



**REPUBLIC OF CROATIA
MINISTRY OF THE SEA, TRANSPORT
AND INFRASTRUCTURE**

**DEVELOPMENT STRATEGY FOR INLAND WATERWAY
TRANSPORT IN THE REPUBLIC OF CROATIA
(2008-2018)**

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DEVELOPMENT STRATEGY FOR INLAND WATERWAY TRANSPORT

1 Introduction

The Development Strategy for Inland Waterway Transport in the Republic of Croatia is being created in the time period characterized by the process of the political and economic integration of South-Eastern European countries into the European Union. This process creates prerequisites for the increase of the commercial exchange on the Single European Market. This also indicates a potential increase in traffic demand and the shifting of cargo flows towards South-East Europe.

The European transport policy is based on a few essential principles all member states should comply with. The principles ought to represent the external determinants of strategic planning of individual transport sectors, inland waterway transport being one of them. These principles are:

- Establishment of balance in developing different means of transport
- Equal utilization of all transport resources
- Freedom of the market
- Harmonization of regulations and standards
- Coordinated and sustainable development

The principles of transport policy in the Member States within 10 years were set out in the «White Paper» of the European Commission. Inland waterway transport development has to be coordinated with the work of the Danube Commission, tasked with drafting the joint regulation system for the Danube and harmonising inland navigation in the Member States, as well as with the most recent document of the International Commission for the Protection of the Danube River – ICPDR, related to the sustainable development of inland navigation. The Integrated European Action Programme for Inland Waterway Transport – NAIADES is very important for the future of inland waterway transport on the European continent. It defines the framework of activities of the European Union and the Member States through different instruments of enforcement in five segments: market, fleet, jobs and skills, image and infrastructure.

2. Starting position for the Strategy, problem identification

In defining the Development Strategy for Inland Waterway Transport, Croatia needs to follow the European transport policy, but also to take into account its own specific qualities for the adjustment process to be more successful and favourable to Croatian economic operators. It incorporates the European Action Programme in planning the development of the six following fields:

1. Safety of navigation and environmental protection
2. Market
3. Infrastructure
4. Shipping, employment and education
5. Promotion
6. Administrative capacity

The document defining the strategic development of transport in Croatia is The Transport Development Strategy of The Republic of Croatia from 1999. Although it came into existence before the beginning of the integration process, the Strategy names the disintegrated state of the inland waterways network as the main problem regarding the functionality of the inland waterway transport system. The integration of the network into the combined river-sea corridor the Danube region – the Adriatic was set as a long term objective.

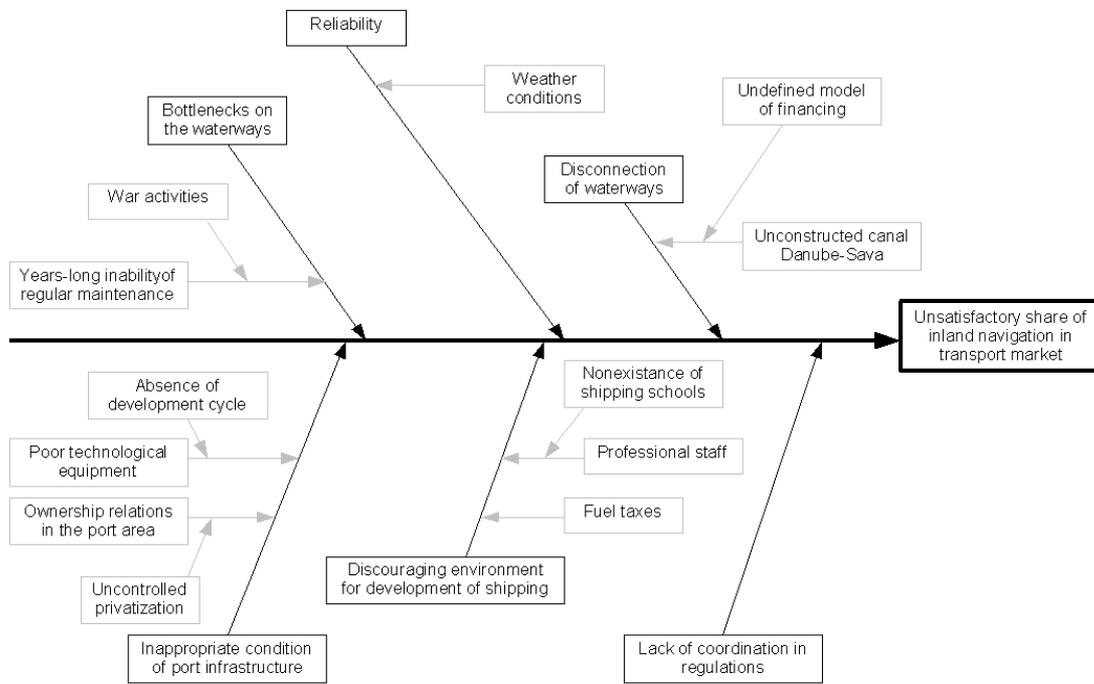
In addition to this strategy the following documents should also be taken into account:

- National Programme for the Accession of the Republic of Croatia into the European Union – 2008
- Plan for the alignment of the Croatian legislation with the *acquis* for 2008 – Annex 1 of the National Programme for the Accession of the Republic of Croatia into the European Union – 2008
- Water Management Strategy (being drafted at the moment)
- Spatial Planning Strategy of the Republic of Croatia, 1997
- Strategic development framework for Croatia 2007-2013
- Waste Management Strategy of the Republic of Croatia, 2005

The starting position for defining the Strategy is the fact that the Croatian waterway network is an integral part of the European waterway network – precisely the Pan-European Corridor VII – the Danube.

Problem tree – cause-effect analysis of the factors restricting the development of inland waterway transport is shown by the following scheme:

Figure 1 Cause-effect relation of problems identified in inland navigation



3 Safety of navigation and environmental protection

The establishment, maintenance and improvement of conditions of the safe and reliable inland navigation is a continuous mission of the government. This aspect should be analyzed separately regarding the type of cargo and the expected growth in demand of dangerous goods transport. Although the number of accidents in Croatia has not been large during the last five years, the expected growth in traffic, and the consequent increased risk of accidents and the impact of potential incidents on the water require the existing safety level to be brought up on a higher level. In order to achieve this in Croatia, besides the implementation of the River Information Services and the availability of timely and accurate information regarding the movement of vessels, it is important to establish clear procedures regarding the actions which should be taken in cases of incidents, as well as to upgrade the existing systems of marking and monitoring of the inland waterways navigability.

A new dimension was added to the safety of navigation at the level of the European network of waterways by introducing the River Information Services (RIS), especially by the vessel tracing and tracking system - VTS. Croatia has placed the project of the River Information Services development at the top of its priorities in inland waterway transport. The core of the system is already on trial use on the Croatian part of the Danube and the Drava, whereby the first phase of the CRORIS project has been finished. A high level of harmonisation with the technical requirements set out in the Directive 2005/44/EC of the European Parliament and of the Council

of 7 September 2005 on Harmonized River Information Services (RIS) on Inland Waterways in the Community has been achieved. Nonetheless, it is necessary to define more clearly and completely the legal framework for the implementation of RIS, the powers of competent authorities, and to strengthen the administrative capacity of the system users.

The next step is to establish the national head office for the RIS which will be the national coordinator and international centre for the exchange of information generated by the system in the way prescribed by the mentioned Directive. Moreover, it is necessary to define the organisational and hierarchical structure of the RIS in Croatia.

Croatia is planning to consider the possibility of expanding the implementation of the RIS on other waterways in cooperation with the neighbouring countries. This is mainly motivated by the fact that the RIS can directly contribute to decreasing the accident risks resulting from reduced fairway dimensions and the existing navigation restrictions.

In accordance with the ADN, the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways, the duty of port authorities to ensure separate warehousing, processing and disposal of hazardless and dangerous waste in ports, as well as reception of waste from ships, have been included in the preventive measures for the protection from the pollution from ships. Every ship is required to keep an Oil Book, where all the notes regarding the waste disposal in admission stations authorized by the competent body should be entered. Any release of used oils or lubricants and mud or faecal waters from ships into the water is strictly prohibited.

To implement the previously mentioned provisions regarding pollution prevention and ensure the reception of waste water from all vessels navigating along the internal waterways, it is required to construct specialized facilities for the reception and treatment of waste waters, primarily in international ports, but also in other ports where necessary. It is necessary to increase the efficiency of the inspection, especially navigation safety inspectors, by strengthening the administrative sector.

In the valorisation of inland waterway transport, Croatia seeks to follow the integral approach concept regarding the impact of transport on the environment. According to the «European Water Framework Directive», the waterways are becoming a part of the integral plan for the water management, so that their biological diversity and ecological value can be preserved. The Framework Agreement on the Sava River Basin, which was initiated by Croatia and given operational status by the founding of the International Sava River Basin Commission, regulates the issues regarding the management of water resources and exploitation of waterway for navigation and water protection on the basis of these principles.

Objectives which have to be realized:

- Full monitoring of the navigation safety,
- To ensure reliable, accurate and complete information regarding waterways and hazards and limitations for navigation,
- To minimize possible harmful consequences of incidents.

Implementation measures:

- Full implementation of the River Information Services – RIS,
- To establish the national control centre for RIS,
- To modernize the signalling system, focusing on reliable and simplified maintenance,

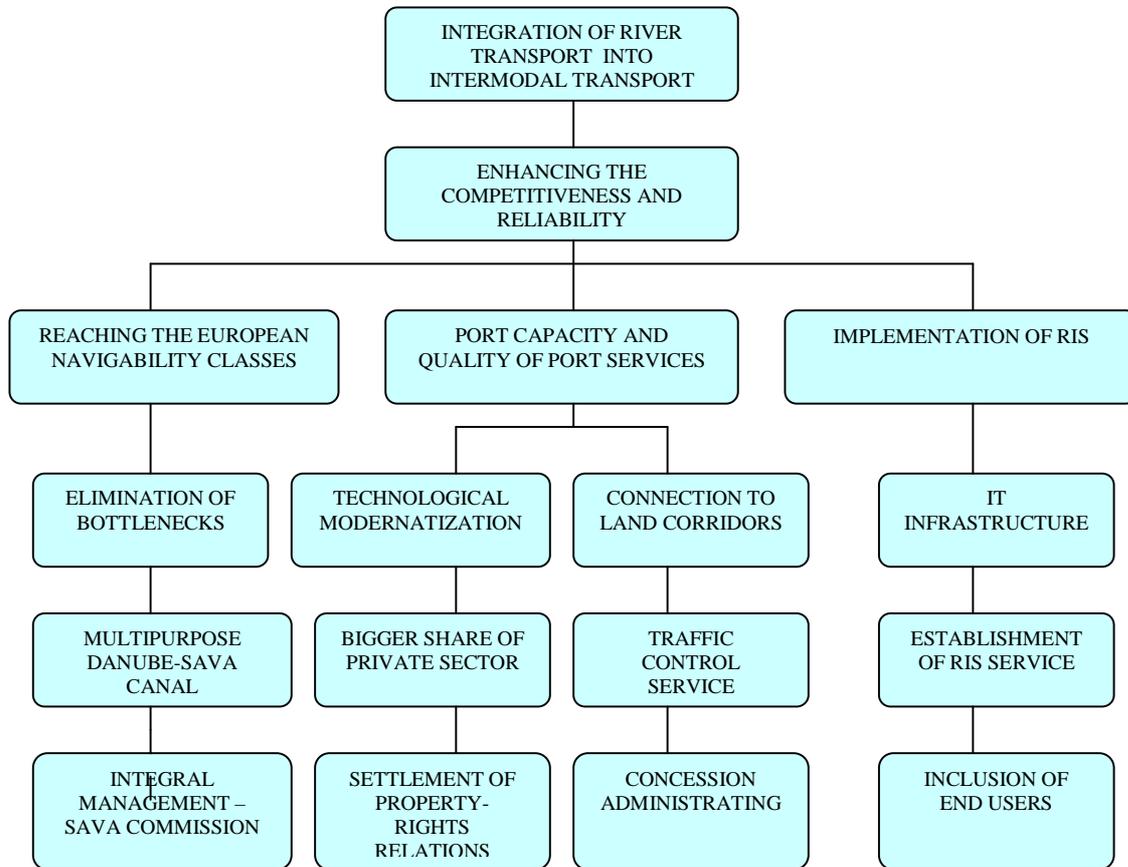
- To draft the general and regional plans for search and rescue, as well as emergency plans in cases of water pollution in order to enable joint coordination and mobilization of available national resources,
- To equip the international ports with the facilities for collection and treatment of faecal and mud waters, and also other ports where needed, and to establish the system for the control of water pollution risks in ports,
- To strengthen the administrative capacity of the bodies competent for the safety of navigation.

4 Market

Internal waterways are reliable to the degree to which they meet the minimal navigation requirements necessary for the cost-effectiveness of the navigation. The increase in the share of inland waterway transport in the transport services market can be achieved if this sector is integrated into the intermodal transport network. A precondition for this is raising the level of reliability of waterways and constructing the biggest infrastructure project in the inland waterway transport – the multipurpose Danube-Sava Canal.

The preconditions for the inland waterway transport market are being created by the initiation of development cycles in Croatian river ports, the technological updating of the port buildings and objects and the connection of ports to the main road-rail corridors. An important factor in this process is the system of the River Information Services, representing the core of IT interconnection and electronic data exchange.

Figure 2 Scheme of objectives and activities for intermodality of river transport



Objectives:

- To integrate inland waterway transport into the intermodal transport network

Measures:

- Upgrading waterways to international navigability classes
- Initiating development cycles in river ports
- Implementation of the River Information Services

5 Infrastructure

Inland waterway transport infrastructure consists of waterways with associated buildings, objects and equipment for safe navigation, ports and quays. Its management and development are specified by multiannual development plans.

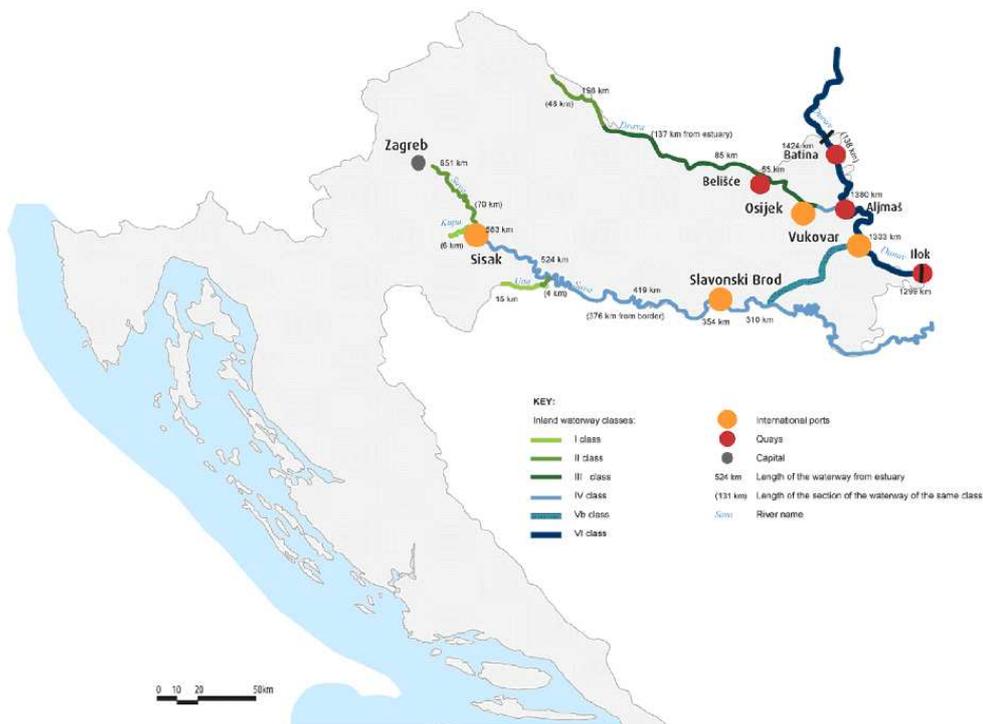
5.1 Waterways

The total length of the existing **waterways** in the Republic of Croatia amounts to 804.1 km, 539.2 km of which are international waterways, 264.9 national and transnational. A total of 286.9 km of the international waterways meets the requirements of the international navigation classification, i.e. requirements for class IV. The longest section of the Croatian waterways represents the Sava River, the most part of which does not meet the requirements for the international class of waterway. The inland waterways also include lakes "Visovac" and "Kozjak" located within national parks "Krka" and "Plitvice lakes" where the navigation for tourist purposes takes place. The total network density amounts to 14 km/1000km², which is not insignificant in comparison with other European countries.

The development concept for the infrastructure of inland waterways is targeted at the increase of **safety and efficiency of inland navigation**. Waterway technical maintenance has to be in the service of users, and that means ensuring the smooth and safe navigation for the ships with maximum draught in accordance with the class of the waterway. In practice, this means **the minimum depth of 2.5 m for 300 days per year** for the international waterway class.

We expect for the future situation to be characterized by upgrading the navigability class of waterway of the Sava River to Sisak up to class IV and by the start of the multipurpose Danube-Sava Canal construction.

Figure 4: Croatian inland waterways – expected (future) situation



The establishment of the international standards for the regulation of waterways is especially important for the integration of river transport into intermodal logistic chains and enhancing the level of reliability and accessibility of inland waterways. Croatian inland waterways are specific in that they are mostly borderline rivers. Because of this, the projects of technical maintenance should be coordinated with the neighbouring countries. Croatia considers these joint projects to be a priority, considering that they help to establish better transport connections and to create preconditions for the joint economic prosperity.

5.2 Ports

The Croatian **port system** on inland waters includes four international ports (Sisak, Slavonski Brod, Osijek and Vukovar) and several existing and future quays (Belišće, Aljmaš, Batina, Ilok). The present situation is characterized by an unbalanced market demand for the transport of cargo on the Sava and Danube rivers, generally as a consequence of different navigation conditions, technical and technological out-of-date-ness and undercapacity.

Croatian river ports need the qualitative and technological modernization in order to satisfy the existing and expected transport demand. Along with the modernization of the basic port infrastructure, systems of safety and surveillance in the port area should also be improved. The ports need to connect with the main road and rail corridors in order to achieve better integration with the economic hinterland and to create preconditions for the development of intermodal transport.

Inland waterways and ports represent an important transport resource of the Eastern Croatian areas Slavonia and Posavina, and this fact can be used for their faster economic development. This could be done most effectively by placing entrepreneurial zones as close as possible to the ports or within the port area.

Objectives to be accomplished:

- To increase the reliability and efficiency of the internal navigation,
- To integrate the waterways network of the Republic of Croatia,
- Technological modernisation of ports,
- Integration of ports into logistics and distribution chains.

Implementation measures:

- To upgrade waterways up to the international waterway classes,
- To remove bottlenecks on port access points,
- To construct the Danube-Sava Canal,
- To settle property ownership in the port area combining land redemption and replacement and long-term rent contracts,
- To coordinate the needs for financial investments in port infrastructure and financial abilities of the state, and in accordance with this to invest in priority projects and projects showing better economic results in cost-benefit analysis,
- To connect ports with entrepreneurial zones,
- To connect ports with the main road corridors,
- To integrate ports into the River Information Services system,
- To apply environmental protection standards to the infrastructure maintenance,
- To draft the programme of support to the counties for the inland waterway transport.

6 Shipping, employment and education

The Commercial fleet in Croatia consists of 57 ships with total capacity of just over 44,000 tons participating in international cargo transport, with average age of 40 years. This capacity is not sufficient to satisfy the current transport demand to and from Croatian river ports. This results in domestic operators participating in cargo transport with just 20 percent, while foreign operators account for the remaining part.

In order for shipping companies to ensure a competitive position in the Single European Market, more attention has to be devoted to the fleet modernization, implementation of innovations in transport technology and compliance with the new technical standards. Small enterprise in shipping, that is, the establishment of an increased number of small shipping companies, is encouraged by the harmonisation of the regulations for the issuance of the licence for performing commercial transport operations.

In order to help the existing operators, but also to extend the interest in shipping, it is important to establish support instruments which will relieve the integration of shipping companies into the European transport market.

The support for shipping has to be achieved by means of joint innovation projects in shipping and shipbuilding, research and development and environmental protection, with the joint participation of private investors and the government in the form of special funds for this purpose. The results of these projects have to be transparent and in accordance with the European Action Programme.

The stimulation of shipping also implies different measures of fiscal policy towards the sector, especially in the area of forming fuel prices. Paying the full price of fuel, which also includes a

special tax for the construction of road infrastructure, puts shipping companies in an unequal position compared to the European operators and is contrary to the «user of infrastructure pays» and the «polluter pays» principles which are widely accepted in the EU countries.

The decrease in the interest for shipping professions represents a very serious problem and a limitation for the further sector development. This problem mostly effects shipping companies, but is wider than that and affects other participants in inland waterway transport (ports, port authorities, harbour master's offices, shipbuilders, etc.). Adequate professional profile of the personnel is also necessary to strengthen administrative capacity in inland navigation institutions.

Considering that there are no specialized schools for acquiring basic knowledge and skills in inland navigation, and it is not likely that there would be a sufficient number of students to justify the foundation of this type of specialized school, another solution must be reached. A possible solution is to initiate special programmes for occupations in inland navigation within the framework of some of the maritime schools at the Adriatic. Given the similarity of maritime and shipping programmes of the nautical and marine-engineering departments, such an option has a very realistic basis. An additional argument for inclusion of the shipping programme within maritime school programmes is that the past experience has shown that a considerable number of students from Continental Croatia, from the areas which are traditionally connected to inland waterway transport, already enrolls each year to maritime schools at the Adriatic.

The education of quality professionals represents a long-term process in which all the stakeholders in inland waterway transport have to participate. Education programme also implies the scholarships for students and the providing of practical training on inland ships, which can be realized through institutional development programme for inland waterway transport.

Objectives to be realised:

- To establish a stimulating and competitive environment for the development of shipping companies,
- To modernize the fleet and transport technology.

Measures:

- Programme for the encouragement of inland waterway transport development,
- Amending the Ordinance on Special Requirements for Performing Commercial Transport Operations,
- Fair allocation of infrastructure costs through the fuel tax policy,
- Scholarships for the shipping occupations.

7 Promotion

It is not known and spoken enough about the possibilities of inland waterway transport and the resources of waterways in Croatia. Creating a positive image of internal navigation as a reliable, safe and environmentally friendly means of transport is important for encouraging investments and stronger participation of the industry in the sector. In this process, it is important to recognise the importance of the transit role of Croatian ports, and to view the Croatian port and shipping companies as export economic operators.

The promotion is closely related to research and development activities with special emphases on using the more economical and safer technological solutions, primarily in the navigation and shipping, but also in waterways and ports technical maintenance. In most European countries

there is a special fund for inland waterway transport which, in accordance with the provisions of the European Action Programme, should be used for strengthening the position of inland waterway transport in the market. A stronger participation of Croatia in this process may be achieved BY a special programme for research and development of the technologies and systems in inland waterway navigation through the Ministry with competence over the inland waterway transport. The Programme would stimulate the promising projects that could be, or that already are, acceptable at international level.

Objective:

- Creating a positive image of internal navigation among economic operators.

Measures:

- Programme for research and development of the technologies and systems in inland waterway navigation,
- Programme of inland waterway transport encouragement through small amounts of state aid,
- Connecting development centres for maritime, rail and inland waterways sector.

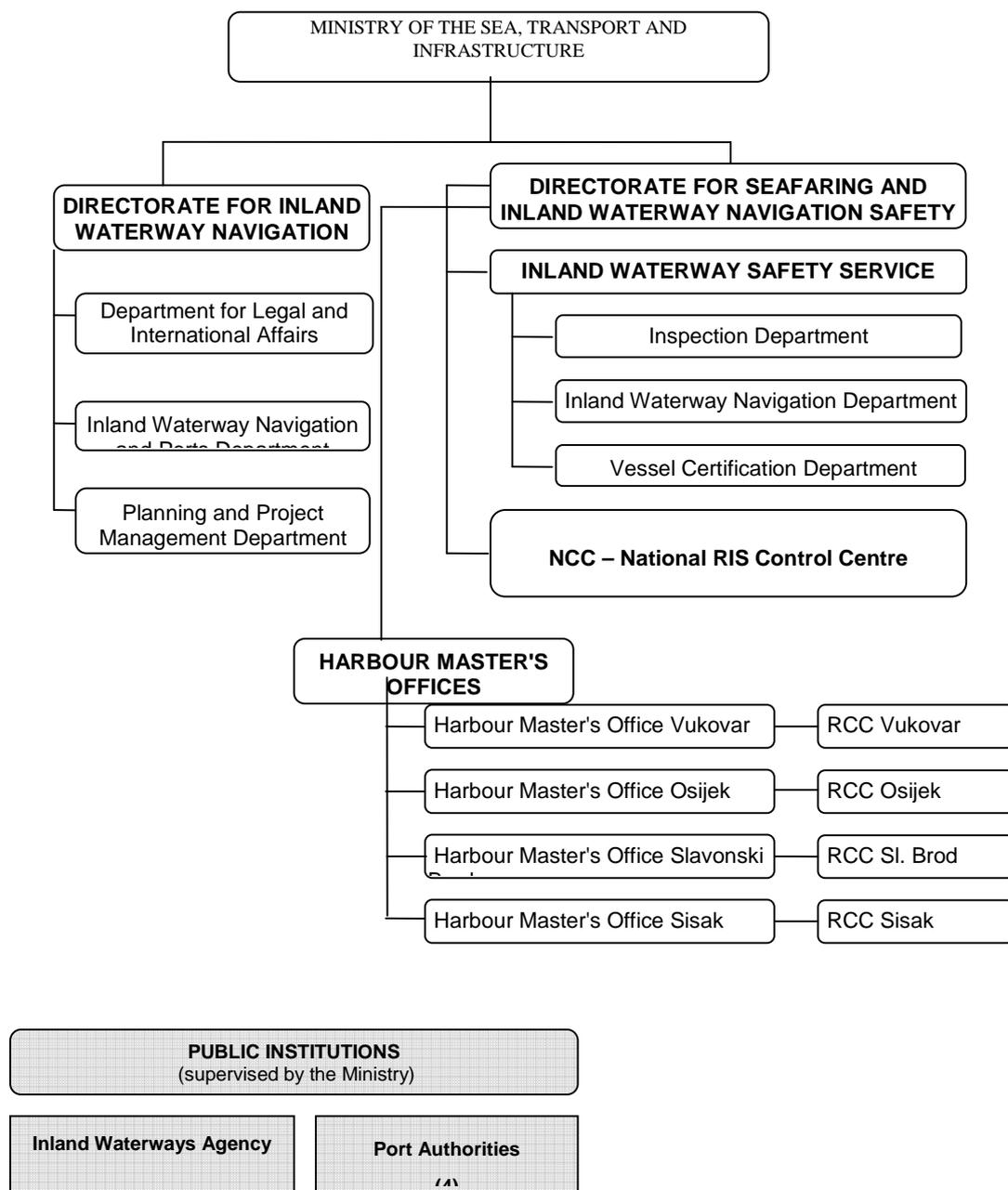
8. Administrative capacity

An important factor in the implementation of this document and the implementation of the Integrated European Action Programme for Inland Navigation Transport are the institutions and the way they are organised. The territorial units, harbour master's offices in Sisak, Slavonski Brod, Osijek and Vukovar, operate within the framework of the ministry with competence over this field (Ministry of the Sea, Transport and Infrastructure). Their main function is to control and supervise the regulations on navigation safety. The implementation of the new regulations on the supervision of navigation and technical requirements and vessel certification calls for the establishment of new services in the Directorate responsible for the navigation safety (Figure 5). In addition to that, the inspection service needs to be strengthened and functionally integrated into the harbour master's offices in order to achieve complete coordination and establish a hierarchy at the operational level.

Additional administrative capacities are necessary, particularly in the field of transport safety and control, as well as safety inspection of navigation in authorised harbour master's offices. Procedures and methodologies which are applied in the preparation and implementation of projects in the EU as well as the implementation of the environmental protection standards require employing additional personnel in the Ministry of the Sea, Transport and Infrastructure.

The employees of the Inland Waterways Agency, the public institution for waterways management, need to be trained for the use of the new technologies in the field of maintenance of waterways and navigation safety facilities to accomplish the operational efficiency of the Agency. This includes gaining special knowledge and skills, as well as procuring the proper (vessel) technical equipment and the equipment for marking waterways.

Figure 5: Administrative capacity of public sector in the area of inland waterway transport



9 Conclusion

The Development Strategy for Inland Waterway Transport in the Republic of Croatia is an addition to the implementation of the Integrated European Action Programme for Inland Navigation Transport – NAIADES. It covers six main areas: safety of navigation and environmental protection, the market, infrastructure, shipping and education, promotion and administrative capacity.

The conventional navigation safety system will be replaced by the Pan-European system of navigation control and transport management based on the introduction of the River Information Services. System management is to be operated within the framework of the National Control Centre for RIS. The system is the starting point for defining clear plans and procedures for search and rescue activities on internal waterways.

It is necessary to integrate inland waterway transport into the intermodal transport network in order to strengthen its position on the market. Besides the already mentioned introduction of the RIS, it is necessary to raise the level of inland waterway transport reliability and efficiency by ensuring a high quality of the transport infrastructure in order to integrate internal waterway transport into the intermodal transport network. The main objective for some sections of the waterways is to ensure that they are classified at least as the international class IV, that is, the waterways with minimum depth of 2.5 m for 300 days a year. A new development cycle needs to be initiated for some of the port infrastructure. This is mainly related to equipping ports with basic port infrastructure, as well as with capacities necessary for trans-shipping special types of cargo following market demand. All international ports have to meet the environmental protection requirements, primarily by constructing separate reception facilities for liquid waste and oils.

Stimulative measures in shipping include the harmonisation of the standards regarding the access to the profession with the EU standards, as well as the harmonisation of the requirements for shipping occupations. The main objective is the increase in the number of the so called small shippers, and workforce mobility. Stimulative measures for the shipping companies include supports for innovations, for introducing new transport technologies and meeting the technical requirements of the EU directives.

The purpose of the inland waterway transport promotion is to introduce economic and industrial operators to the possibilities and technological advantages of inland navigation and to create a positive image of the inland waterway transport, as an economical, competitive and environmentally friendly means of transport.

The implementation of the Strategy demands for the strengthening of administrative capacity in the state bodies and institutions, especially in the organisation of the navigation safety service. However, creating professionals, especially in shipping professions, is a long and continuous process that requires the establishment of the educational system and specialised training. This process should start with taking similar programmes such as seafaring occupations as its bases, by initiating special training programmes for inland navigation within the framework of the maritime schools and colleges.