Environment*, *Social Inclusion* and *Healthcare* and it takes about 17.6% of the total budget.

The implementation of the measures envisaged in the four pillars is expected to increase GDP, reduce unemployment, increase the share of energy produced from renewable energy sources, increase the skills of the population in the field of digital technologies and expand digital connectivity,

The National Recovery and Resilience Plan has a potential for great **influence on ports**. This is due to the document's significant importance for the country's development in many important areas, including transport, trade and economy. Port activities could be directly influenced mainly within the *Connected Bulgaria* pillar, in subchapters

Transport Connectivity and Local Development. The subject could also be addressed in the *Digital Connectivity* subchapter of the same pillar. Proper attention to this sector in the NRRP could help attract investments in ports and lay the foundations for an efficient, sustainable and digitalized waterway transport.

5.1.2 Desired state

The National Recovery and Resilience Plan could have a huge impact on river port activities and in order to achieve this goal the strategic document should bring attention to the need of investments in the development and modernisation of river port infrastructure. The NRRP is explicitly suitable for taking actions in this direction, considering that inland waterway transport is initially more eco-friendly than some other means of transportation and has a potential for becoming even greener and more digitalised. Another area which provides the opportunity for ports to benefit is the improvement of connectivity of port cities and of the Danube Region as a whole, through investments in the development of road and railroad infrastructure.

5.1.3 Gap identification

In the National Recovery and Resilience Plan there is no focus on ports whatsoever. The *Transport Connectivity* part of the *Connected Bulgaria* pillar is almost entirely addressed to railroad infrastructure. It is fair to say that the NRRP is only a complimentary investment mechanism which aims to support other strategies, plans and programmes on a national level, in some of which waterway transport has the spotlight, for instance the Integrated Transport Strategy for the period until 2030 and the National Development Programme BULGARIA 2030. Nevertheless, we believe that explicit attention on ports in the NRRP could highlight the importance of this mean of transportation for the overall development of the Danube Region, the country as whole, and its connectivity within Europe's economic ecosystem. This is especially true considering Bulgarian river ports' overall condition which implies the need for investments in construction and modernization of infrastructure. Furthermore, the Recovery and Resilience plan is a very suitable platform for promoting river transport as ecofriendly. This is why we believe that the lack of explicit attention on the possibilities and potential benefits from port development in the NRRP is a gap.

In the Recovery and Resilience Plan there is also not enough attention paid to road infrastructure in the Bulgarian section of the Danube River. We consider this to be of utmost importance for inner waterway transport development, taking into account that regional connectivity of ports through inland infrastructure (both road and railroad) is a vital condition for growth in this area. This topic is a subject of the NDPB and ITS as well. However, we believe that insufficient infrastructure development in Northern Bulgaria, especially in comparison with the southern parts of the country, is a significant hindrance for the country's prosperity as a whole. Taking this into account, it is clear that the matter should be considered by the NRRP, which envisions the future course of investments in all sectors that have significant meaning for the recovery and

sustainable development of the country. Insufficient attention to the importance of road infrastructure is indeed a gap.

- Gap 1: Lack of focus on port development Level: 1
- Gap 2: Insufficient attention to road infrastructure in port areas Level: 4

5.1.4 Recommendations to close the gaps

Gap 1: Lack of focus on port development

An obvious option to close this gap is to modify to certain extent the *Transport Connectivity* part of the *Connected Bulgaria* of the National Recovery and Resilience Plan in order to have it pay greater attention to port development. This could include relocation of funds of investment projects within the NRRP in order to meet some of the needs of waterway infrastructure. This could be achieved, considering that Bulgaria's national version of the plan is now in the phase of consideration by the European Commission and amendments in coordination with the national authorities are still an option. Nevertheless, this would require coordinated and intersectoral initiative by the country's government.

Another option to overcome the gap lays in the fact that the *Transport Connectivity* subchapter envisions an update of Bulgaria's strategic framework for the development of the transport sector. Therefore, focus could be brought upon port investment needs without directly interfering with NRRP, but instead – by giving additional attention to the matter during the process of the implementation of the plan. In other words, partial success could be achieved by using the NRPP as a platform to influence the course of development of other strategies on a national level, for instance, The National Development Programme BULGARIA 2030 (strategic document of the highest order in the hierarchy of national programming documents). A condition for this is the active position of the Ministry of Transport, Information Technology and Communication regarding the creation of criteria for the update of the NDPB.

Following the same principles of interference (amendment of the plan or focused attention on the subject during implementation) port digitalisation could be addressed as well in the subchapter *Digital Connectivity*. There it would be appropriate to consider topics such as development of port communications networks and water level control facilities.

Gap 2: Insufficient attention to road infrastructure in port areas

The same solutions – modifying the content of the National Recovery and Resilience Plan and influencing the course of its implementation, are applicable for the sake of closing this gap as well. We consider that the improvement of road infrastructure in the Danube region could greatly benefit the country. In this regard, the most important incentive would be the completion of the Hemus motorway (connecting Sofia and

Varna) which will drastically improve the infrastructure ecosystem of Northern Bulgaria. In the ITS there is a project worth 2.6 billion BGN (national funding) that envisages the building of the motorway before the end of 2022. Considering the current progress however, it is highly doubtful that it will succeed in time. Therefore we consider that the Recovery and Resilience plan could be suitable for raising additional funding for the cause or cover some of the costs and achieve more rapid completion of the motorway. First-, second- and third-class roads should also be considered for investment, due to their importance for local connectivity and the fact that they are the shortest routes between port cities. Such roads also have significant meaning for tourism activities (river cruises included) as they are used for traveling to popular tourist sites. We believe that the NRRP is suitable for addressing this topic, taking into account that the plan has some explicit attention on road safety and a great deal of the roads in Northern Bulgaria are in poor condition and could be considered unsafe. In addition, road infrastructure investments could further be promoted by planning projects for building charging stations for electric vehicles, which is also a subject of the NRPP.

The following table summarizes the gaps identified in The National Recovery and Resilience Plan of the Republic of Bulgaria, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	Lack of focus on port development	Plan amendments in subchapters <i>Transport Connectivity</i> and <i>Digital Connectivity</i> . Target the gap in the process of updating the strategic framework for the development of the transport sector.
4	Insufficient attention to road infrastructure in port areas	Suggesting investments for the completion of the Hemus motorway, and for the improvement of the network of lower class roads in the region.

Table 2: Gaps in the National Recovery and Resilience Plan and actions to close them

5.2 National Strategy for Small and Medium-sized Enterprises 2021-2027

5.2.1 Current state

The National Strategy for Small and Medium-sized Enterprises 2021-2027, developed by the Ministry of Economy, sets out the government's policy framework for the SME sector. It is essentially a long-term strategic document outlining the country's vision for supporting small and medium-sized companies. It is developed in line with the SME

Strategy for a sustainable and digital Europe and the European industrial strategy, which set the general framework for EU policy towards SME.

The NSSME has an overall horizon of seven years (2021 – 2027). Its main objective is to support Bulgarian small and medium-sized enterprises in their efforts to be more competitive, digitalized, sustainable and export-oriented enterprises that produce high value-added goods and services. The strategy is expected to achieve its goals through six areas of impact: *entrepreneurship, market access, access to finance, digitalization and skills, better regulation and business climate, environment*.

The NSME is based on an in-depth analysis of the SME system in Bulgaria (for the period 2008 - 2020), developed for the purposes and needs of the Ministry of Economy and all other stakeholders in the state administration who are involved in the formulation and implementation of policies aimed at the development of SME in Bulgaria. The analysis is an attachment to the strategic document. The NSSME also includes a plan of action and annual implementation programmes which will be adopted by the minister of economy. Progress is reported through annual implementation reports.

The strategy has an **indirect impact on ports** due to the opportunity to affect inland waterway transport activities by supporting SME's export potential. Thus, we consider the areas of impact *market access* and *access to finance* to be relevant to Bulgarian river ports.

In the *market access* chapter there are several topics of importance – promoting internationalization of Bulgarian SME, participation in trade promotion events, support for SME with large export potential, support for digital trade, and introduction of quality standards. There is a special focus on increasing the level of internationalization of SME and their readiness for export activities. The strategy plans to achieve this through marketing measures and support for the production of promotional materials; development of websites, applications, informational and analytical centers; creation of export-oriented clusters, initiatives and associations of SME, and their inclusion in international value chains; support for participation of enterprises in international and regional trade fairs and business conferences. Further development of the *BSO Export Hub Bulgaria* (supports growth of export potential of businesses) is also envisioned, as well as the development of a tool for self-evaluation based on statistical data.

The *access to finance* area of impact has the main objective of facilitating SME's access to finance, including traditional banking instruments - bank loans, credit lines, overdrafts, microcredit, alternative forms of financing, risk and equity financing, as well as access to national, European and international funding programmes. The focus is on financing enterprises that would invest in introduction of new technologies, production of new products and services, digitalization and export. There are measures that support microenterprises and startups.

5.2.2 Desired state

The National Strategy for Small and Medium-sized Enterprises has a potential to influence positively port activities in Bulgaria. This could be achieved through explicit and effective support for export-orientated small and medium-sized enterprises with

versatile measures. Fostering SME's international trade potential could increase the country's total export volumes, but it could also make transnational commerce more diverse, considering the large variety of activities performed by smaller companies. This could lead to larger activity in inland waterway transport for commercial purposes and potentially attract investments in port infrastructure.

5.2.3 Gap identification

One of the objectives of the National Strategy for Small and Medium-sized Enterprises is to support export-orientated SMEs. For achieving this goal, the strategy suggests mostly soft measures, including information, analytical and marketing support, where we consider that state aid should have more direct and significant short-term positive effect on the sector. A good example in that direction could be incentives to support companies providing logistic, transportation and storage services in regions with high intensity of international traffic, like the areas around the main Danube ports, which would be beneficial for SMEs' export activities. In the NSSME, however, such measure is not considered an option whatsoever. Therefore, we believe that enhancement of transportation and storage services not being taken into account as an opportunity to support export is indeed a gap. Addressing it could stimulate companies to intensify their activities, related to transnational commerce, and increase trade flow through ports.

When it comes to financial support for SME the idea of funding export-orientated companies is considered within the *access to finance* impact area of the strategy. A good example of that is the suggested measure to establish provision of pre-export and post-export financing by the Bulgarian Export Insurance Agency. Nevertheless, the main focus is on creating funding opportunities for financing companies that invest in modernization, digitalization and production of high value-added services and products. We believe that it would be beneficial for ports if measures in support of export-orientated small and medium-sized companies were further and explicitly stressed upon with a broader range of financial instruments. Thus, the insufficient consideration in the strategic document of the need to develop more diversified financial instruments to support SME involved in export should be considered a gap.

- Gap 1: Lack of measures to improve transportation and storage services Level: 1
- Gap 2: Insufficient financial support for investments in export activities Level: 4

5.2.4 Recommendations to close the gaps

Gap 1: Lack of measures to improve transportation and storage services

Considering that measures in support of transportation and storage services are not present in the National Strategy for Small and Medium-sized Enterprises 2021-2027 at all, it is practically impossible to close this gap within the current programming period, and effective actions could be taken no earlier than the year 2027. Annual

implementation programmes leave little opportunity for amendments, taking into account that incentives of such matter would require allocations within the budget of the current programme. Nevertheless, if measures in that direction are considered for the next programming period, a good example could be investments in construction of storage areas, development of logistics software tools for warehouse management, development of goods packaging equipment etc. These would be especially beneficial in the areas of port cities, where the intensity of trade and transportation activities is high.

Gap 2: Insufficient financial support for investments in export activities

This gap is considerably easier to close, taking into account the fact that financial support for investments in export-orientated SME is already provided to some extent in the current version of the NSSME. Actions could be taken in two different directions - allocating a larger share of the funds for investment in activities related to export and promoting international trade in the annual implementation programmes. The first target could be easily reached, considering that most of the measures in the strategy still lack strictly defined budgets. The second direction of action – giving greater importance to export activities in annual documents, is a matter of administrative effort.

The table below summarizes the gaps identified in the National Strategy for Small and Medium-sized Enterprises 2021-2027, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
1	Lack of measures to improve transportation and storage services	Construction of storage areas, development of logistics software tools for warehouse management, development of goods packaging equipment.
4	Insufficient financial support for investments in export activities	Allocation of a larger share of the budget of the NSSME for investment in activities related to export. Promotion of international trade in annual implementation programmes.

Table 3: Gaps in the National Strategy for Small and Medium-sized Enterprises 2021-2027 and actions to close them

5.3 Interreg VI-A Romania-Bulgaria Programme

5.3.1 Current state

Interreg VI-A Romania – Bulgaria is a programme, funded by the European Regional Development Fund, which aims to stimulate cross-border cooperation by investing in projects that help improve the social and economic conditions of the border region between the two countries. The territorial scope of the IRBP VI-A encompasses the entire border zone along the Danube River, which includes the countries (Romanian administrative units) of Mehedinți, Dolj, Olt, Teleorman, Giurgiu, Călărași and Constanța on the Romanian side, and the districts of Vidin, Vratsa, Montana, Veliko Tarnovo, Pleven, Ruse, Dobrich and Silistra on the Bulgarian side. The programme area covers a total territory of 69.285 square kilometres.

Currently the IRBP is in the process of preparation for the next programming period (2021 – 2027) and is expected to be approved in 2022. It is being developed by a joint working group which includes representatives on national, regional and local levels from both sides, as well as NGO and academic entities. The most up-to-date draft of the document is from August 2021, which we have taken in consideration when examining the programme's influence on ports.

The programme determines several areas of joint challenges, which take into account economic, social and territorial disparities as well as inequalities and joint investment needs. These include the section *Regional economy* which considers that the main problems of the zone are related to: economic disparities which are visible when in comparison with other parts of the two countries (Southern Bulgaria, Northern Romania) and other European regions; poor competitiveness due to low quality of institutions, education and healthcare; SME density being below EU average; employment is concentrated in traditional, low-tech and low knowledge-intensive sectors; tourism assets are not exploited to their full potential. Another area of challenges is *Connectivity* which puts the focus on the poor transborder connections; low activity of transport on the Danube River; underdeveloped road and railroad infrastructure; lack of functional intermodal system of transportation. The third area is *Climate change mitigation and environment protection*, in which main challenges are considered to be vulnerability of the zone to climate change; negative effects of human activities; natural risks, such as floods, severe rains, heavy winds earthquakes and landslides; poor waste management. The other areas of challenges are *Human capital* (includes low population density, low education levels, outward migration, high poverty risk, income inequality etc.), *Integrated territorial development* (it examines the lack of continuity and the hindrances to territorial integration), and *Safety and security* (the focus in this chapter is on risks deriving from border control, travel regulations, identity checks and prevention of illegal activities).

Further, based on the established challenges, the IRBP determines four priorities of action, all of which have their respective chapters in the document, and include a set of soft and hard measures to improve the current conditions of the area of focus. The

first one is the *Well-connected region* chapter. It considers actions for the development of the road, railroad and waterway infrastructure networks and systems, as well as for the improvement of the conditions for navigation and safety along the Danube River and the Black Sea. The second priority is called *Greener region* and it envisions actions to mitigate and adapt to the effects of climate change, prevent and manage the risk of natural disasters and risks associated with human activities, reduce pollution, develop green infrastructure and preserve biodiversity. The *Educated region* priority includes measures for improving equal access to inclusive and high-quality services in education, training and lifelong learning. The fourth priority is analyzed in the *Integrated region* chapter. It suggests incentives for the development of the bicycle route EuroVelo 6 and for the support of tourism industry, including cultural, historical, recreational and religious tourism, agritourism, ecotourism, culinary and wine tourism and other related sectors and activities.

The IRBP has **direct influence on ports**, considering that the Danube River runs straight through the target zone of the programme and is one of the main transport routes in the region. Therefore, river ports along it are undoubtedly of great importance for the overall connectivity and prosperity of the area and are rightfully considered in the document as a major target for investments.

5.3.2 Desired state

The Interreg VI-A Romania – Bulgaria programme should definitely recognise the importance of Danube River Ports for the development of the region and therefore should explicitly address the need to increase investments in port infrastructure modernisation, improvement of road and railroad infrastructure leading to ports, and establishment of intermodal systems of transportation. Incentives in this direction could greatly benefit transport, trade, tourism and social and economic development in the region as a whole.

5.3.3 Gap identification

Generally speaking, the Interreg VI-A Romania – Bulgaria programme does relatively well in addressing most of the investment needs of river ports, including those for improvement and modernisation of port facilities, for increasing connectivity with the region through other means of transportation (roads and railroads), and for enhancing digitalisation and sustainability. Nevertheless, we believe that there is room for improvement, mainly regarding certain mild gaps, which, if they were to be considered, could be closed for the benefit of port activities.

The IRBP perceives a great deal of measures that focus on care for the environment, including climate changes mitigation, prevention of natural disasters and risks to the environment related to human activity and others. One of these topics is the need to tackle air pollution which is caused mainly by road transport and food production emissions, as well as the use of solid fuels in the household sector. Some of the suggested actions include the creation of systems for monitoring and data collection regarding air quality. However, air pollution caused by ships is not taken into account

in the programme at all. According to scientific research fuel burned by ships is the reason for the generation of significant deal of pollutants, such as carbon dioxide, nitrogen oxides and sulphur oxides that have direct impact on climate change. Considering that shipping in the Danube River is quite intensive, we believe that an effective and sustainable solution to the ecological challenges in the region goes through incentives to reduce air pollution caused by shipping which would in turn indirectly improve port activities. We consider the lack of such to be a gap in the programme.

Another topic of interest in the programme are the opportunities to support and improve tourism activities in the border zone. In the *Integrated region* priority there is focus on different kinds of tourism, but there are no projects regarding cruise industry whatsoever. We believe that cruises along the Danube River are one of the main tourist attractions in the region which offers unique opportunities that in many ways can not be matched by activities on land. Cruise routes in the Bulgarian section of the river have great potential for growth in terms of number of ships and passengers, as well as services provided. Therefore, ports could benefit from investments in this field. However, such are not provided in the IRBP and we consider this to be a gap

- Gap 1: Lack of incentives to reduce air pollution caused by ships Level: 4
- Gap 2: Lack of measures in support of cruise industry Level: 1

5.3.4 Recommendations to close the gaps

From a technical point of view the proper way to address both of the identified gaps is through the implementation of modifications to the Interreg VI-A Romania – Bulgaria programme. The fact that the document is still in preparation phase presents some opportunity for amendments. Our suggested measures to bridge the gaps are discussed below.

Gap 1: Lack of incentives to reduce air pollution caused by ships

There are several ways to reduce air pollution caused by shipping. One of the options lays in the administrative approach, which could be used to introduce appropriate regulations, including emission standards for nitrogen oxides according to the power output of marine diesel engines, and to implement installation of exhaust gas cleaning systems. In addition, administrative organs for monitoring and control of air emissions caused by ships could be established. Further, significant progress could be achieved through investments in modernization of river ships which would also be in line with international efforts to stimulate green shipping. Some of these incentives are partially present in Bulgaria’s National Air Pollution Control Programme 2020 – 2030, but the IRBP could bring additional attention to this topic. Another option in the mid to long term is to create projects which would fund the development of charging infrastructure for alternative fuels in ports.

Gap 2: Lack of measures in support of cruise industry

River cruise industry in Bulgaria, as in anywhere else around the world, suffered greatly from the COVID-19 pandemic. There are certain measures that could help it recover and grow. These could include investments in the development of suitable specialized superstructure, development of systems for treatment and disposal of waste, generated during cruises (currently such exist in Bulgaria only in the ports of Vidin and Ruse), as well as investments to improve road infrastructure connecting tourist sites, visited by passengers on cruise ships. Projects that would support the development and updating of existing health protocols could be an administrative incentive that would benefit the efforts to mitigate the impact of the pandemic.

The following table summarizes the gaps identified in Interreg VI-A Romania – Bulgaria Programme, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
4	Lack of incentives to reduce air pollution caused by ships	Implementation of regulations and investments in the development of charging infrastructure for alternative fuels.
1	Lack of measures in support of cruise industry	Development of superstructure, waste treatment and disposal systems, road infrastructure in the area of tourist sites, and development of health protocols.

Table 4: Gaps in the Interreg VI-A Romania-Bulgaria Programme and actions to close them

5.4 Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027

5.4.1 Current state

The Integrated Territorial Development strategies for NUTS 2 regions in Bulgaria are part of the country's system of strategic documents for spatial planning and regional development. They are regulated by Bulgaria's Regional Development Act and are in line with EU's approach for classification of regions. According to it the country's territory is divided into six NUTS 2 regions – *North West*, *North Central*, *North East*, *South West*, *South Central* and *South East*. The former two are the only NUTS 2 regions in Bulgaria that have access to the Danube River. Therefore, we have found that ITDS for NWR and NCR would be relevant to this report due to the fact that strategies for the

development of the other territorial units bare little to none impact on river ports. The territorial scope of the two regional strategies includes the districts of Vidin, Montana, Vratsa, Lovech, Pleven, Veliko Tarnovo, Ruse, Gabrovo, Silistra and Razgrad, and covers 30,2% of the country's territory.

The strategies for the next programming period (2021-2027) for all NUTS 2 regions are currently in the preparation phase. The report examines exclusively the most recent draft versions of the documents, provided by the Ministry of Regional Development and Public Works. The two strategies have identical structure and are based on two main elements – analysis of the economic, social and ecological situation of the respective regions, and the vision and strategic priorities for their development. The analytical part consists of several subchapters, some of which examine the environment, natural resources, impact of global climate change, demographics, unemployment, territorial aspects of economy, healthcare, education, social services in the community, functional hierarchy of cities in the region, axes of urban development, agglomeration formations, **transport connectivity**, energy, telecommunications, water and sanitation, risk of natural disasters, transborder cooperation and others. They present a relatively complete picture of the current conditions in the regions within all main areas of activity. The part which is dedicated to strategic priorities sets the course for future development in three main directions, which are similar yet slightly different for the two regions: acceleration of the economic growth, preservation and development of human capital, and connectivity, sustainable development and reduction of inequality for *North West* region; Achieving economic recovery and transformation, development of human capital potential and acquiring social growth, and sustainable territorial development and connectivity for *North Central* region.

The strategies for the development of NWR and NCR have **direct relevance to river ports**. The two regions have access to the Danube which makes ports crucially important for all sorts of activities, including trade, transport and tourism. Further, inland waterway transport provides great opportunities for connectivity on a regional, national and continental levels, giving access to the European single market. Thus, the ITDS could be extremely beneficial for port activities if they are to recognize their importance for overall regional development. This topic is addressed in the chapters of the documents which deal with strategic priorities and vision for development.

5.4.2 Desired state

The desired state of the Integrated Territorial Development strategies for the *North West* and *North Central* regions would be one where ports on the Danube River are considered for their significant potential for the effective and sustainable development of the regions. The two strategic documents by all means must bring attention to the importance of river port activities for the overall socio-economic situation on a local level, and examine the opportunities for growth, provided by inland waterway transport.

5.4.3 Gap identification

In general the Integrated Territorial Development strategies for the *North West* and *North Central* regions addresses investment needs of ports considerably well and in detail. They envision incentives to build additional and modernise the existing port facilities, expand the network of road and railroad infrastructure connecting ports and improve its quality, invest in the creation of systems for treatment and disposal of waste, build facilities for landslide and flood prevention, reduce air pollution, enhance tourist activities etc. In the strategy for the development of the NCR the focus on infrastructure improvements is exceptionally ambitious, with measures such as building a motorway that would connect the two main cities in the region – Ruse and Veliko Tarnovo, as well as constructing additional bridges over the Danube River at the town of Svishtov, the city of Ruse and the city of Silistra to improve transborder connectivity (currently there is only one bridge in the North Central region that connects Ruse with the Romanian city of Giurigiu).

Nevertheless, in the ITDS there is potential for improvement, so that the planned policies would be even more beneficial for ports. Despite that tourism is taken into account in the strategies as an important field of activities for the development of the regions, there is practically no attention paid to river cruise industry. In the strategy for the development of the NWR cruise tourism is briefly mentioned only in one point, where it is stated that the sector could improve as a result of investments in port infrastructure in general, but there are not any incentives targeted explicitly at this industry. In the strategy for the development of the NCR cruise tourism is not mentioned whatsoever. We consider this to be a gap in both ITDS, taking into account that this type of tourism has significant potential to improve the socio-economic conditions in the two regions.

- Gap 1: Lack of incentives in support of cruise industry Level: 2

5.4.4 Recommendations to close the gaps

Gap 1: Lack of incentives in support of cruise industry

From a technical point of view the way to bridge the gap is to implement amendments in the Integrated Territorial Development strategies for the *North West* and *North Central* regions, which is a plausible solution, considering that the documents are still in the phase of preparation.

The ITDS should include incentives to support river cruise industry. Some examples of such could be investments in building river cruise exclusively dedicated terminals and modernisation of the existing ones and development of systems for treating waste and laundry generated during cruises. Soft measures are also an option, such as promotion of cruise tourism on a local and national level, and popularisation of tourist sites in the area of port cities. In regard to the COVID-19 pandemic, focus on improvement of health protocols and establishment of up-to-date hygiene and safety conditions should be considered.

The following table summarizes the gaps identified in the Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027, as well as recommended actions to close those gaps.

Gap level	Gap	Action (recommendation) to close the gap
2	Lack of incentives in support of cruise industry	Building river cruise exclusively dedicated terminals and modernisation of the existing ones; promotion of cruise tourism; popularisation of tourist sites in the area of port cities etc.;

Table 5: Gaps in the Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027 and actions to close them

6 Gap analysis summary

6.1 Gaps, actions to close the gaps and strategy inputs

Below table summarizes the gaps and actions to close the identified gaps.

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
National Recovery and Resilience Plan	To facilitate economic and social recovery from the crisis caused by the COVID-19 pandemic and at the same time to lay the foundations for a green and digital transformation of the economy.	The plan includes a set of measures and reforms in the areas of innovations, connectivity, social inclusion and management of natural resources.	The plan should bring attention to the need of investments in the development and modernisation of river port facilities and in the development of road and railroad infrastructure in the area of ports.	Gap 1 (level 1): Lack of focus on port development Gap 2 (level 4): Insufficient attention to road infrastructure in port areas.	Action to close gap 1: amendments in subchapters Transport Connectivity and Digital Connectivity. Use the plan as an opportunity to update other strategies. Action to close gap 2: plan investments for the completion of the Hemus motorway, and for the improvement of the network of lower class roads in the Danube region.	Short-term actions (amendments in the plan): in the first quarter of 2022 or before the plan is officially approved by the EU. Long-term actions (updating existing transport strategies): throughout the period of implementation of the plan.

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
National Strategy for Small and Medium-sized Enterprises 2021-2027	The strategy sets out the government's vision for supporting small and medium-sized companies.	The strategy achieves its goals for support of SME through six areas of impact: entrepreneurship, market access, digitalization, access to finance and skills, better regulation and business climate, environment.	The strategy should explicitly and effectively support export-orientated small and medium-sized enterprises which would enhance international trade, including through the use of inland waterway transport.	Gap 1 (level 1): Lack of measures to improve transportation and storage services. Gap 2 (level 4): Insufficient financial support for investments in export activities.	Actions to close gap 1: Construction of storage areas, development of logistics software tools for warehouse management, development of goods packaging equipment Actions to close gap 2: Allocation of a larger share of the budget for investments in export activities. Promotion of international trade in annual implementation programmes.	Short-term actions (through annual implementation programmes): within 2022. Long-term actions (next programming period): beyond 2027.
Interreg VI-A Romania-Bulgaria Programme	The programme aims to stimulate cross-border cooperation by investing in projects that help improve the social and economic conditions of the border region between the two countries.	The programme determines several areas of joint challenges which are described in the chapters Regional economy, Connectivity, Climate change mitigation and environment protection, Human capital, Integrated territorial development, and safety and security.	The programme should recognise the importance of ports for the development of the region and should address the need to increase investments in port infrastructure modernisation, improvements of road and railroad infrastructure in ports' areas, and establishment of intermodal systems of transportation.	Gap 1 (level 4): Lack of incentives to reduce air pollution caused by ships. Gap 2 (level 1): Lack of measures in support of cruise industry.	Actions to close gap 1: Implementation of regulations and investments in development of charging infrastructure for alternative fuels. Actions to close gap 2: Development of superstructure, waste treatment and disposal systems, road infrastructure in the area of tourist sites, and development of health protocols.	Short-term actions (implementation of regulations and health protocols): throughout 2022. Long-term actions (modernization of river ships; development of charging systems, waste disposal facilities and road infrastructure): throughout the programming period (2021 – 2027).

Strategy	Objectives	Current state	Desired state	Gap	Actions to close the gap	Timeline for actions
Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027	The strategies are part of Bulgaria's system of strategic documents for spatial planning and regional development.	The strategies consist of two main parts - analysis of the economic, social and ecological situation in the respective regions, and the vision and strategic priorities of the government for their development.	The strategies should bring attention to the importance of river port activities for the overall socio-economic development of the regions, and examine the opportunities for growth, provided by inland waterway transport.	Gap 1 (level 2): Lack of incentives in support of cruise industry	Actions to close gap 1: Building river cruise exclusively dedicated terminals and modernisation of the existing ones; promotion of cruise tourism; popularisation of tourist sites in the area of port cities etc.;	Short-term actions (promotion of cruise tourism and popularisation of tourist sites in the area of port cities): within the next tourist season. Long-term actions (building and modernisation of river cruise dedicated terminals): throughout the programming period (2021 – 2027)

Table 6: Gap analysis summary for Bulgaria

7 Conclusions

In general, development of river ports is directly and indirectly influenced by several economic strategic programmes, adopted by the government of Bulgaria. In some of them the topic is mentioned in detail, while in others it is only briefly considered or completely neglected.

As a whole, it could be asserted that the importance of inland waterway transport and the opportunities it provides for the development on a regional and national level are either underestimated or totally unaddressed.

There is a visible lack of coordination between different strategies regarding the potential for socio-economic growth and connectivity enhancement that is generated by river ports. Incentives to change this tendency would require significant efforts on all levels of administration in the country.

8 References

1. **National Recovery and Resilience Plan of the Republic of Bulgaria – version 1.4 (15.10.2021)**
2. **National Strategy for Small and Medium-sized Enterprises 2021-2027**
3. **Interreg VI-A Romania-Bulgaria Programme – extract of the draft version (August 2021)**
4. **Integrated Territorial Development strategies – North West and North Central regions (NUTS 2) 2021-2027 – draft versions (11.06.2021 for both strategies)**
5. **The National Development Programme BULGARIA 2030**