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1 Introduction and aim of this report

The aim of this report is to summarize the results from the questionnaire report (D 4.4.3) and the good practice report (D 4.4.4) and to elaborate guidelines for a green port policy in Danube inland ports. The goal of the two reports was to get insights into which aspects of environmental sustainability are of high importance for Danube inland ports and to identify good practices, which can be applied to Danube inland ports. For D 4.4.3, a questionnaire was elaborated based on a literature review to assess the current green level of Danube inland ports. The questionnaire was distributed to ten Danube inland ports in terms of a qualitative expert interview. The results of the survey are summarized in this report. Within the good practice report, best practices for eco-improvements in inland ports in Europe (Rhine-Main-Danube region) were identified and analyzed. Based on the results of these two reports, recommendations for a Green Port Policy were elaborated. This report should be used as a guidance for Danube inland ports to become sustainable inland ports in the future.

The remainder of this document is structured as follows: in the first section of the document, the results of the questionnaire report are summarized. Afterwards the main outputs from the good-practice report are presented. After that, the policy framework concerning the environmental impact of ports are described on European and national level. At the end of the document, the learnings from both reports are summarized and recommendations for Green Port Policies for Danube inland ports are formulated which intend to advise the inland port community on how to become green ports.

2 Environmental Performance of inland ports – Status-Quo

Sustainability has emerged as a field of particular interest in the logistics branch and the transport sector. Freight transport can be defined as one area, which can strongly contribute to a sustainable transport system (Whiteing 2010). In 2010, the transport sector caused 23% of worldwide carbon dioxide emissions and was responsible for 15% of overall greenhouse gas emissions (ITF 2010). Since freight volume is expected to quadruple by 2050, an increase of greenhouse gas emissions and further negative external effects can be expected (OECD/ITF 2015; Bretzke & Barkawi 2013). In order to reduce the carbon dioxide emissions of freight transport – a shift towards sustainable transport modes such as inland waterways can be named as an effective measure (European Commission 2011). Currently, inland navigation only represents a relatively low share of 6% in the European Modal split – compared to road (77%) and rail (17%) (Eurostat 2016). Thus, there is a high potential for a modal shift towards inland waterways in Europe. Inland ports can play a major role in achieving the desired modal shift (Dooms et al. 2003), since they function as multimodal links between road, rail and inland waterways (Dolinsek et al. 2013). In Europe, Danube ports play a pivotal role in the freight transport system: On the Danube, 20 ports achieve an annual waterside goods traffic of more than 1 million tons per year (CCNR 2017). However, increasing activities in inland ports also have negative effects on the environment (e.g. air and water pollution).

Thus, inland ports should aim to improve their overall environmental performance in order to assure sustainable services such as transshipment and to reduce negative effects on the environment (Dooms et al. 2013). An important measure to evaluate and improve environmental performance of an inland port is to elaborate a set of environmental key

performance indicators (EKPIs), which can be monitored and used as a basis for defining measures (Puig et al. 2014; Puig et al. 2015b). In literature, EKPIs are mostly investigated and developed for seaports or big inland ports. However, there is no standardized set of EKPIs applied to Danube inland ports. Yet, various inland ports are already measuring their environmental performance in order to define fields of environmental improvement on an individual basis. In order, to access which EKPIs are of interest for Danube inland ports a survey was conducted in ten Danube inland ports located in Austria, Slovakia, Hungary, Bulgaria and Romania.

2.1 Methodology questionnaire report

Based on a literature review, current environmental management systems were evaluated for inland ports. The results were used to elaborate a questionnaire, which was used to conduct semi-structured interviews. The questions included in the questionnaire¹ were clustered into the following six categories:

| Category | Name |
|------------|--|
| Category 1 | Environmental Management System (EMS) |
| Category 2 | Environmental Policy / Guideline |
| Category 3 | Which EKPIs are measured and what are they used for? |
| Category 4 | Top priorities to improve / keep track of |
| Category 5 | Measures to improve the environment at the port |
| Category 6 | Eco- improvement potential for Danube ports |

Table 1: Categories for analysis

The following interviews were conducted (including name of port and date when the interview was conducted):

Interview 1: Ennshafen/Austria – 6/27/2018

Interview 2: Port of Constanta/Romania – 6/28/2018

Interview 3: Port of Bratislava/Slovakia – 6/29/2018

Interview 4: Port of Vienna/Austria – 7/5/2018

Interview 5: HFIP/Hungary – July 2018

Interview 6: Port of Giurgiu/Romania – 8/2/2018

Interview 7: Port of Ruse (terminals East, West and Central)/Bulgaria – August 2018

Interview 8: Port of Linz/Austria – 8/24/2018

In the following section, only the results from the interviews for Category 4 “Top priorities to improve/keep track of” are summarized. The results from the other categories can be found in the questionnaire report (Deliverable 4.4.3.).

2.2 Relevant EKPIs for Danube inland ports

The use of EKPIs as standardized assessment for the environmental performance at the inland port brings benefits to Danube port authorities as indicators monitor results of programs or policies over time. They also measure the extent to which defined fields of eco-improvement

¹ The questionnaire can be found in the questionnaire report (Deliverable 4.4.3.)

are achieved (Puig et al. 2014; Gudmundsson et al. 2016). Therefore, this category intended to investigate common practice about environmental monitoring programs and EKPIs used at Danube inland ports. Furthermore, it was of interest to find out what the information is used for.

Respondents are generally of the opinion that controlling EKPIs is the responsibility of the authorities or the environmental/ transport ministry in charge. Linz, Enns and Giurgiu state that they report to port authorities and the port authorities visit to take controls too (Interview 1, Interview 8, Interview 6). When regulatory requirements are violated, the port is reported (Interview 8). The authorities also specify indicators that should be monitored by the port and then have to be sent to the authorities, such as logbooks for example (Interview 1). One of the Bulgarian ports in Ruse and the port of Bratislava claim that it is the ministry's task to monitor EKPIs of the port (Interview 7, Interview 3). The port of Vienna mentioned that the monitored EKPIs are used for internal purposes (Interview 4). The port of Constanta reports to a national environmental authority (Interview 2)

When asking the respondents about what is measured, the answers spread in many directions. An EKPI measured not for public entities purpose however, for internal use is for example water quality (Interview 2, Interview 3). Bratislava does not monitor any EKPIs now. However, there will be a future project to measure the water quality. As a first step, the water quality measurements will be used to identify possible actions that have to be taken in various scenarios (Interview 3). The port of Vienna only measures EKPIs for internal purpose. They monitor and control consumption indicators, such as water, total waste, paper, electricity and heating. Objectives exist to improve the monitored information year by year. A reduction of each consumption indicator by two percent per year is the average, according to the respondent. Vienna refrains from monitoring the water quality, as this is measured by the Austrian organisation viadonau - subsidiary of the Austrian Ministry for Transport, Innovation and Technology (Interview 4). The ports of Linz and Giurgiu coincided with the statement that there is currently no reporting about EKPIs, however new construction projects will consider a sustainable design (Interview 8, Interview 6). Linz further declares that they follow regulatory requirements (which are reported to the authorities) such as controlling the water for waste for example. However, there is no monitoring system at the port in place. In other words, the port fulfils regulatory requirements, however beyond that, there is no monitoring and reporting at the port (Interview 8). The respondent of the port in Giurgiu stated that their location at the port is very old and that therefore there is no monitoring useful as they will construct a new hall that will exceed European environmental standards (Interview 6).

Summing up, the purpose why Danube ports gather information on EKPIs is mainly for regulatory purposes, beyond that the respondents and the ports respectively hardly monitor EKPIs for environmental performance improvement.

2.2.1 Top priorities to keep track of

Within this chapter, the top five priority issues to improve and to keep track of, of each Danube port included in the survey, are shown. Due to the respondents' distinctive responsibilities and different development levels of the ports, the answers varied in each port.

| | Priority 5 | Priority 4 | Priority 3 | Priority 2 | Priority 1 |
|-----------------------|--------------------|-----------------------|-------------------------|-------------------------------------|-------------------------------------|
| Linz | Water Quality | Soil Contamination | Ship Waste | Port Waste | Hazardous Cargo |
| Enns | Noise | Energy Consumption | Water Quality | Dredging | Relationship With Local Communities |
| Vienna | Energy Consumption | Dredging | Port Development (Land) | Port Development (Water) | Soil Contamination |
| Bratislava | Air Quality | Ship Waste | Water Quality | Soil Contamination | Port Development (Land) |
| HFIP | Water Quality | Dust | Port Waste | Port Development (Land) | Port Development (Water) |
| Ruse1 - Centre | Water Quality | Ship Waste | Noise | Air Quality | Energy Consumption |
| Ruse2 - East | Port Waste | Dredging (Operations) | Dredging (Disposal) | Relationship With Local Communities | Air Quality |
| Ruse3 - West | Water Quality | Air Quality | Soil Contamination | Ship Waste | Hazardous Cargo |
| Giurgiu | Ship Unloading | Water Quality | Noise | Air Quality | Port Waste |
| Constanta | Air Quality | Soil Contamination | Dredging | Port Waste | Ship Discharges to Water |

Table 2: Overview of top five priority issues by Danube ports

To get an overview, Table 2 shows the top five priority issues stated by each respondent. The respondents rated the priorities from five to one, whereas five represents the highest priority to them and the respective port, and one the least. They could choose of a long list of priorities, retrieved from the PORTOPIA questionnaire (Klukas et al. 2015). The objective of them rating these priority issues (EKPIs) was to derive important EKPIs for Danube ports. The left column indicates the port and the columns with the Priorities five to one indicate the importance of the issue to the port/respondent. Hereby again five represents the highest priority and one the least priority for a port. The respondent from Constanta rated air quality as the most important priority issue to keep track of at the port followed by soil contamination (priority 4), dredging (priority 3), port waste (priority 2) and ship discharges to water (priority 1) represents also a matter that the port keeps track of.

To get the essence out of the results and to derive possible EKPIs for Danube ports, the priority issues were then sorted according to the respondents' answers of priorities. For example, Constanta rated air quality the highest, which means that air quality gets 5 points. Giurgiu named air quality as number two priority which adds another two points to air quality (Sums up to 7 so far). This is done with all stated priority issues. Table 3 shows the summary of the weighted priority issues. The first column states the priority issue sorted descending from the highest rated priority issue to the lowest rated. The sum adds up the priority importance factors according to the respondents ranking of each priority issue.

Based on the sorted ranking of the priority issues (EKPIs), water quality is the most important for ports. Water quality was rated as highest priority four times, once as priority 4 and once as priority 3. As the second most important priority follows the soil contamination, closely followed by port waste and dredging. "Dredging Operations" and "Dredging Disposal" was summarized in "Dredging (Operations & Disposal)" as the respondents did not specify dredging twice (Interview 4, Interview 1). Also important to ports is air quality, noise and energy consumption.

| Priority Issue | Sum | Importance according to ports | | | | | |
|-------------------------------------|-----|-------------------------------|---|---|---|---|---|
| Water Quality | 27 | 5 | 5 | 5 | 5 | 4 | 3 |
| Soil Contamination | 14 | 4 | 4 | 3 | 2 | 1 | |
| Port Waste | 13 | 5 | 3 | 2 | 2 | 1 | |
| Dredging (Operations & Disposal) | 13 | 4 | 4 | 3 | 2 | | |
| Air Quality | 12 | 5 | 4 | 2 | 1 | | |
| Noise | 11 | 5 | 3 | 3 | | | |
| Energy Consumption | 10 | 5 | 4 | 1 | | | |
| Ship Waste | 9 | 4 | 3 | 2 | | | |
| Port Development (Land) | 6 | 3 | 2 | 1 | | | |
| Ship Unloading | 5 | 5 | | | | | |
| Relationship With Local Communities | 3 | 2 | 1 | | | | |
| Port development (Water) | 3 | 2 | 1 | | | | |
| Hazardous Cargo | 2 | 1 | 1 | | | | |
| Ship Discharges To Water | 1 | 1 | | | | | |

Table 3: Rated priority issues according to importance of ports

The results of Table 3 help to better assess the EKPIs for Danube inland ports as they picture the reality. It is to mention that the respondents did not see these factors as EKPIs per se. They rather indicated issues prevalent at the port at the moment due to their operations such as Hazardous Cargo, which involves the handling and storage of dangerous goods, as it is the case at one of the ports in Ruse and Linz (Interview 7, Interview 8). Some respondents even claimed that a port has to act proactive and therefore these issues have to be observed (Interview 4, Interview 1).

EKPIs best suited for Danube ports are presented in Figure 1 on the next page. These EKPIs were chosen to be suitable as they were considered an important priority to mention by for at least three ports per priority issue. Although Danube ports use their monitored information

mainly for governmental purposes, they should consider these factors in order to control and, in the long term, improve the environment at the port (Puig et al. 2014).

- | | |
|--|----------------------------|
|  | 1. Water quality |
|  | 2. Soil contamination |
|  | 3. Port waste |
|  | 4. Dredging |
|  | 5. Air quality |
|  | 6. Noise |
|  | 7. Energy consumption |
|  | 8. Port development (land) |

Figure 1: EKPIs for Danube inland ports

3 Good-Practices on eco-improvements

Within Activity 4.4. good-practices on eco-improvements in inland ports were identified in the Rhine-Main-Danube region (D. 4.4.4.). In total, project partners have identified 14 good-practices. An Excel-document was elaborated which aimed to record the objective of the good-practice, the concrete measures which were implemented and the quantitative and qualitative realized eco-improvements. In the following the main results of the good practices and the learnings for Danube inland ports are summarized – the full list of the best practices is included in D. 4.4.4.

3.1 Summary and learnings

Based on the desktop research, it was obvious that in big inland ports such as Duisburg (Germany) or in seaports (e.g. Rotterdam and Antwerp), sustainability is an important topic and these ports are aware of that. Thus, high investments are made to improve the environmental performance and a higher portfolio of measures is implemented. Various information is provided on the websites and reports on sustainable performance are available. Especially the area of water and air quality as well as energy consumption are important fields for big ports to ensure sustainability. A surprising result was that there are not as many initiatives implemented to reduce noise in ports. Even though inland ports do not implement projects on environmental improvement in the same size, individual measures are implemented to improve environmental performance. For inland ports, water quality and port waste are important areas, which are tackled by the measures. This outcome is in line with the results of the survey (see Figure 1).

Based on the results of the good-practices on eco-improvement it is evident, that collaborations with companies located at ports are important to realize eco-improvements. Even though ports are informing about the initiatives and measures they are implementing – no detailed numbers about improvements are available online (e.g. quantitative measurement of CO₂ emission reduction). Thus, it is difficult to evaluate the real impact of the implemented measures based on the information provided.

Another interesting learning was, that different measures are implemented to reach the same goals: for example, in order to improve the air quality in ports, the port of Rotterdam implemented an Environmental Ship Index and the port of Duisburg implemented a traffic control system. Thus, there is no common strategy/solution along the Rhine-Main-Danube corridor in terms of measures to implement in ports, even though ports have a common goal. Thus, it would make sense that a common strategy is elaborated to improve the environmental performance of inland ports on an international level. In fact, the European transport system should be seen as a wide spread system and all ports should have the same goal in terms of sustainability to ensure that the Danube region in total becomes more sustainable.

4 Policy Frameworks

In collaboration with consortium partners, the current policy framework concerning the environmental impact of ports in Europe was evaluated, to have a better basis for recommendations. The framework is described in detail in deliverable 4.4.1. Report on Environmental Key Performance Indicators Firstly, a number of policies relevant on European level are described. Afterwards, policy frameworks on national level are described for Austria, Romania, Bulgaria, Croatia and Slovakia.

4.1 European Level

On European level, environmental policies were first discussed at the Paris European Summing meeting with the focus on water pollution. The environmental protection of ports was not included in discussions before then (Goulielmos 2000). However, due the increasing importance of ports as logistics hubs in the European transport sector, more and more attention has been paid on the environmental impact of port processes.² Thus, various regulations have been implemented on European level in order to protect the environment in ports such as:

- Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues - Commission declaration
- Directive of the European Parliament and of the Council on port reception facilities for the delivery of waste from ships, repealing Directive 2000/59/EC and amending Directive 2009/16/EC and Directive 2010/65/EU

² <http://www.europeanenergyinnovation.eu/Articles/Autumn-2017/The-EU-port-policy-and-green-ports>
[09.08.2018]

- Directive (EU) 2016/802 Of The European Parliament And Of The Council of 11 May 2016 relating to a reduction in the Sulphur content of certain liquid fuels;
- Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organizations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC

The Environmental Impact Policy in the Danube River Basin is regulated by international agreements and relevant legislation of the European Union (directives and action plans) such as:

- The International Commission for the Protection of the Danube River (ICPDR),
- The Danube River Shipping Convention (Belgrade Convention),
- The EU Biodiversity Strategy,
- The EU Strategy for the Danube Region (Danube Strategy).

In addition to these conventions, the legal framework for river basin management and water management in Europe also includes several EU directives, the most important is:

- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (WFD).

Many other environmental directives, strategies and conventions are also linked to the WFD (Water Framework Directive), including:

- Council Directives on the conservation of wild birds (79/409/EEC)
- Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC)
- Directive on the assessment of the effects of certain plans and programs on the environment (2001/42/EC)
- Directive on the assessment and management of flood risks (2007/60/EC)
- Directive on the assessment of the effects of certain public and private projects on the environment (2011/92/EU).

In addition to European regulations, there are also regulations which apply on national level. Thus, in the following chapter national regulations for Austria, Romania, Bulgaria, Croatia and Slovakia are discussed.

4.1.1 Austria

An example in this context would be the following regulation: in ports, adequate facilities must be set up and operated for the reception of waste (e.g. kitchen waste, non-oily cargoes, unusable parts of marine equipment, etc.) on vehicles, which must be designed to be easy to handle, so that there is no water pollution nor harmful effects on the environment (e.g. by

smell, dust). Waste generated must be properly collected and treated.³ There are several regulations in Austria, which refer to the environmental sustainability of port operations: Water Law and Navigation Act; Construction Law; Commercial Law. Relevant, due to the fact that inland transport places great emphasis on environmental awareness.⁴

4.1.2 Romania

The Environmental Impact Policy (the Logistics Activities in Ports) is established by Order of the Ministry of the Environment (in accordance with the requirements of the European legislation - EIA Directive) based on the assessment of the effects of certain public and private projects on the environment.

Briefly, Preliminary Environmental Requirements (Extending Surface / Building New Terminals) consist of going through the stages of the environmental impact assessment procedure.

The procedure is managed by the competent authority for environmental protection (Environmental Protection Agency) and includes:

- submitting a notification of the project's intent, accompanied by the urbanism certificate and a request for the issuance of the environmental agreement, to the Environmental Protection Agency by the owner of the investment before the work start;
- analyzing the request by the agency and determining the need for environmental impact assessment;
- if the Agency decides that the assessment is necessary, the investment holder will prepare an environmental impact study;
- from the analysis of the study, the Agency issues the "Environmental Agreement for the Realization of the Investment", a regulatory act, which mentions the environmental protection measures to be observed during the execution of the execution works.

The transposition of the EIA Directive⁵ in Romania was made by Government Decision no. 445/2009⁶ on the environmental impact assessment of certain public and private projects and by Order 135/2010⁷ on the approval of the methodology for the implementation of the environmental impact assessment for public and private projects.

The Environmental Impact Assessment (EIA) is carried out during the preparation of the documentation that substantiates the feasibility of the project. Consequently, according to the

³ Source: §9 in "Order of the Federal Minister for Traffic, Innovation and Technology concerning Waterways Traffic Regulations (WVO)". Available under <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20005956> [16.11.2017]

⁴ Source: §9 in "Order of the Federal Minister for Traffic, Innovation and Technology concerning Waterways Traffic Regulations (WVO)". Available under <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20005956> [15.11.2017]

⁵ Directive 2011/92/EU, Environmental Impact Assessment – EIA Directive

⁶ Decision nr. 445/2009 on the environmental impact assessment of certain public and private projects, published in Official Gazette no. 481 of 13/07/2009

⁷ Order 135/2010 on the approval of the Methodology for the implementation of the environmental impact assessment for public and private projects

national legislation, the integrated environmental agreement is issued in the feasibility study stage, alongside other endorsements and approvals.

The Environmental Impact Assessment procedure is carried out in stages, as follows:

- the stage of project classification in the environmental impact assessment procedure;
- the stage of defining the scope of the assessment and of the implementation of the environmental impact report;
- the quality review stage of the environmental impact report.

The procedure is preceded by an initial assessment of the project carried out by the public authorities for environmental protection in which the location of the project is identified in relation to the protected natural areas of community interest. The environmental impact assessment procedure is conducted by central or regional public environmental authorities with the participation of central or local public authorities, as appropriate, with specific attributes and responsibilities in the field of environmental protection. The end of the EIA procedure is materialized by a positive or negative decision to issue the integrated environmental approval/agreement.

The environmental agreement is valid throughout the project implementation but loses its validity if the investment works for which it was issued do not commence within 2 years from the date of issue, except for projects with external financing.

Government Decision no. 445/2009 defines the following terms:

- The Environmental Agreement is the administrative act issued by the competent authority for environmental protection setting out the conditions and, where appropriate, the environmental protection measures to be followed when a project is carried out.
- Development approval is the decision of the competent authority or authorities, which entitles the project owner to complete the project.
- The Environmental Impact Report is the document containing the information provided by the project owner.

The Environmental Impact Report is prepared by natural or legal persons who have this right, according to the law. The Environmental Impact Report is submitted to the environmental protection public authority. It is subject to comments by the interested public, whose proposals / recommendations are taken into account in the quality review stage. The Public Environmental Protection Authority, together with the authorities participating in the Technical Analysis Committee, analyses the quality of the Environmental Impact Report and decides to accept or return it for further preparation.

4.1.3 Bulgaria

With regard to environmental impact, logistical activities in ports are not separated in a single legislative document. Ports are accepted as industrial points, similar to every production company and are obliged to comply with the national and the international legislation in force. Policy framework is formed by many laws and by-laws in the Bulgarian legislation.

1. Maritime spaces, inland waterways and ports in the Republic of Bulgaria Act⁸:

art. 75 a: Inland waterways shall be prohibited from discharging, disposal and submergence of ships of any type of solid and liquid waste and other substances harmful to human health or living resources on inland waterways and any other pollution, including air, except according to the norms provided in international conventions ratified by the Republic of Bulgaria and in the national legislation.

2. Environment protection Act;
3. Waste management Act;
4. The discharge of wastewater from coastal sources is regulated by the Water Act.
5. Ordinance No. 9 of 17.10.2013 on the requirements for exploitation suitability of ports and specialized port facilities

art. 19: Each port must have: 1. appropriate reception facilities which ensure the acceptance of the waste without undue delay to the ships; 2. a plan for the reception and treatment of waste.

...

Art. 21. (1) The plan for the reception and treatment of waste shall contain a description of the compliance with the geographical location and size of the port, the number and type of ships normally residing therein as well as the type and volume of waste resulting from shipping activity, and cargo residues, procedures for the reception, collection, storage and pre-treatment of such waste without undue delay to the ship.

6. Ordinance No 15 of 28 September 2004 on the submission and reception of waste - result of shipping activity and of cargo residues accordant to Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues;
7. Ordinance No 16 Of 20 June 2006 for the processing and transport of dangerous cargo and / or pollutants by sea and dangerous goods by inland waterways;
8. Directive (EU) 2016/802 Of The European Parliament And Of The Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels;
9. Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organizations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC

Expansion and/or building of new terminals is done in accordance to the relevant environmental requirements. It shall be carried out on the basis of a master plan elaborated in relevance with the Integrated Transport Strategy approved by the Council of Ministers for

⁸ Source: <http://bgports.bg/en/page/6>

the period up to 2030, the concepts and schemes for spatial development and the development plans of a higher degree. Every master plan has to contain documents certifying the implementation of the applicable procedures under the Environmental Protection Act and the Biodiversity Act.

Environmental Protection Act (EPA) provides for an environmental assessment and environmental impact assessment to be carried out on plans, programs and investment proposals for construction, activities and technologies, or modifications or extensions thereof, where significant impacts on environment. The assessment of the environmental impact of the investment proposals for construction works is developed together with the procedures for preparation and approval of the investment proposal under a special law.

According to Art. 85, para. 1 of the EPA, the environmental assessment is mandatory for plans and programs in a number of areas, including transport, when these plans and programs outline the framework for the future development of investment proposals for:

- inland waterways and ports servicing inland waterway vessels which allow the acceptance of vessels with a displacement of more than 1350 tonnes.
- commercial ports, loading and unloading terminals, and public transport ports (excluding ferry terminals) that can accommodate ships with a displacement of more than 1350 tonnes.
- construction of ports and port facilities, including fishing ports.

In Art. 92 (1) of the EPA provides for a mandatory environmental impact assessment of investment proposals for construction, activities and technologies for:

- inland waterways and ports servicing inland waterway vessels which allow the acceptance of vessels with a displacement of more than 1350 tonnes.
- commercial ports, loading and unloading terminals, and public transport ports (excluding ferry terminals) that can accommodate ships with a displacement of more than 1350 tonnes.

Investment proposals for the construction of all other ports and port facilities are subject to an assessment of the need for an environmental impact assessment. The need for an environmental impact assessment shall be assessed by the Director of the relevant Regional Environment and Water Inspection on a case-by-case basis and according to the criteria specified in the EPA, which shall pronounce with a motivated decision.

The Minister of Environment and Waters is the competent authority for decision on the EIA for investment proposals, extensions or amendments to sites which are designated as sites of national importance by an act of the Council of Ministers.

4.1.4 Croatia

Environmental Impact Assessment (EIA) Directive⁹ content and principles are incorporated in Croatian Environmental protection strategic documents, in implementing laws and other regulations based on them.

⁹ The EIA Directive (85/337/EEC) is in force since 1985 and applies to a wide range of defined public and private projects

The Strategy of the Sustainable Development of the Republic of Croatia (“Official Gazette” nr. 30/2009) considers environmental protection as one of three main goals of the sustainable development.

Environmental Impact Assessment regulations are part of the Environmental Protection Law (“Official Gazette” nr. 80/13, 153/13, 78/15). Environmental Impact Assessment is a document by which possible significant environmental impacts are identified based on their nature, size or location (Art. 76. Par. 1. EPL). The principle of precaution realization must be ensured in the early phase of the intervention in order that invention impact would be on its lowest and to ensure highest possible quality of the environment protection what is achieved by the harmonization and adaptation of the planned intervention (Art. 76. Par. 3. EPL).

Environmental Impact Assessment is being done together with planned intervention preparation, before location or another necessary permit is issued. Procedure consists on:

- Request submitting;
- Examination of the opinion of the bodies/persons defined by the special regulation; opinions of the local government units on which area intervention is planned to be done;
- Informing and participation of public, if it is relevant;
- Decision issuing;
- Implementation of the environmental impact assessment results in the content of the necessary permissions.

Environmental Impact Assessment could contain also ecological network impact in accordance with special regulation (Art. 77 Par. 2 EPL).

Regulation on Environmental Impact Assessment (“Official Gazette” no. 61/2014, 3/2017) contains a list of the interventions for which an environmental impact assessment is obligatory and which body is in charge for the assessment. Body in charge could be the Ministry for the Environmental Protection and Energetics or administrative body within a county. Obligatory content of the Environmental Impact Study is listed in the Regulation. The body in charge appoints the members of the advisory professional committee of, at least 5 members, who are in charge for the professional opinion (Art. 9-11 REIA). A public discussion is in general part of the procedure. Thus, results of an environmental impact study are also accessible to the interested public.

Building of the inland ports is part of the list of projects for which the Environmental Impact Assessment is obligatory (Addendum I, point 17 of the REIA). For the building of inland ports Ministry for the Environmental Protection and Energetics is in charge for the Environmental Impact Assessment.

4.1.5 Slovakia

In the Slovak Republic the main guarantor of water transport is The Ministry of Transport and Construction of the Slovak Republic. The Ministry of Environment of the Slovak Republic (MoE SR) is the responsible authority fulfilling the obligations in the area of environmental impact assessment. Environmental impact assessment is considered to be one of main instruments of international environmental policy of sustainable development.

It is based on following principles:

- complexity of the assessment of expected impacts of a proposed activity on the environment before deciding on its location or prior to its permission under special regulations and in case of a strategic document prior to its approval,
- impacts assessment is carried out by experts from various spheres,
- wide and active public participation in the assessment process,
- alternative solutions,
- the assessment process does not replace the permission process of a proposed activity.

In the Slovak Republic environmental assessments have been carried out since 1994 when the Act No. 127/1994 Coll. of the National Council of the Slovak Republic on environmental impact assessment came into force. In order to provide for the full harmonization of the Slovak legislation in the field of environmental impact assessment with the legislation of the European Union, the Act No. 391/2000 Coll. amending and supplementing the Act No. 127/1994 Coll. of the National Council of the Slovak Republic on environmental impact assessment was adopted in 2000. This Act regulates in detail the process of impact assessment of constructions, installations and other activities on the environment. It simplifies substantially the impact assessment of draft principal development conceptions, land-use planning documentations and generally binding legal regulations (Strategic Impact Assessment - SEA).

At present, the Act No. 24/2006 Coll. on environmental impact assessment and on amendments and supplements to certain acts applies, which entered into force on 1st February 2006. It regulates the process of expert and public assessment of expected impacts of strategic documents on the environment prior to their approval and impact assessment of proposed activities before their permission under special regulations. The Decree No. 113/2006 Coll. of the Ministry of Environment regulates the details of the professional qualification for the purposes of environmental impact assessment.

The assessment of impacts on the environment (Environmental Impact Assessment – **EIA**) is one of the main environmental policy instruments for the implementation of sustainable development. Its purpose is to prevent the negative impacts of various human activities on the environment, including health. This is done by means of a comprehensive and professional assessment of proposed activity or its change expected impacts on the environment before deciding on its location, or prior to its authorization under special regulations.

The proposed activity or modification of the proposed activity is the realization of buildings, other facilities, an implementation plan or other intervention in the natural environment or to the country, changing the location's physical aspects, including mineral resource extraction.

The process of compulsory assessment of the proposed activity and its change impacts on the environment consists of the following basic steps:

- preliminary environmental study and comment on it,

- setting the scope of assessment and timetable,
- environmental impact statement and comment on it,
- public hearing of Environmental impact statement,
- expert review,
- final record.

Compulsory assessment is conducted in accordance with the Administrative Procedure Act. In the final record the competent authority shall state, in addition to the overall impact assessment of the proposed activity or its change, if it agrees or disagrees with its implementation, under which conditions it agrees with it and in which implementation alternative, as well as the desired extent of post-project analysis. The final record is binding for further authorization procedure, and it is valid for seven years from the date of its entry into force.

Screening procedure is conducted in accordance with the Administrative Procedure Act, and it begins with the presentation of preliminary environmental study, if the proposed activity or the notice of change should be a subject, or if the proposed activity change is to be a subject. The screening procedure ends by issuing a decision in which the competent authority shall decide whether the proposed activity or its change is to be assessed under the Act. If it is decided that the proposed activity or the change is not to be assessed under the Act, the authorization process under special regulations follows. If it is decided that the proposed activity or the change is to be assessed under the Act, the process moves to the step of compulsory assessment, and that is setting the scope of assessment and timetable. When making a decision, the competent authority shall use reasonable criteria for the screening procedure according to Annex no. 10 of the Act.

In the authorization procedure for the proposed activity or its change the competent authority is in the position of affected authority if it issued a decision on it, issued in the screening procedure, or a final record under the Act.

The assessment of strategy paper impacts on the environment (Strategic Environmental Assessment – **SEA**) is a tool for the assessment of the likely impact of strategy papers during their development and before their adoption on the environment, including impacts on human health.

The strategy paper is a draft of plan or program, including the one co-financed by the European Union, as well as any change, that is prepared, approved or prepared and approved at the national, regional or local level, or which is prepared to be approved by the National Council of the Slovak Republic, municipal council, council of the higher territorial unit or by the Government of the Slovak Republic, and their development is required by a generally binding legal regulation, decision or resolution of the authority for which it is being prepared for the approval.

The process of compulsory assessment of the strategy document impacts on the environment consists of the following basic steps:

- notice and comment on it,
- setting the scope of strategy document assessment and timetable,
- environmental impact statement on strategy document assessment and comment on it,
- public hearing of environmental impact statement,
- expert review on a strategy document,
- final record from a strategy document assessment.

In the final record from the strategy document assessment the competent authority shall state, in addition to the overall impact assessment of the strategy document, if it recommends its adoption or not, or under which conditions, as well as the desired extent of its screening and evaluation.

Screening procedure begins with the submitting of the notice on a strategy document, and it ends by issuing a decision in which the competent authority shall decide whether the strategy document or its change is to be assessed under the act or not. If it is decided that the strategy document is to be assessed under the act, the process moves to the step of compulsory assessment, and that is determining the scope of strategy document assessment and timetable. When making a decision, the competent authority takes into account mainly the criteria for the screening procedure listed in Annex no. 3 of the Act.

Strategic Environmental Assessment process with a national environmental impact consists of those same steps as the compulsory assessment and screening procedure. The process ends by issuing the clause of environmental impact, where the result of impact assessment and presented opinions are evaluated.

Basic national legislation and documents regulating water transports in Slovakia are:

- Act No. 338/2000 Coll. on Inland Navigation,
- Act No. 364/2004 Coll. on Water
- Strategic Plan for Development of Transport Infrastructure of the Slovak Republic by 2020,
- Water Plan of the Slovak Republic - defining the framework of environmental targets enabling the long-term sustainable water management by 2021 for:
 - surface water bodies,
 - underground water bodies,
 - and measures in relation to the individual sectors of the economy for their achieving.
- The National position on the EU Strategy for the Danube Region,
- The Conception of the development of public ports Bratislava, Komárno and Štúrovo,

5 Summary and Conclusion

Based on the information provided in the previous chapters it is obvious that the topic of sustainability, and especially environmental sustainability, is recognized by the European inland port sector. However, only big ports have the financial resources to implement extensive measures to improve their environmental performance. Nevertheless, the good-practice research showed that also inland ports are implementing measures to improve their environmental performance, but not in the same scale as seaports or big inland ports, such as Duisburg for example. As the results of the policy frameworks show, there are various regulations on the topic of environmental issues implemented on European and national level, relevant for Danube inland ports. Still, there is no common strategy or roadmap for Danube inland ports in place to achieve the defined goals in the field of environmental improvement. Thus, the following recommendations can be seen as guidelines to have a common strategy in the Danube area to improve the environmental performance of inland ports.

5.1 Recommendations

The following recommendations can be derived from the results previously presented:

Elaborate common Environmental Evaluation Framework and Policy for Danube Inland Ports

Since there are currently no standards on how to measure the environmental performance of inland ports in the Danube corridor or on international level, it would be useful to define a standardized framework for evaluation. This common framework could for example only focus on the five main areas in terms of environmental issues which are of interest for Danube inland ports based on the results of the survey conducted within this work package. This framework should be agreed by (e.g. what will be measured and what will not) and applied by all inland ports to be able to benchmark the results and to learn from each other. Inland ports on the Danube should agree on and commit to targets they want to reach for the different areas in a defined period in terms of a policy. By conducting regular measurements (e.g. every two years) the improvement can be tracked and communicated on an international level (e.g. via the Danube ports network). This could also happen in collaboration with institutions such as the smartfreight centre¹⁰ which elaborated a GLEC framework – a global method to calculate emissions consistently across the logistics supply chain to inform business logistics decisions. This institution may help implement the evaluation framework in a standardized way. The Logistics Emissions Accounting and Reduction Network project (LEARN)¹¹ also aims to reduce the carbon footprint of supply chain activities through emission measurement, reporting and verification (MRV). The results and learning of this project could also be used from Danube inland ports to learn from.

Dissemination and Lobbying:

Collaboration with stakeholders from industry (e.g. logistics service providers, barge operators) and political institutions, and interest groups on international level (e.g. ALICE – Alliance for Logistics Innovation through Collaboration in Europe) can be seen as important

¹⁰ See: <http://www.smartfreightcentre.org/main/info/information> [20.12.2018]

¹¹ See: <http://www.learnproject.net/> [20.12.2018]

steps in the future to make sure that the issue of environmental sustainability in Danube inland ports is anchored in all relevant institutions. Since ALICE has set the goal to realize an emission free logistics sector in Europe until 2050¹², inland ports can be seen as important enablers to realize this goal. Thus, stakeholders from the inland port industry should be involved in elaborating strategies and roadmaps to realize this goal set by ALICE. In addition, the Danube Ports Network can function as a platform to bring the relevant stakeholders together and to communicate and realize goals in terms of environmental improvement. Organizations such as EFIP (European Federation of Inland Ports) can function as a voice on European level to emphasize on the importance of Danube inland ports when talking about environmental sustainability of the European freight transport sector.

Financial support

In order to implement measures to improve the environmental performance of inland ports on a transnational level, funding sources are necessary. If inland ports are aiming to improve their environmental performance, they should have the opportunity to have the financial resources to do so. Financial support could be provided by funds such as a green climate fund or other funding aiming to support green projects. Thus, a database for funding opportunities should be established so that Danube inland ports can evaluate their possibilities for getting funding. This database could also be made available via the Danube ports network website for example. Research projects can also be seen as an important funding opportunity to implement measures to improve the environmental performance of inland ports. Thus, also calls for funding (from e.g. H2020, INTERREG,...) should be made available on the Danube ports network website to provide the opportunity to build a consortium.

In addition, it is recommendable that each Member state develop its own financial incentives to support inland ports in keeping high environmental standards.

Networking and Collaboration

As learned from the good-practices in the Rhine-Main region, collaboration and networking is an important aspect to realize environmental improvements. In order to multiply the positive effects, collaboration (in terms of financial and human resources) in the port community and with companies located at inland ports is important to pull together and to realize economies of scale. In addition, good practices should be shared with other ports in the Danube region to provide other inland ports with the same issues. This could be done on the Danube ports network website as a newsletter for example. It may also be an opportunity to award the best project with a prize on a regular basis and to promote them on an international scale.

Education and Training

Another important aspect is to make employees in the Danube inland port sector aware of the importance of environmental issues and to provide them with the knowledge and skills to improve the environmental performance of inland ports. Especially when implementing a measurement framework, the person in charge of supervising the measurements should have the skills and competences to do it. Thus, regular trainings on a transnational level could be provided to inform about the current initiatives and measures in terms of environmental improvements in inland ports. The topic of environmental issues to tackle in Danube inland

¹² See: <http://www.etp-logistics.eu/?p=1727> [20.12.2018]

ports should also be included in general logistics education to prepare future logistics managers and potential employees for future challenges. This has already been realized on national level (e.g. by the Education and Information Centre Mainport Rotterdam or in the Transport School Labs organized within the project REWWay in Austria) but should be done on a transnational/international level in the future.