



**A MI DUNÁNK**  
ORSZÁGOS KIKÖTŐFEJLESZTÉSI FŐTERV

# National Port Development Masterplan Strategy



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## TABLE OF CONTENTS

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1	VISION AND STRATEGIC OBJECTIVES OF THE PORTS IN HUNGARY .....	4
1.1	Vision of the Hungarian ports .....	4
1.2	The objectives of the strategy .....	4
1.3	The intervention areas of the strategy .....	4
2	THE METHODOLOGY OF THE STRATEGY'S STRUCTURE.....	5
3	THE TARGET SYSTEM OF THE STRATEGY .....	7
4	INCENTIVES FOR CHANGE.....	11
4.1	Improving port accessibility .....	11
4.2	Increasing loading and storage efficiency .....	12
4.3	Digital port.....	14
4.4	Sustainable port.....	15
4.5	Promoting ports and water freight.....	15
4.6	Following freight tendencies.....	15
5	GENERATING DEMAND FOR PORT SERVICES.....	17
5.1	Market adaptation of port services .....	17
5.2	Development of port services .....	20
6	PORT RANKING AND DEVELOPMENT-SUPPORT SCHEME.....	22
6.1	Port ranking scheme .....	22
6.2	Development-support scheme of ports .....	25
6.3	Common port interest representation .....	26
7	DEVELOPMENT OF LABOR FORCE IN CONNECTION WITH PORTS.....	27
7.1	Management of labor force shortage .....	27
7.2	Development of official human resources .....	28

8	REVIEW OF REGULATIONS .....	29
8.1	Clarification of authority powers .....	29
8.2	Environmental sustainability .....	30
9	REGIONAL DEVELOPMENT TRENDS.....	32
9.1	Integration of the National Public Ports into the transport network.....	32
9.2	Public ports of regional importance.....	33
9.3	Ports of local importance or specializing in one commodity .....	33

# 1 VISION AND STRATEGIC OBJECTIVES OF THE PORTS IN HUNGARY

## 1.1 Vision of the Hungarian ports

*By 2030, the Danube freight ports will become essential and efficient multimodal hubs in their region's transport system, ready for the environmentally friendly transport of at least 10% of domestic freight traffic by inland waterway.*

## 1.2 The objectives of the strategy

The strategic objectives of the National Port Development Plan Strategy				
Incentives for modal shift	Generating further demand	Developing a financing system	Developing human resources	Developing a sustainable regulatory environment

## 1.3 The intervention areas of the strategy

Intervention areas of the National Port Development Plan Strategy	
Education, training	Infrastructure development
Technological modernization	Career model
Financing	Digitization, automation
Investment incentive, industrial establishment	Sustainability
Laws, concepts	Market research, innovation

## 2 THE METHODOLOGY OF THE STRATEGY'S STRUCTURE

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The National Port Development Plan Strategy was prepared within the framework of the 2015-HU-TM-0152-S CEF project, titled "Developing a plan for the strengthening of the Danube freight transport through the development of the TEN-T port infrastructure, in particular the port of Komárom."

The strategy of the port development plan for the Hungarian section of the Danube is an essential, comprehensive policy document setting out directions for the development of port infrastructure and port services along the Danube by 2030.

In line with this challenge, the strategy was developed as part of a well-established planning process.

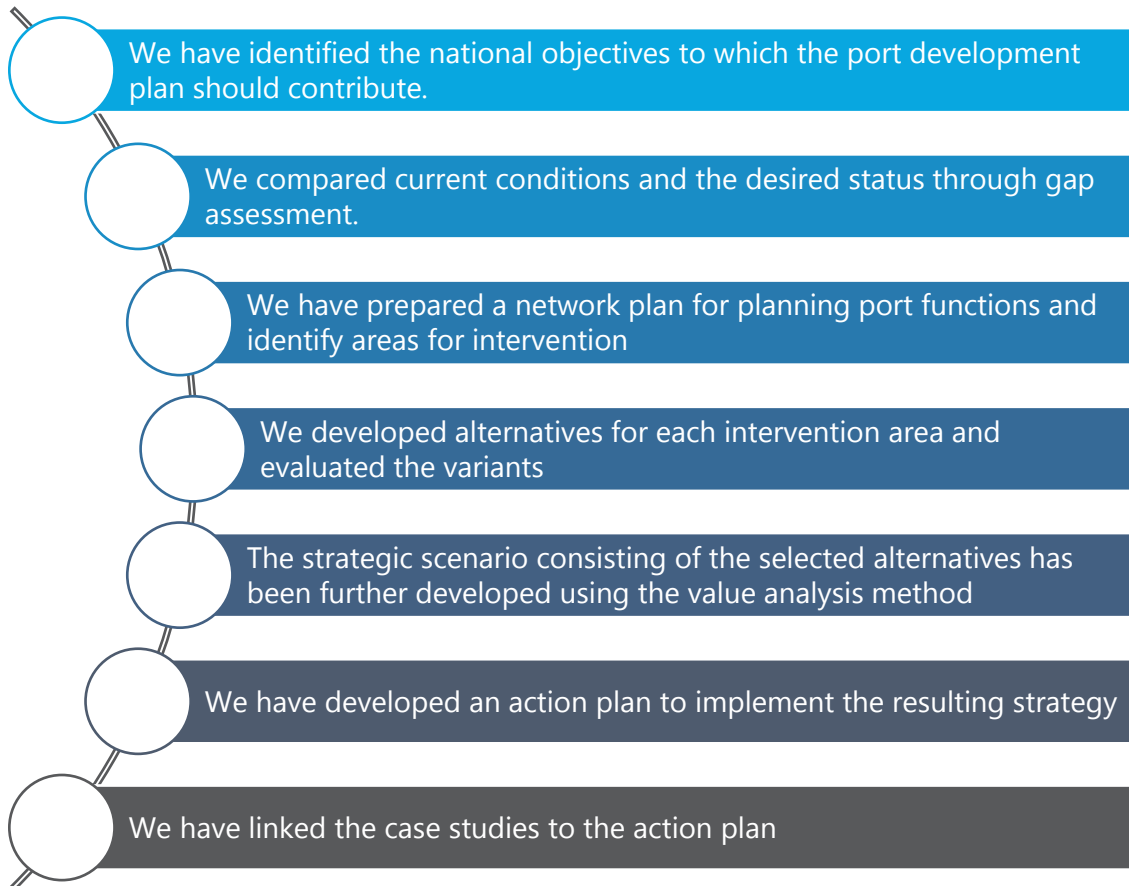
In order to lay the foundation for the strategy of the plan, a comprehensive situation analysis has been carried out, using primary and secondary research tools to map the current state and international environment of the Hungarian cargo port sector:

- extensive document analysis has been carried out of Hungarian and EU publications and strategies, strategies, plans, outputs of international projects in the sector, scientific articles and publications of recent years, and relevant domestic and international legislation;
- statistical analysis has been carried out to examine freight trends and performance in the sector;
- survey research among several target groups has been carried out (Danube ports and interested parties in shipping, municipalities near the Danube, shippers, freighters, companies with a significant commodity base) to assess the goals and opportunities of domestic stakeholders in the development of the sector;
- the Danube freight ports in Hungary has been examined through on-site visits;
- the analysis of each sub-area has been further developed through domestic and international in-depth interviews focusing on key sector players.

In carrying out the strategic planning task, a methodology has been followed that ensures, as far as possible:

- adapting the strategy to existing capabilities and opportunities,
- the greatest possible contribution to transport development and economic policy objectives,
- feasibility, effectiveness and economy,
- the commitment of the sector players to the strategy.

Accordingly, during the strategic planning process, the following methodology has been followed:



Throughout the process, we consulted extensively with stakeholders in the sector and involved them in the strategic planning through conferences and workshops.

In the framework of the National Port Development Plan Strategy, four events were held in the spring of 2019, involving stakeholders and decision-makers in the port sector. During the workshops in these events, the views, ideas and suggestions of these sector players were collected on four topics:

- expectations regarding the Port Development Strategy
- port network plan
- potential development variants
- the thematic focus areas and priorities of the strategy

The information gathered during the workshops was processed using the **value analysis** methodology. The following strategy is the result of the solution developed during the analysis.

### 3 THE TARGET SYSTEM OF THE STRATEGY

The National Port Development Plan Strategy sets out five strategic objectives:

The strategic objectives of the National Port Development Plan Strategy				
Incentives for change	Generating further demand	Developing a financing system	Developing human resources	Developing a sustainable regulatory environment

The strategy calls for the **incentives for change objective** to be achieved by increasing the share of inland freight transport and integrating it into a combined intermodal transport system, divided into 6 sub-areas. The 6 sub-areas are closely interconnected, taking into account all the elements necessary for the design of the transport system.

#### 1.Improving port accessibility:

- In order to guarantee connection to the combined / intermodal transport system, the strategy calls for ensuring the accessibility to the last kilometer connections of ports by road, rail and waterway.

#### 1.Increasing loading and storage efficiency:

- Due to the increasing share of inland freight transport, ports need to be prepared for the most efficient ways of handling commodities. To this end, the strategy proposes adapting to technological developments in road, rail, pipeline and ship fleet, taking into account alternative propulsion and modernization of storage and loading technology.

#### 1.Digital port:

- The strategy calls for the automation and digitalization of port processes, which will lead to the development of a National Port Information System, and will require the integration into a unified international system.

#### Sustainable port:

- As part of ports' adaptation to climate change, the strategy supports preparations for extreme water-level and weather conditions.



### Promoting ports and water freight:

- In order to increase the share of inland waterway transport, the strategy recommends developing a targeted market information and promotion campaign.

### 1. Following freight tendencies:

- In order to gain and maintain a better position in the market competition of transport, the strategy calls for continuous and targeted market research and monitoring of international developments relevant to ports in the logistics sector.

In order to achieve **the objective of generating further demand**, the strategy promotes additional demand for port services in two areas. To achieve this objective, the strategy calls for the future development of market services under the following components:

### 1. Market adaptation, industrial establishment

- Adaptation of port services to the market by expanding the potential commodity base (even with reduced tolls) and by exploring compatible freight transport solutions. In the context of market adaptation, the strategy also promotes cooperation with industry and port industrial establishment.

### 1. Service development

- The development of port services is supported by the strategy through two aspects, including the involvement and development of non-traditional port services and the development of ship repair and servicing activities.

In order to set the **objective of the financing system**, the strategy identifies four sub-areas, which, in addition to being interdependent, are also prerequisites for each other. The system to be established should be followed when assessing the order and importance of grants and investments.

### Port ranking scheme

- The strategy clarifies in advance the terms used in the ranking and thus defines the port types.

### Performance evaluation scheme

- The concepts clarified in advance by the strategy and the features of the performance assessment system justify potential developments

### Support strategy

- Through the clarification of concepts and the results of the performance assessment system, the strategy defines the criteria for a state aid scheme for port development.

### Common port interest representation

- With a view to developing operations at national level and cooperation, the strategy calls for the development of a common port interest representation.

In order to achieve **the developing human resources objective**, the strategy urges the management of port labor force shortages through the involvement of three sub-areas.

### Solving labor force shortages

- The port industry is facing a significant shortage of labor force, thus the strategy calls for an urgent solution to this problem.

### Increasing wages

- To make the port profession more attractive, the strategy supports the development of an increased wage system.

### Development of the training program

- With a view to developing human resources in ports, the strategy supports the development and extension of existing training programs to as many port jobs as possible.

In order to achieve **the objective of developing a sustainable regulatory environment**, the strategy calls for intervention in three sub-areas, namely:

### Clarification of authority powers

- By consolidating the tasks of the authorities, procedural times will be shortened and made more efficient

### Rationalization of the regulatory system

- In the review of the regulatory system, the strategy gives particular support to the examination of potential toll reductions and border-crossing capacity.

### Environmental sustainability of ports

- The strategy rethinks the regulation of waste management and damage prevention activities

## 4 INCENTIVES FOR CHANGE

Hungary aims to achieve, in line with the regulations set out in the White Paper document, titled "Roadmap to a Single European Transport Area" published by the European Commission (30% by 2030 and 50% by 2050 of road freight transport over 300 km in distance needs to be replaced by alternative transport modes, for example rail or waterways, due to efficient green freight corridors as well. The development of appropriate infrastructure will also be needed to achieve this objective<sup>1</sup>), that the share of inland waterway transport in total domestic freight transport to reach 10% by 2030, for which it is essential to encourage a shift in transport modes. Increasing the role of river freight transport can only be achieved in coordination with other modes of transport and integrated into the combined and intermodal transport system. Freight ports shall establish and maintain the foundations of this system as intermodal hubs, subject to compliance with environmental, in particular nature and forestry, rules at all times

The following sub-objectives and interventions serve to encourage the transport mode changes.

### 4.1 Improving port accessibility

In order to manage the additional transport capacity associated with the increase in port freight traffic, related transport accessibility roads with appropriate qualitative and quantitative characteristics need to be created.

#### 4.1.1 Ensuring last-kilometer connections of ports

Among the transport connections, the infrastructure of the immediate vicinity of the ports - a few kilometers long - is of paramount importance, and if not sufficiently developed, it may constitute a weak point compared to the main lines with otherwise adequate facilities.

##### 4.1.1.1 Ensuring road accessibility

Multimodal road transport accounts for a significant part of the traffic in domestic ports, therefore road connections that can bear in the long-term 11.5 tons axle load need to be ensured, as well as establishing the availability of the express road network within 30 minutes, which is beneficial both environmentally and logistically. In the case of ports that are woven into the urban fabric, road accessibility shall be designed in accordance with the quality of life, tourism and economic aspects of the settlements and sub-areas concerned.

##### 4.1.1.2 Ensuring railway accessibility

In order to ensure proper rail service to the ports, an interoperable rail link with an axle load of 225 kN is required (possibly electrified), connecting to the national main network. At strategically important points, in existing and planned ports in the TEN-T network, where all operators have

<sup>1</sup> <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0144:FIN:HU:PDF>

access to port loading and physical characteristics allow, a network of tracks capable of accommodating standard-sized trains should be established.

#### 4.1.1.3 Ensuring waterway accessibility

Waterway accessibility requires the ensuring of the navigability of the Danube river waterway for at least 300 days a year. The Government prepares the necessary interventions in the framework of separate strategies and plans.

In the immediate vicinity of the ports, and in the case of turning basins, it shall be ensured that the depth of the river is maintained above 25 dm, even in the case of shallow water, in the entrance channels and port basins. Due to sludge, these features must be maintained through continuous maintenance of the waterbed.

#### 4.1.1.4 Ensuring other network connections

In areas where there is significant liquid freight traffic near the port, such as Komárom, Csepel, Százhalombatta, Dunaföldvár, which could be transported economically by waterway, a pipeline connection must be established on the affected route so the multimodal transport of freight also includes waterway.

## 4.2 Increasing loading and storage efficiency

Increasing the quality and efficiency of loading and storage services is one of the key areas in which to encourage a change of transport mode. These are the characteristics that determine the competitiveness of intermodal transport, which also integrates water freight transport. Significant investments are needed to achieve the strategic goal in terms of both storage and loading capacity, which extend not only to infrastructure and equipment but also to process automation.

### 4.2.1 Adaptation to technological developments in road transport

Port terminals shall be able to serve the technological advances of the coming years and decades, which will affect the physical characteristics of transport vehicles, the proliferation of alternative propulsion methods and the development of self-driving capabilities. Ports need to develop a physical and digital environment that addresses these technological changes.

### 4.2.1 Adaptation to technological developments in railway transport

In response to freight challenges and the need to improve intermodal loading efficiency, new types of railway wagons are emerging that require specially designed terminals. The development of appropriate infrastructure at network-relevant points, such as National Public Ports (NPPs), TEN-T comprehensive and core network ports, and where demand requires, will be necessary.

Alternative-powered shunting locomotives and/or rail-road propulsion units (unimogs) are expected to appear in ports. By using these special types of railway operation, the environmental burden of shunting within the industrial area can be significantly reduced. Ports need to develop the additional equipment, service background and expertise needed to operate.

### 4.2.1 Adaptation to pipeline technological developments

With the emergence of new types of liquid goods, such as liquid biomass, liquid fertilizer and other types of liquidized goods, ports must be prepared to take these in all three modalities. In the course of development, the necessary conditions must be created for the port to be able to take drinking water as a potential export product. Goods entering or crossing the pipeline take advantage of each mode of transport, while the closed system also results in extremely low environmental burden.

### 4.2.1 Adaptation to ship fleet technological developments

The basic technical characteristics of ships, barges, and other industrial vessels have not changed much in recent decades, but alternative propulsion and digitization and self-driving technologies are bringing about significant changes in the industry. These changes primarily require technological preparation on the part of the ports.

### 4.2.2 Using alternative propulsion options

There is a need to spread the use of alternative fuels in ports in two areas. Machines, equipment (such as cranes, forklifts, loaders, conveyors) used in the movement of goods shall be subject to alternative propulsion methods. Along with providing the fuels they need, the charging capability of freight vehicles, whether electric, gas (LNG, CNG, hydrogen) or fuel cell vehicles, must be developed as a service.

### 4.2.3 Technological modernization

Beyond adapting to external technological trends, technological modernization of operational and service processes in ports is essential. In addition to modernization of loading and storage technology, port developments need to be addressed in a complex way, with additional functions in mind.

#### 4.2.3.1 Loading technological modernization

The purpose of the loading technological modernization is to reduce service times and loss rates, and to increase loading capacity. Thus, as a tool to achieve this, the modernization and automation of cranes, conveyors, hoppers and other handling equipment is needed. Loading-related services, such as weighing, should aim for a high degree of digitization.

In order to increase the efficiency of intermodal loading, it is necessary to expand technologies and capacities for loading semi-trailers and containers.

#### 4.2.3.2 Storage technological modernization

In the field of storage technologies, security of supply, capacity enhancement and diversification are priorities in development. For bulk, palletized, containerized, semi-trailer goods, the goal is to introduce automated storage solutions in ports that take into account the above considerations. In addition, there is a need for the modernization of quality control during storage, which measures and monitors commodity parameters during storage using IPAR 4.0 solutions.

#### 4.2.3.3 Other technological modernization

Due to the greater volume and value of goods in ports and for the efficient handling of vehicle traffic, access, traffic management and security systems need to be developed.

### 4.3 Digital port

The automation and digitization of domestic ports is a key area of the port development strategy. The purpose of the developments is to create a digital operating environment in ports through innovation while following national and international good practises, which increases process efficiency, reduces the administrative burden, and guarantees the safety of goods and personnel. The digitization of ports should be linked to other transport information systems.

#### 4.3.1 Automating and digitizing port processes

Ports can prepare for efficient management of the surplus of goods, due to the increase in the proportion of inland freight transport, with a high degree of automation of loading, storage and other processes. The IPAR 4.0 technology is highly applicable in port environments as well, contributing to process efficiency.

The next step in the growth in efficiency achieved through automation is the integration into complex enterprise management systems that help business operations and administration through digitalization.

#### 4.3.2 National Port Information System

The development and operation of an information system for the Danube ports in Hungary is the aim of the relevant ministry, supporting the work of the companies operating the ports. The Port Information System, also known as KIR, is able to streamline communication between the inland waterway vehicle and the port terminal, digitally manage water-related loading processes of ports and carrying out the mandatory reporting to the Ministry of Innovation and Technology via the Central Statistical Office in an automated manner through the input data.

#### 4.3.3 Unified international system

In order for the terminals to closely integrate into the international freight transport system, it is necessary to set up an international port information system on the Danube-Main-Rhine

waterway. The KIR must be established and operated in a way that can subsequently join the international system.

## 4.4 Sustainable port

### 4.4.1 Adapting to the effects of climate change

#### 4.4.1.1 Managing extreme water-level conditions in ports

In the case of low water levels, there is limited accessibility and loading is difficult, while in the case of high water levels, coastal areas can be submerged, which also endangers loading and storage. These factors should be taken into account in the design of port waterfront areas. The effects of water level fluctuations need to be addressed by the construction of vertical shores, while flood protection solutions developed, taking into account the loading needs, protect the port's loading and storage areas.

#### 4.4.1.2 Managing extreme weather conditions in ports

Preparing for extreme weather conditions in ports means protecting personnel, goods and infrastructure. Occupational safety and operational standards guarantee that ports can operate safely even in unpredictable weather conditions.

In addition to physical hazards, the economic risks involved also need to be taken into account, thus it is necessary to build storage capacities that provide sufficient capacity at terminals exposed to agricultural performance to deal with the loss of supplies.

## 4.5 Promoting ports and water freight

In order to increase the share of inland waterway transport, it is necessary to provide the market with information through targeted information and promotion campaigns and promotional activities, in which the efficiency of the mode of transport and the low environmental burden are key messages. The campaign shall be implemented nationwide; however, the Danube area, which can be interpreted as a flooding area for water freight transport, is a key target area.

## 4.6 Following freight tendencies

### 4.6.1 Continuous and targeted market research

Due to the favorable market environment, Hungary attracts many industrial investments. Ports play a key role in the supply of raw materials, as well as the delivery of finished products to newly established production units. Continuous and targeted market research activities are needed to monitor these market developments, which will be a business opportunity for port operators.



## 4.6.2 Monitoring the international developments in the logistics sector relevant to ports

In addition to following domestic market developments, international industry events need to be monitored to maintain the competitiveness of ports. The purpose of the activity is to provide relevant business information to the domestic port sector's players. Particular attention should be paid to international freight transport trends where domestic freight ports can be integrated into the international freight transport chain as intermodal hubs. The information collected shall be published in a manner that is accessible to all players.

## 5 GENERATING DEMAND FOR PORT SERVICES

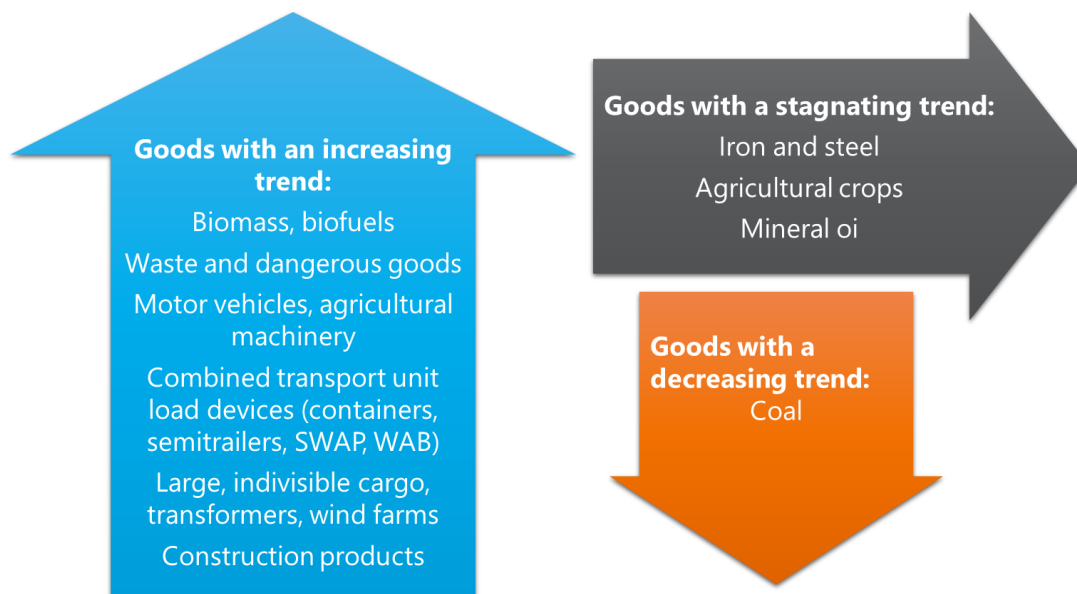
The next objective of the strategy is to generate additional demand for port services alongside existing freight demand. The generation of additional demand is made up of the components of market adaptation and development, but in both cases port services are the subject of these components. When defining sub-targets related to demand growth, the guideline priorities are provided by the vision formulated in the domestic port development strategy, in particular the preparation for serving 10 percent of domestic freight traffic, and a given port becoming a multimodal hub in its region.

### 5.1 Market adaptation of port services

Market monitoring, analysis and integration of port services into market mechanisms are key factors in Hungary's Port Development Strategy. In line with the abovementioned, the strategy calls for the integration of inland waterway freight transport into a system of the transport of potential freight traffic and the expansion of the volume of existing commodities in river transport.

#### 5.1.1 Expanding the potential commodity base and extending the existing commodity base

The situation analysis of the National Port Development Plan Strategy divides the transported goods into 3 groups. The groups include both the sets of goods already transported on water and goods that can potentially be transported on water. In the identification, it can be distinguished on the basis of transport volume:



In order to provide opportunities for expanding the potential commodity base and extending the existing commodity base, the strategy calls for a separate growth action plan for each of the three identified groups, depending on the transport trend of the particular commodity.

1. In view of the relatively low cost of inland waterway transport and the predictability of the commodity base, the strategy aims to reduce the specific freight rate in order to increase the transport of goods with decreasing tendencies on inland waterways.
2. With regard to goods with stagnant tendencies, the strategy is based on the distinction from other modes of transport, emphasizing the low level of environmental burden of waterborne transport compared to other transport modes, taking into account the proportion of energy required to move the mass of goods in the group.
3. During the establishment of an entry/development action plan related to the volume of commodities with growing tendencies, it is necessary to focus on the development of a so-called 'goods-friendly' transport, the relatively low transport costs and the sustainable transport system due to the low environmental burden.

#### 5.1.1.1 Solutions for the delivery of potential and compatible goods

Examination of the groups of goods identifies the types of goods which are currently not transported on water. To determine the transportability of the types of goods identified in this way, the strategy foresees the development of a suitability assessment system as a research and development activity that can be used to filter the types of goods not suitable for waterborne transport.

The suitability assessment system analyzes the types of goods that may be transported from three perspectives:

- Characteristics of the industry producing the commodity:
  - Current situation of the industry in the region (in view of the timeliness of entry)
  - The state and bargaining position of other modes of transport in the industry
  - Calculating fixed costs and comparing the costs of other modes of transport working with the industry
  - The degree of commitment of the identified competitors to the industry
- Costs of establishing a relationship with the industry:
  - Industry-related government policy
  - The capital requirement for entry
  - Expected reaction of the industry
  - The relationship between the cost of purchasing the required technology and the expected profit
- Features of the transportation technology related to the particular commodity:
  - Availability of the technology needed for transport
  - Manufacturer and concentration of the technology needed for transport
  - Existence of replacement technology

The suitability assessment system developed using these criteria will provide credible suggestions for entry into the transport system of the potential commodity base industry, which can be used by ports at their discretion.

## 5.1.2 Increasing the waterborne commodity base

### 5.1.2.1 Buffering capacity development

According to the vision of the Hungarian Port Development Strategy, by 2030, domestic ports will be ready to serve 10 percent of all domestic cargo traffic. However, according to the situation assessment of the National Port Development Plan Strategy, a 1.5-fold increase in current total cargo volume is expected, according to which domestic ports will have to prepare for 15% of current freight traffic, to handle nearly 45 million tons of inland freight volume.

In line with the above, the strategy calls for the establishment of a buffer capacity for serving the expected value, that is, a temporary surplus storage during the time between loading and unloading and the establishment of action plans to ensure it.

### 5.1.2.2 Industrial establishment in ports

#### 5.1.2.2.1 Port cooperation with industry

According to the vision of Hungary's Port Development Strategy, ports become essential multimodal hubs in their region. In order to achieve the mentioned strategic objective, the strategy supports the integration of ports into the industries' transport chain, which requires enhanced port-industry cooperation.

Owing to this cooperation, ports make their services known and interoperable to handle goods produced by the industry. The main goal of the cooperation is to establish a primary supplier partnership based on the aim of reducing transport costs due to the proximity of the industry to the water and thereby increasing the revenue of the ports.

#### 5.1.2.2.2 Industrial area development

In order to make this relationship stronger, it is necessary to move the industry to ports, bringing the goods closer to the water and saving the lead time of freight transport. As part of the port support of industrial establishment, ensuring the industrial use of existing, unused areas of the port that are potentially suitable for installing public utilities with predetermined freight conditions is an important step in entering the transport chain. In order to be able to receive the industry players, preparations need to be made to meet even extreme public utility needs.

#### 5.1.2.2.3 Investment promoting communication activities

The promotion of port services should be an integral part of government strategies and activities aimed at stimulating foreign working capital inflows, and in particular industrial and logistics investments. The activities and investment portfolios of government agencies and background institutions, in particular the Hungarian Investment Promotion Agency (HIPA), should be further

developed to include the promotion of port services and the contribution to port economic development plans.

In addition to contacting HIPA, the strategy also requires the preparation of business plans as a key tool for portfolio investment, not only demonstrating return on investment, but also demonstrating the social benefits and sustainability characteristics of inland waterway transport.

#### 5.1.2.2.4 Cooperation with municipalities in local economic development

Municipalities cooperate and establish partnerships with ports in their economic development measures, spatial and municipal planning.

During the cooperation, the ports are closely involved in the establishment of the municipalities' industrial development ideas, and they are also involved in their implementation and operation. When establishing development ideas, it is a key task of Municipalities to coordinate the activities of established industrial sites and parks with port activities, relying on the professionally supported and demonstrated potential links between the respective ports and the given industrial park.

During the cooperation, the local governments strive to develop agreements and guidelines that are mutually beneficial, such as ports providing jobs for the residents of the settlement, while Municipalities provide reduced local business tax, preferential land use or a service road to the port.

## 5.2 Development of port services

The domestic port development strategy calls for the development, expansion and diversification of port services. The clear goal of developing and expanding the services is to make sure that ports generate income from multiple sources and to improve the quality of services required by the partners entering the port.

Therefore, the modernization of the port services supported by the strategy can be divided into two components in terms of their development and expansion. With regards to the expansion of services, the strategy also distinguishes between the expansion of services used by ships and unconventional port services.

### 5.2.1 Unconventional port services

Depending on the location and spatial characteristics of the ports Hungary's port development strategy calls for the establishment of unconventional port services in the area of the given logistics hub. When establishing potential services, ports should focus on securing multiple sources of income. This diversification strengthens the economic resilience of ports in times of declining traffic caused by extreme water levels as well. Potentially deployable services proposed by the strategy:

- Significant value-added logistics services
  - goods testing laboratories
  - packaging services

- city logistics functions
- Human services
  - Catering for port workers
  - Food distribution
  - Ensuring accessibility by public transport
- Use of services available in the existing port by other target groups (e.g. repair shop)
- Refueling, alternative refueling as per chapter 4.2.5

## 5.2.2 Developing ship repair and servicing activities in ports

The strategy calls for the development and expansion of services for ships. Accordingly, ports should strive to provide full ship services that include:

- Repair and modernization of ships,
- Water and power supply,
- Refueling,
- Oily bilge water, used oil and sewage disposal, and cargo washing services.

## 6 PORT RANKING AND DEVELOPMENT-SUPPORT SCHEME

For the development of the domestic port sector, domestic and European Union funds are available and will continue to be available to meet the strategic goal (that the share of inland waterway transport to reach 10% by 2030).

For the next approximately 10 years, the ports should be prepared to handle, on average, three times their current traffic. Preparation means improving the infrastructure of individual ports, both in and around ports, and at the same time increasing efficiency through technological improvements.

In order to make efficient use of resources, when establishing subsidies and other regulatory measures contributing to the development of the sector, the strategy takes into account the domestic transport and freight transport needs and encourages or creates the establishment and development of transport mode change points in the strategically important sections of the Danube for transport.

The support strategy should also take into account the current performance, efficiency, potential performance, storage capacities of ports and their ability to adapt to new market trends (e.g. appearance of new commodities). The most important principle in allocating subsidies should be the extent to which a given development increases the total volume of waterborne freight transport and how effective it is in channeling the goods to the waterway.

The support strategy should aim at promoting port development with the least possible disruption to market processes in the sector, while also avoiding any distortions of competition even more stringent than the current competition laws.

### 6.1 Port ranking scheme

#### 6.1.1 Port concepts used in ranking

In order to develop a ranking and rating system, it is necessary to clarify the basic concepts of ports for which the current legal environment does not provide adequate guidance and to clarify the domestic concept of a comprehensive and core network port introduced by TEN-T Regulation 2013 (Regulation (EU) No 1315/2013) and their role in the transport system. In addition to the adequately defined concepts in Act XLII of 2000 on water transport, such as port, port activity, combined traffic or berth, there are several concepts that need to be defined in the legislation for clear usage.

It is necessary to translate the basic concepts set out in the material strategy into the related legislation.

- TEN-T network: In Regulation (EC) No 1315/2013 (hereinafter referred to as the TEN-T Regulation), the European Commission laid down the location and timetable for the development of transport networks at European level. Within the TEN-T network, we distinguish between inland waterways and ports of different importance

- TEN-T inland waterway: The entire Hungarian section of the Danube river is part of the TEN-T core network, thus its development is a priority of European community interest
- TEN-T core network port: a port of European importance as defined in the TEN-T Regulation
- TEN-T comprehensive network port: port of national/regional importance as defined in the TEN-T Regulation
- national public port: a public port of national importance (open to all), pursuant to Section 80 (2) of Act XLII of 2000 on water transport, the government designates the NPPs in its regulation. The State (central and local governments) provides tri-modal transshipment on equal terms and open access to all players in the freight logistics market at major intermodal hubs. This can be directly provided as an owner/manager or indirectly through long-term strategic contracts with port operators.
- public port: a port of less strategic importance than the national, freely accessible to market players
- port of operation: a port established or operated for a specific industrial purpose, in which not all market participants have access to loading facilities;
- port owner: owner of the port area
- port manager: the organization entrusted by the owner with the property management of the area (typically in the case of a state owner)
- port operator: an organization involved in the operation of a port, which usually obtains the right to operate from the owner on a long-term basis
- port terminal operator: an organization that organizes and carries out the loading activities of the port on the shore
- port operating model: the contractual hierarchy and contractual system of the port, owner, manager, operator and terminal operator. There are many different operating models, and some or all of the port functions can overlap.
- basic port infrastructure: the set of infrastructure elements required to operate a port. We distinguish by type:
  - water-side facilities: hydroelectric components and equipment required for the operation of the port. Typically: dredged berths, port basin, entrance canal, built berth,...
  - shore-side facilities: infrastructure elements essential for the port's water-side loading and unloading, typically: vertical river-wall, sloping river-wall, mound sloping river-wall, berth,...
  - internal road, rail, pipeline and public utilities network: infrastructure network within the port fence not exclusively related to port activities
  - access infrastructure (last km connection): access by road or rail to the port that connects it to the national road or rail network
  - port warehousing and storage infrastructure: part of the port superstructure, typically above the ground construction
- multimodal port: the port typically offers a mode change between freight modes. Based on their number, a distinction is made between bi and tri-modal ports, depending on whether inland waterway transport is augmented by road or road and rail modes as well.



## 6.1.2 Strategic port categories

Ports have been ranked based on their spatial location, level of construction, equipment and potential capacity according to their strategic importance in transport and freight transport, as shown in section 9, into one of the following categories:

- national public port
- public port of regional importance
- port of operation of regional importance
- public port of local importance
- port of operation of local importance

Strategic port categories help identify what subsidies the ports are eligible for from the various national and EU development program resources:

- EU centrally distributed resources (e.g. CEF)
- EU resources from domestic operational programs (currently: IKOP, GINOP)
- Domestic government resources (strategic agreement or individual decision)
- Regional resources based on local, municipal opportunities

## 6.1.3 Performance evaluation system

In order to achieve these goals, it is essential to develop a port ranking system, based on which each port is periodically evaluated regarding their performance. The evaluation system shall be based on the POPEI (Port Performance Indicators) system developed by HFIP (Hungarian Federation of Danube Ports) in the framework of international cooperation.

Further development of the evaluation system is required, followed by annual port performance reviews. This task may be either at the authority or at the HFIP.

## 6.1.4 Ports' access to subsidies

Developing total freight transport volumes requires that the above subsidies support economic policy objectives along long-term economic development paths, thus ports are developed with a clear view to which market players in the sector can adapt their long- and medium-term investment strategies.

The above strategic port categories and the ranking achieved in the performance review system together determine the type and amount of transport development funding or other incentives available to a given port.

## 6.2 Development-support scheme of ports

### 6.2.1 Impact of regional developments on ports

The potential options of ports need to be constantly monitored by assessing the impact of local, regional industrial development on water freight transport and sharing it with neighboring port players.

Another important objective would be, in the case of adequate investments, from the outset that the investments after their implementation increase the volume of waterborne freight transport.

### 6.2.2 Indicators related to developments

In the case of port developments, it is necessary to define indicators to measure the impact of the developments on freight volumes.

### 6.2.3 Cost-Benefit Analysis methodology

The most frequently used methodology for the assessment of a project's viability (return) in the application process for national and European Union grants is the Cost-Benefit Analysis (CBA). The projects examined with the methodology will be comparable to each other as well, if there is an appropriate methodological guideline available, which can provide a good estimate of the social benefits. National guidelines apply to waterborne and port projects, but they are not detailed enough. Standardization requires the development of a separate domestic guideline for port developments.

### 6.2.4 Proper use of State Aids

When awarding grants, it is important to take into account the latest, prohibited State Aid legislation. In order to properly apply State Aid considerations, a comprehensive guideline is needed, established by working with national and EU competition authorities.

### 6.2.5 Vis major financing system

In the second half of 2018, the extremely low rainfall had a major impact on the Danube River and its waterborne traffic as well. Due to the consistently extremely low water levels in the second half of 2018, it was typically not possible to navigate at 25 dm. This problem, aggravated by labor force shortages and emigration, pushed operators in the port and inland waterway freight sector to the limits of their economic capacity and depleted their reserves.

Developing a vis major compensation system in cooperation with market players and the Government is needed to properly address similar situations.

## 6.3 Common port interest representation

### 6.3.1 Unified action of ports

Danube freight ports have been represented by the Hungarian Federation of Danube Ports (HFIP) since its establishment in 2012. The aim of the Federation is the independent representation of the Hungarian ports, the collection and provision of professional information for the members, and the professional representation of the members towards third parties and authorities. Other goals include organizing professional days, conferences, coordinated training of workers of member organizations and developing general terms of service.

HFIP provides the appropriate representation of Hungarian freight ports. HFIP has also been actively involved in the development of this strategy, and has provided expertise in the strategy-making process.

HFIP is a partner of the Government in representing the interests of the Danube freight ports.

### 6.3.2 Joining the international interest representation

Hungary's goal is to join international interest reconciliation forums. Several international projects are currently underway, with the final result being the creation of an advocacy or umbrella organization. Our country aims to appear in these (such as the Danube Ports Network, the EGTC under establishment within the DBS Gateway project).

In addition, the HFIP is becoming a member of the European Federation of Inland Ports (EFIP). With the help of the membership, domestic ports can also indirectly express their views on European strategic and support policy proposals.

### 6.3.3 Other possible functions of interest representation

Another possible function of interest representation is to make proposals for solving business disputes. A good example of this is the Port General Terms of Service (PGTS) document, developed by the HFIP and recommended for use by ports.

An important function of interest representation is the transition of international good practices into domestic use. To this end, HFIP participates in several international projects where these good practices can be learnt.

## 7 DEVELOPMENT OF LABOR FORCE IN CONNECTION WITH PORTS

One of the key elements to the long-term successful development of domestic ports is the development of the port sector's labor force and the provision of qualified reinforcement.

### 7.1 Management of labor force shortage

In order to achieve this goal, regular surveys of the sector's shortage professions are needed. In order to identify shortage professions, several aspects need to be taken into account: the average age of the employees in the sector, how high is the age of the employees in given positions, the professions and jobs where aging is common and where is recruitment a problem. As there is currently no data collection on port workers, it is advisable to extend the Central Statistical Office's data collection to those working in the sector, thereby assisting the industry in assessing labor force shortages. The regional chambers of commerce can play a significant role in this in the future.

#### 7.1.1 Managing labor force shortages

##### 7.1.1.1 Promoting the port profession

In order to attract and retain the labor force, the sector's players should carry out information and promotion activities. Ports as a workplace should be made known to potential workers, including students and young people. There is a need for promotion and awareness-raising. To this end, it is worth starting the promotion of the profession at a young age. Organizing visiting centers and information days for kindergarten, primary and secondary school children is an excellent opportunity to get them acquainted with the port profession.

##### 7.1.2 Improving wages

Addressing labor force shortages will require exploring the ways in which workers' wages can be made competitive in order to make working in the port sector a real alternative compared to other sectors. The wage level of the sector is required to follow the wage level of the economy.

The port development strategy does not intend to interfere with labor market processes through sector-specific public wage subsidies; however, the port sector is also a beneficiary of all relevant government active labor market instruments. In addition, an investment support system shall be developed in port development that, by increasing technological efficiency, reduces the need for labor force in individual port operations, thus providing an economic opportunity for increasing wages.

### 7.1.3 Training program development

Existing training programs need to be revised, renewed and simplified, since at present many activities are characterized by over-qualification requirements and a high degree of regulation. The goal is to develop a training program that provides a complex, unified level of knowledge required to handle port processes, so that professionals do not have to acquire qualifications separately that are typically specific to a particular area.

More emphasis should be placed on adult education in the port sector. In adult education, it is important to build a more direct relationship between educational institutions and employers, even by implementing dual forms of training.

It is important that vocational secondary schools provide the necessary training required in the port sector. Another priority in the development of training is to bring the national training program in line with the content of European training programs.

## 7.2 Development of official human resources

Training the specialist staff of the relevant authorities in the port sector is essential. There is a need for further training of the authority in language and professional matters. To this end, a training system for official work needs to be established and maintained.

The strategy focuses primarily on training professionals in the following areas of authority:

- Transport Authority
- Water Police
- Disaster Management
- Construction Authorities
- Chief Medical Officer Service
- Environmental Protection

## 8 REVIEW OF REGULATIONS

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The establishment of a sustainable and efficient regulatory environment is the key to the long-term competitiveness of the Hungarian Danube ports.

- The national implementation of EU Directive 2010/65/EU, which provides for the introduction of a 'one-stop-shop' system for international waterways in all TEN-T ports in the EU.
- The national implementation of ES-TRIN-2019. The system to be introduced by 2021 should be prepared by examining and prioritizing all domestic standards and guidelines that have regulated the technical parameters of floating establishments, their design process and operating conditions in accordance with the new international standard. (This will, at present, destroy or partially modernize or amend several domestic regulations and standards.)

### 8.1 Clarification of authority powers

#### 8.1.1 Unification of authority tasks

At present, several different authorities are responsible for the regulatory procedures relating to the establishment, development and operation of ports. In addition to the acting authorities, specialized authorities may be involved in the processes, which will extend their duration. Therefore, the strategy calls for a reduction in procedural time, which should be addressed by reviewing procedural processes and unifying regulatory responsibilities. The unification and digitalization of procedures should reduce the administrative burden on the authority and on the client.

With the termination of the National Transport Authority as a shipping authority, through legal succession, the Ministry of Innovation and Technology and the Government Office of Budapest act in the public administration of water transport. Taking into account the reduction of the administrative burden, the aim is to reorganize the authority into one unit.

In addition to reducing the administrative burden, it is important to address existing over- or under-regulated issues in the port sector. Legislation will be reviewed and amended along the lines of the objectives of the port development strategy, based on the needs and recommendations of the port sector's players.

## 8.1.2 Rationalizing the regulatory system

### 8.1.2.1 Toll discounts

To encourage the transport of goods on water, a reduction or refund of tolls should be granted for trucks carrying goods which also appear in inland waterway transport by intermodal transport. The measure contributes to the achievement of the national economic objective, where the share of domestic water freight transport is significantly higher than its present level.

### 8.1.2.2 Border permeability

Even with the increasing number of commodity-traffic and, therefore, ships, it is necessary to ensure the functionality and proper permeability of the Mohács border checkpoint, without increasing transit times. The necessary infrastructure and human resource requirements will have to be determined according to the actual turnover, keeping pace with the growth. Asset management and planned and predictable financing of the Mohács border port need to be solved.

### 8.1.2.3 Occupational health and safety

Given that port activity is considered to be a hazardous work environment, it is of the utmost importance that safety, accident and damage prevention aspects are taken into account in the development and operation of ports.

One form of damage and accident prevention is the development of external port security (fence, street lighting, camera system, access control system).

## 8.2 Environmental sustainability

Port investments must take into account environmental and nature conservation considerations. The construction of ports, loading and storage activities can all have an impact on the environment. Given the high level of groundwater varying with the water level changes in the port and the proximity of the water body, particular attention should be paid to prevent pollutants getting into the river. Port work procedures shall also be developed accordingly.

Overall it can be stated that water freight transport is the most environmentally friendly way of transporting goods in the long term, in terms of emission values.

### 8.2.1 Waste management regulation - efficient green port system

In addition to its inland waterway freight transport basic infrastructure characteristics, the Danube has extremely important ecological functions as well. In order to preserve and improve the quality of the living water in the long term, the burden on the environment must be reduced. To this end, the emissions of the vessels must be reduced to a minimum through the operation of a well-

functioning green port system. At these special terminals, navigators can dispose of liquid and solid pollutants from the ship in an environmentally friendly manner. In order for transporters to make use of the infrastructure that exists, there is a need for a more transparent and attractive uniform toll structure, more effective regulation, expansion of authority rights and dissuasive sanctions.

The strategy calls for the introduction of environmentally conscious quality standards (e.g. ISO 14001, ISO 50001) when establishing a new port, and for these standards to be introduced in existing ports by 2030.



## 9 REGIONAL DEVELOPMENT TRENDS

Waterborne freight transport is always part of a multimodal transport chain, and therefore, the competitiveness of the Hungarian section of the Danube is determined by the density and availability of modal change locations (bi- and tri-modal ports) by market players. The development of the ports, therefore, should aim at ensuring the availability of bimodal mode changes every 50 km and tri-modal mode changes every 100 km in the Hungarian section of the Danube.



(source: Viadonau)

### 9.1 Integration of the National Public Ports into the transport network

The location of the open access tri-modal ports must fit into the transport network, thus the operation of a public tri-modal port of national importance is required in the areas of Győr, Budapest, Dunaújváros and Baja-Mohács.

In accordance with the above-mentioned transport mode change requirements, three of the above four areas have already been granted National Public Port status: Győr-Gönyű, Budapest-Csepel and Baja. In the case of Dunaújváros, there is a need to ensure a long-term freely available mode change for the freight-logistics sector.

The above areas should be interpreted broadly, e.g. the founded port developments in the Budapest area are eligible (Budapest-Budafoke), or Dunavecse and Szalkszentmárton can be considered part of the region of Dunaújváros.

## 9.2 Public ports of regional importance

In addition to the NPPs, there are other existing mode change points of particular regional importance in the network where the construction or operation of a tri-modal port is recommended:

- The area of Komárom (Komárom and Szőny)
- The area of Adony
- The area of Paks (Paks and Gerjen)

These regions are characterized by the fact that they already deal with a large volume of commodities (over 100 thousand tons/year), and thus play an important role in the transport-freight network. Their further development is expected to effectively increase the volume of goods transported by water.

## 9.3 Ports of local importance or specializing in one commodity

The third level is the ports of local importance. They usually specialize in locally grown (e.g. grain) or mined (e.g. gravel, stone, sand) commodities. In other cases, they are built on a single commodity (e.g. liquid commodity transfer, RO-RO). The infrastructure of these ports is less advanced.

Currently operating port areas with a cargo volume above 10 thousand tons/year:

- The area of Almásfüzitő-Dunaalmás
- The area of Lábatlan-Nyergesújfalú
- The area of Százhalombatta
- The area of Dunaföldvár-Solt-Harta
- The region of Foktő-Fadd-Dombori-Fajsz-Bogyiszló

Areas not currently in operation or without significant cargo loading but with a potential cargo flow (in some cases with port authorization):

- Area of Vámosszabadi
- The area of Pilismarót
- The area of Esztergom
- The area of Vác

No additional public ports are required in addition to the existing and currently licensed public ports in terms of transport network. If economic development objectives so dictate, ports of operation may be established along the Danube, at other suitable Danube locations in addition to the above areas, with economic development support where appropriate.