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# CROSS-BORDER COOPERATION BETWEEN AUSTRIA, ITALY AND SLOVENIA: MULTIMODAL TRANSPORT AND SUSTAINABLE DEVELOPMENT

***Alessandro TORELLO****

**Abstract.** *In this article I will examine the importance of cross-border cooperation concerning transport and infrastructure improvement. In particular, I will focus on multimodal transport development and alternative transport solutions in the Northern Adriatic region and Austria. I will stress fluvial and maritime transport opportunities, such as Short Sea Shipping (SSS), in order to reduce pollution levels due to traffic congestion and terrestrial freight abuse.*

**Keywords**: *Cross-border, Transport, Multimodal, Short Sea Shipping (SSS), Adriatic*

**Cooperation along Border Regions as a Solution to Ensure Stability**

The integration process has allowed European countries to be part of one single market, but not only that. It has also been a fundamental step to making European people feel closer to each other, to spread out the perception of multicultural citizenship.

Thanks to the perspectives and the process of enlargement of the EEC first and the EU later, it seems that the sense of conflict and cultural division among countries and communities has been progressively reduced, even though evident socio-economic differences persist.

Cross-border Cooperation is a strategy adopted to facilitate economic transformation along the borders as well as a means of preventing potential local tensions.

The aim of economic growth and enlarging the areas of mutual exchange of goods and human capital between neighboring countries can be achieved by establishing areas of political stability.

With wider Europe and its long-term commitment to support local and regional initiatives of cross-border cooperation, the EU has expressed a will to avoid future divisions between East and West and North and South. This is to be achieved through comprehensive cooperation agendas that transcend political, economic and cultural dividing lines and that address socioeconomic disparities, political tensions and potential conflicts of interest[1].

Furthermore, the EU advocates a complex approach to regional development and cooperation in order to promote a sense of solidarity and socioeconomic cohesion. […] Local and regional cross-border cooperation and other forms of societal interaction between states are seen as important aspects of EU integration and have acquired considerable political significance as a mechanism for deepening relations with non-EU neighbors[2].

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[1] See: J. W. Scott, "EU Enlargement, Region Building and Shifting Borders of Inclusion and Exclusion", Ashgate, Aldershot, 2006, p. 3.

[2] Ibid., p. 20.

However inside the 27-country EU a considerable number of areas along the borders have shown strong local identities, highlighting social, economic, cultural and moreover linguistic differences.

A strong sense of being part of a specific community has often been seen as a limit to cooperating efficiently, especially in those areas where history left its influence, such as in the case of the border region between Italy and Slovenia.

The effect of "them and us" categories may seriously hamper the process of creating areas belonging to different countries able to elaborate conjoint projects and development programs.

Therefore the process of building up cross-border regions can simultaneously be based on inclusion and exclusion dynamics.

In order to maintain a socioeconomic balance along borders, many elements must be considered, from social categories to the actions of local and central government.

Cross-border cooperation and governance have been playing a key role in the continuing integration and enlargement process since the Nineties.

In addition, we should bear in mind that every border has its own characteristics, its own history and socioeconomic problems to be solved, so that a specific inspection of every area is required.

Borders have become progressively more divergent from each other, especially as a consequence of globalization and the existence of one single European market.

The growing institutionalization of interest on borders is connected in various ways with globalization – the acceleration of trans-nationalizing tendencies over recent decades and reactions to these tendencies. In Western, and increasingly Eastern, Europe it is also linked more specifically to the integration and proposed enlargements – the "deepening and widening" – of the European Union. The upsurge of interest spans politics, economics and culture; it is linked to issues of immigration and citizenship, law and disorder, ecological disaster and environmental regulation, and national, regional and other identities[3].

**Multimodal Transport and Cross-border Cooperation**

The economic development of European regions, especially the least privileged, is essentially based on the expansion of the necessary transport infrastructure. Advanced transport networks are a precondition for boosting business, as well as for facilitating movements of goods and workers.

With reference to cross-border cooperation, solid and efficient transport networks will assure a stable integration of national markets, increasing the possibility of new trade perspectives along borders. Without a doubt, infrastructures are not exclusively functional for trade and commerce, the population living on border regions will unquestionably benefit from faster connections, reduction of traffic congestion and the consequent lowering pollution levels.

In the EU-27, the multimodal transport system, thanks to over 70,000 km of maritime coasts as well as of numerous fluvial corridors, will be the answer to combining economic development, flexible transport infrastructures and environmental protection. In addition, multimodal platforms will be modernized by the improvement of railway networks.

[3] See: L. O'Dowd, "The Changing Significance of European borders", in Anderson J., O'Dowd L., Wilson T. M., "New Borders for a Changing Europe: Cross-border Cooperation and Governance", Frank Cass, London, 2003, p. 2.

In order to guarantee the optimum efficiency of transport infrastructures for promoting regional development, attention should be paid to improving the connectivity of landlocked, insular and outermost territories to the TEN-T projects. In this respect, the development of secondary links, with a focus on inter-modality and sustainable transport, will help. In particular, harbours and airports should be connected to their hinterland[4].

The issue of multimodal transport[5] has been raised and discussed several times over the last ten years inside the EU. There are solid reasons for this.

First of all a transport system based on multi-modality will ensure the efficient use of different methods of transferring and delivering goods: rail, road, air and inland waterways.

Secondly multimodal transport is essential for reducing the level of congestion of roads and above all the problem of bottlenecks. In addition, multimodal transport is a valid means to overcome the problem of lack of infrastructures still limiting the movement of goods in many countries, especially in some regions of Italy and in former Yugoslavia.

With the transport boom outstripping economic growth, the persistence and indeed the very size of a number of bottlenecks on the main international routes is posing a major problem for the transport system in Europe. Whether located on the outskirts of conurbations or at natural barriers or borders, these bottlenecks affect all modes of transport. Unless infrastructure is interconnected and free of bottlenecks, to allow the physical movement of goods and persons, the internal market and the territorial cohesion of the Union will not be fully realized[6].

Thirdly, the combination of road and railway transport plus the development of Motorways of the Sea[7] would mean faster deliveries in the retail markets and more coordination among forwarding agencies, enterprises and retail markets.

The principal objectives of the Motorways of the Sea projects can be summed up as follows: directing and converging freight flows on sea-based logistical routes and reducing road congestion by means of intermodal transport. Four main corridors have been considered and they should be activated as fundamental maritime routes by the end of 2010: 1) Motorway of the Baltic Sea, linking the Baltic Sea Member States with

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[4] See: "Guideline: Making Europe and its regions more attractive places in which to invest and work", in Council Decision No. 702 of 6 October 2006 on Community Strategic Guidelines on Cohesion, Official Journal of the European Union L 291/16, 21.10.2006.

[5] Multimodal transport is specifically defined as carriage of goods by two or more modes of transport. Intermodal transport and Combined transport are key words linked with Multimodal transport. Intermodal transport is the movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes. By extension, the term intermodality has been used to describe a system of transport whereby two or more modes of transport are used to transport the same loading unit or truck in an integrated manner, without loading or unloading, in a [door to door] transport chain. Combined transport is intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final legs carried out by road are as short as possible. For more details on definitions see: "Terminology on Combined Transport", document prepared by the United Nations and Economic Commission for Europe (UN/ECE), the European Conference of Ministers of Transport (ECMT) and the European Commission (EC), New York and Geneva, 2001, available on: http://www.unece.org/trans/wp24/documents/term.pdf.

[6] See: White Paper: European transport policy for 2010: time to decide, COM (2001) 370 final, submitted by the Commission on 12 September 2001, p. 49.

[7] In 2004 the Council and the European Parliament, through the Article 12a of the Decision No. 884/2004/EC of 29th April 2004 (amending Decision No 1692/96/EC on Community guidelines for the development of the trans-European transport network), adopted a revision of the Trans-European Transport Networks (TEN-T), including the Motorways of the Sea projects.

Member States in Central and Western Europe; 2) Motorway of the Sea of Western Europe, from Portugal and Spain via the Atlantic Arc up to the North Sea and the Irish Sea; 3) Motorway of the Sea of South-eastern Europe, connecting the Adriatic Sea to the Ionian Sea and the Eastern Mediterranean, including Cyprus. This corridor would be vital for the expansion of the main Italian, Slovenian and Croatian harbors in Northern Adriatic Sea; 4) Motorway of the Sea of South-western Europe, connecting Spain, France, Italy and Malta. This corridor is linked with the Motorway of the Sea of South-eastern Europe and it includes possible connections with the Black Sea.

In particular, the development of the Motorways of the Sea will bring about a new type of organization of transport in Europe, more sustainable and more commercially efficient than the one-modal transport solution based on the unique combination of trucks and roads. Thanks to the Motorways of the Sea, maritime transport resources will be increasingly utilized and improved. More than ever, making use of sea corridors will mean reducing transport costs as s consequence of scale economies.

Fourthly, multimodal transport is the ideal solution for protecting the environment, as it will lead to the reduction of carbon dioxide and nitrogen oxide emissions. Taking as many trucks as possible off congested roads will cut the level of pollution and greenhouse gas emissions[8]. However this goal has not been attained. During the period 1999 – 2005 the growth of road transport was significant in the EU-15. In 1999 almost 11,000 million tons of goods were transported by truck and in 2005 the quantity of goods rose to 13,688 million tons. This means an increase of nearly 25% in six years.

Comparing rail transport with road transport in 2004 and in 2005, it is evident that railway networks in the EU are not adequately utilized. In 2004 in the EU-25, 1,489 million tons were transported by freight train against 15,202 million tons by truck. One year later the amount shipped by train decreased of 2% (1,466 million tons), while goods transported by road rose by 3% (15,711 million tons).

Member States should invest more in railway infrastructures and railroad terminals. Especially for new Member States, it is necessary to improve their national railway networks and to create better connections with neighboring countries.

Regarding Italy, Austria and Slovenia, figures about transport of goods confirm the EU trend, i.e. trucks are the main option for transport. The volume of goods shipped by trucks increased during the period 2003 – 2006 in all three countries. A significant yearly growth of road transport was registered during 2005 – 2006 in Austria (a 25% increase, from 288 million tons to 358) and Slovenia (a 22% increase, from 12.6 million tons to 15.4).

Road transport figures in Italy are high, in keeping with other industrialized EU countries. In 2006, in Germany the volume of goods transported by truck was 2,919 million tons, while in Spain it was 2,387 million tons, in France 2,181 and in the United Kingdom 1,903.

However, Germany showed interest in multi-modality, as during 2006 346 million tons of goods (equal to nearly a third of all rail shipments in the EU-15) were delivered by rail and 243 million tons by inland waterway transport[9].

[8] The level of carbon dioxide emission from road transport is generally estimated as at least four times the level of railroad transport. This data is sufficient to realize how important implementing a combined system of transport (road plus railway) would be. An interesting analysis regarding CO2 emission can be read in the report “Transport and climate change” issued in 2007 by the UK Commission for Integrated Transport to the British Government. See: http://www.cfit.gov.uk/docs/2007/climatechange/pdf/2007climatechange.pdf, pp. 23-27.

[9] See: http://epp.eurostat.ec.europa.eu/portal/page/portal/transport/data/main_tables.

Fifthly, in order to improve multi-modality, it is mainly necessary to increase the number of harbours, road terminals and railway terminals, as points of transshipment - loading and unloading goods. The presence of terminals with the function of hubs in strategic geographic areas will consequently create a capillary network of points (spokes) to deliver and exchange goods locally.

Therefore, a "hub and spoke" transport system will allow the proliferation of loading/unloading spots and it facilitates door-to-door delivery, reducing the need of transporting goods by trucks over long distances.

Sixthly, the use of "groupage"[10] loading system and shipping goods through 20-foot ISO containers (also called TEUs)[11] and 40-foot ISO containers[12] might be the key solution in order to improve intermodal transport. These types of containers can be fitted both on trailers of trucks and on train wagons with bulkheads. The handling of containers is safe and fast by using fork-lift trucks and special types of cranes along quays, such as: overhead travelling cranes and portal cranes (also called "gantry cranes"). A special version of the portal crane is the "Portainer" crane, specifically designed for ship-to-shore transfer of containers.

Besides, building modern railway terminals and road terminals inside harbours as well as rapid access roads to reach loading/unloading spots along quays means significant improvement of maritime logistics. In fact, once containers have reached the harbour by train or truck, they can be easily loaded and unloaded on shipping vessels, especially "lo-lo" vessels (lift on – lift off). This category of boats is designed to stock up and drop off containers with the use of fork-lift trucks and cranes. Lo-lo solution is in contrast to "ro-ro" vessels (roll on – roll off). "Ro-ro" vessels are instead planned to carry wheeled cargo like cars, trucks, trailer trucks and in general vehicles which can be driven on and off the vessel on their own wheels. The "ro-ro" vessels make use of built in ramps so that wheeled cargo can be easily "rolled on(to)" and "rolled off" the ship's cargo hold, without requiring the presence of cranes and fork-lift trucks.

Last but not least, sea transport has shown a steady growth since 1997 in the EU-15, from 2,887 million tons in 1997 to 3,037 in 2001, to 3,545 in 2006.

Constant increase of sea transport is evident analyzing figures for EU-25 since 2004 as well.

Concerning Italy, Slovenia and Croatia (as an official EU candidate), positive trends can also be confirmed for these countries since 2001.

In conclusion we have to consider that road transport has been absolutely predominant in the EU for decades and today we are paying for all the negative consequences of not implementing efficient strategies in order to develop alternative modes of transport: traffic congestion; air pollution; noise; road accidents; high insurance costs for shipping goods.

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[10] The groupage loading system is a method of shipping goods based on the collection of materials from different clients and firms in order to successively deliver the merchandise as one single shipment of assorted and mixed goods.

[11] TEU (Twenty-foot Equivalent Unit) is a 20-foot ISO container which is used as a statistical measure of traffic flows and trade volume.

[12] Both types of containers are considered the standard dimensions for intercontinental (Ocean and maritime) freight as well as ideal for transport of goods by truck. The standard dimensions are the following: length 20 feet (6.058 metres) – 40 feet (12.192 metres); width 8 feet (2.438 metres); height 8.5' feet (2.591 metres) or 9.5' (2.896 metres). The Rating (maximum permissible weight of a container – i.e. tare mass plus the contents) of a 20-foot container is 24,000 kgs. (52,900 lbs.) and of a 40-foot is 30,480 kgs. (67,200 lbs.).

Therefore urgent measures are indispensable to reduce road transport in favor of alternative modes (rail, sea, inland navigation), in order to allow sustainable development and environmental protection.

**Two Examples of Alternative Modes of Transport: Fluvial Transport in Austria and Short Sea Shipping (SSS)**

The expansion of fluvial transport along with sea transport is vital for the accomplishment of advanced multimodality. Together with rail and short sea shipping, inland waterway transport can contribute to the sustainability of the transport system, as recommended by the White Paper. In the context of a liberalised inland navigation market, the European Commission aims at promoting and strengthening the competitive position of inland waterway transport, in particular by enhancing its integration into multi-modal supply chains. […] Inland navigation has the best performance in terms of external costs, in particular pollution and safety (2 ½ times better than road), and has a huge capacity to deploy[13].

In fact, Inland Waterway Transport (IWT) has several advantages compared to road and rail transport.

First of all, the level of energy consumption to dispatch large volumes of goods is moderate. Flatboats are generally an economical transport means, in terms of fuel and maintenance. These vessels require a low-input of energy and they can be loaded with several types of goods. In addition, the amount of goods transported by fluvial vessels is considerable. A flatboat carrying 3.7 thousand tons is equal to 93 railroad wagons (40-ton wagons) or 148 fully loaded trucks (25-ton trucks).

Secondly, flatboats can navigate in relatively shallow waters. Thanks to flat hulls, flatboats can transport goods throughout the entire year, unless sudden drought occurs. Fluvial vessels can be also used as floating warehouses.

Thirdly, small capital assets are necessary to improve and to maintain infrastructures, or even better to create new ports or loading/unloading points along rivers.

Fourthly, fluvial transport is safer than road and rail transport. The risk of accidents is inferior. Fluvial transport is increasingly used to deliver dangerous goods, as it is considered one of the safest modes of transport. In the Netherlands, where inland waterway transport is used to dispatch over 300 million tons per year, the number of accidents is extremely low. Recently, new vessels have been built with double hulls, in order to ensure more stability and solidity.

In conclusion, fewer accidents, less noise, fewer emissions, low capital expenditure requirements and low energy consumption combined with a high mass-transport capacity enable inland waterway transport to contribute to the environmentally friendly and economically effective management of part of the increase in freight transport volumes in the Danube corridor[14].

However, nowadays inland waterways are not still sufficiently utilized, e.g. only 10 - 15% of the capacity of the Danube is used. Fluvial transport on the Danube has to overcome some obstacles.

[13] See: Communication from the Commission on the Promotion of Inland Watwerway Transport "NAIADES", An integrated European Action Programme for Inland Waterway Transport, COM(2006) 6 final of 17.1.2006, pp. 2-3.

[14] For details about advantages and possibilities of inland waterway transport on the Danube, see: http://www.donauschifffahrt.info/en/public_relations/advantages_of_inland_waterway_transport/capacity.

Firstly, some sections of the Danube are in poor condition and navigation can therefore be difficult.

Secondly, Inland Waterway Transport depends on water levels, so during some months of the year navigation can be limited.

Thirdly, despite its cost efficiency, fluvial transport has often been considered as a disadvantageous means of transport because of its low speed.

In consequence of these impediments to fluvial transport on the Austrian Danube, a 200-million euro project called "The Integrated River Engineering Project on the Danube to the East of Vienna" was launched in 2002.

It was co-financed by the EU from the budget of the Transeuropean Transport Networks, with the purpose of improving navigation on the Danube, from Vienna to the Slovak border.

The project focused on river bed stabilization, in order to stop erosion, along with environmental protection. The goal was to combine safe conditions of navigation at low water levels with "ecological hydro-engineering measures"[15].

Austria, due to its geographical position, has obviously no access to international sea water, however it has developed an interesting and efficient inland waterways transport system along the Danube (329 km)[16]. Since 1997 an average of 10 million tons of goods per year have been transported through inland waterway transport[17]. After a notable growth from 1997 until 2002, the volume of goods shipped by fluvial transport decreased in 2003. However a remarkable increase has been registered since 2007.

Austrian navigation policy on the Danube will be based on the National Action Plan (NAP) until 2015. The NAP concentrates on modernization of inland navigation infrastructures in order to transform Austrian Danube ports in multimodal logistic centers and into transshipment hubs between rail, road and fluvial transport modes[18]. It is also considered essential to remove bottlenecks on the Austrian section of the Danube and to create favorable conditions to attract and to facilitate the presence of industrial settlements along the

[15] See: http://www.donau.bmvit.gv.at/en/project.

[16] Inland waterway transport plays an important role for the transport of goods in Europe. More than 37,000 kilometers of waterways connect hundreds of cities and industrial regions. Some 20 out of 27 Member States have inland waterways, 12 of which have an interconnected waterway networks. The potential for increasing the modal share of inland waterway transport is, however, significant. Compared to other modes of transport which are often confronted with congestion and capacity problems, inland waterway transport is characterized by its reliability, its low environmental impact and its major capacity for increased exploitation. Inland waterway transport is a competitive alternative to road and rail transport. In particular; it offers an environment friendly alternative in terms of both energy consumption and noise and gas emissions. Its energy consumption per km/ton of transported goods is approximately 17% of that of road transport and 50% of rail transport. Its noise and gaseous emissions are modest. In addition, inland waterway transport ensures a high degree of safety, in particular when it comes to the transportation of dangerous goods. Finally it contributes to the decongestion of the overloaded road network in densely populated regions. According to recent studies, the total external costs of inland navigation (in terms of accidents, congestion, noise emissions, air pollution and other environmental impacts) are seven times lower than those of road transport. See: http://ec.europa.eu/transport/inland/index_en.htm.

[17] Source: Eurostat and Statistik Austria. Figures on inland waterways are available at: http://www.statistik.at/web_en/statistics/transport/inland_waterways/index.html.

[18] Concerning NAP and development of Austrian ports, see: Federal Ministry of Transport, Innovation and Technology (bmvit) of Austria, "National Action Plan Danube Navigation", Overview of Measures, February 2006, available at: http://www.donauschifffahrt.info/fileadmin/group_upload/7/OEffentlichkeit/NAP/nap_folder_en.pdf, pp. 4-6.

Danube. The cost for implementing the NAP initiatives is estimated at around 270 million euro. The NAP will be essentially based on the objectives of two EU programs:

1) The NAIADES program (Navigation and Inland Waterway Action and Development in Europe)[19], which was adopted by the European Commission on 17 January 2006 for the promotion of inland navigation in the EU. The NAIADES Action Programme is intended for the period 2006–2013 and focuses on five strategic areas for a comprehensive Inland Waterway Transport (IWT) policy: market, fleet, jobs and skills, image and infrastructure[20].

2) The PLATINA project[21], which was launched by the European Commission on 2 June 2008, is a platform for the implementation of the five strategic areas of the NAIADES program. It focuses on: improving market conditions and further penetration into containerized cargo markets or new market niches (e.g. waste and recycling, transport of vehicles, dangerous goods); modernizing fleets and using modern technologies, especially research on the reduction of fuel consumption[22]; developing human capital (education and training, making use of the ESF - European Social Fund); strengthening the image of inland navigation[23]; and improving infrastructure and eliminating bottlenecks[24].

Through full accomplishment of the NAP, Austria should be able to increase the volume of goods dispatched by fluvial transport by 100-110% by 2015, from the current 11-12 million tons up to 25 million tons.

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[19] For further details about NAIADES, see: Communication from the Commission on the Promotion of Inland Watwerway Transport "NAIADES": An integrated European action program for Inland Waterway Transport, COM(2006) 6 final of 17.1.2006; and Communication from the Commission, First progress report on the implementation of the NAIADES Action Programme for the promotion of inland waterway transport, COM(2007) 770 final of 5.12.2007.

[20] See: http://ec.europa.eu/transport/inland/promotion/naiades_en.htm.

[21] PLATINA marks an important step in the Commission's strategy to promote inland navigation in Europe, which was initiated by the publication of the NAIADES action program in the year 2006. PLATINA is a Coordination Action funded by the European Union (DG TREN) under the 7th Framework Programme for research, technological development and demonstration activities (RTD) [http://cordis.europa.eu/fp7]. The core consortium is formed by Via donau (Austria) as coordinator, Voies navigables de France (France), Bundesverband der Deutschen Binnenschiffahrt (Germany), Promotie Binnenvaart Vlaanderen (Belgium) and the Rijkswaterstaat Centre for Transport and Navigation (The Netherlands). All in all, 22 institutions from nine European countries are involved as project partners in PLATINA. This unique set-up will allow PLATINA to create the momentum necessary for the realization of selected NAIADES actions. See: http://www.naiades.info/platina/page.php?id=1.

[22] The introduction of technologies to further reduce fuel consumption and harmful emissions from new and existing vessels, e.g. hydrodynamics, improved propulsion, fuel-efficiency, filtering, will allow inland shipping to maintain its high standards. Research into commercially viable non-carbon fuels, e.g. hydrogen fuel cells, and zero-emission engines should also be pursued. The use of biofuels, especially biodiesel, should be exploited. Adapting vessels' design and standards to the conditions of particular rivers should be considered. See: COM(2006) 6 final, pp. 6-7.

[23] Improving the image of inland navigation is a joint responsibility of the industry, politics and administrations at national and European level. Promotion activities aimed at logistics decision-makers could be supported and coordinated to establish a consistent and positive image of inland navigation and to pave the way for a rebalanced transport system. Ibid., p. 8.

[24] Even though the larger part of the waterway network has ample free capacities, several bottlenecks caused by limited draught, bridge clearance and lock dimensions hinder its full utilization and reduce the competitiveness of inland waterway transport. Ibid., p. 9.

Regarding Austrian ports, Vienna, due to its location, is a strategic harbor for transshipment and distribution of goods in Austria as well as for shipments to/from North Sea and the Black Sea.

Thanks to its 7,000-TEU container terminal, in 2007 freight transshipment was equal to 5.5 million tons and movement of containers was 323,000 TEU[25]. These figures are quite significant for a fluvial port. Other Austrian fluvial ports on the Danube are: Mierka Donauhafen Krems (71 km far from Vienna), which is equipped with a modern trimodal logistic centre; Linz (2,500-TEU container terminal); and Enns (5,000-TEU container terminal)[26].

Short Sea Shipping and Coastal shipping are the movement of goods, cargoes and passengers by sea between European harbors or between European ports and non-EU ports with a coastline in the enclosed seas bordering Europe. Therefore, Short Sea Shipping is relevant to: domestic maritime transport, including cabotage[27] towards islands and Motorways of the Sea; maritime traffic between Member States of the EU, including Iceland and Norway; maritime traffic between community ports and non-EU ports that border the Mediterranean Sea, the Black Sea and the Baltic Sea; feeder service, i.e. short transport lines to and from the deep-sea[28]; and sea-river shipping[29].

Short Sea Shipping is considered to be one of the least polluting means of transport, as it reduces carbon dioxide and nitrogen dioxide emissions by up to 80% and 35% respectively. SSS can be considered the most environmentally friendly mode of transport, with comparatively low external costs and high energy efficiency. Shipping is also a comparatively safe mode of transport, with infrastructure costs which are much lower than for land transport[30].

SSS is currently implemented with the aim of reducing traffic congestion. At the same time in the near future it will be able to promote pioneering intermodal transport networks and an innovative modal shift for goods transport.

In fact, SSS is not only an alternative to road transport, but it can also be seen as an integrated transport network which aims to improve the efficiency of logistics and to reduce transport costs.

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[25] See: Port of Vienna, Wiener Hafen Group Data and Facts for 2007, available at: http://www.wienerhafen.com/en_index1.htm.

[26] See: http://www.hafen.co.at (Austrian ports); http://www.mierka.com (Mierka port); http://www.ennshafen.at (Enns port).

[27] Cabotage is the right to operate sea, air, or other transport services within a particular territory. Restriction of the operation of sea, air, or other transport services within or into a particular country to that country's own transport services. Origin - mid 19th century - from French “caboter” (sail along a coast), or perhaps from Spanish “cabo” (cape, headland). See: Oxford English Dictionary.

[28] Feeder service is the SSS service which connects at least two ports in order for the freight (generally containers) to be consolidated or redistributed to or from a deep-sea service in one of these ports. By extension, this concept may be used for inland transport services. See: “Terminology on Combined Transport”, document prepared by UN/ECE, ECMT and EC, 2001.

[29] For further details about SSS, see: http://www.freightbywater.org/content/shortseashipping and http://www.shortsea.it/Home/eng/index.htm.

[30] See: Communication from the Commission to European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, “Communication and action plan with a view to establishing a European maritime transport space without barriers”, COM(2009) 10 final of 21.1.2009, p. 3.

European Conference of Ministers of Transport (ECMT), with Recommendations on Short Sea Shipping of 5 June 2000, focused on the importance of SSS as an alternative transport mode along with the improvement of transshipment points.

By integrating short sea shipping with combined transport, the aim is to include maritime shipping as a type of transport in multimodal traffic flows. It will thus be possible for the combined transport sector to achieve the modal shift from road to alternative environmentally-friendly transport modes - in this case, the waterborne transport chain - on a wider scale. Ports - as interfaces - are particularly important for the integration of short sea shipping with combined transport modes. For combined transport, ports are major transshipment points at which road, rail and river and sea traffic converge. […] Land and river access is increasingly a key factor in the competitiveness of seaports. If short sea shipping is to be integrated with combined transport, it is vital that rail and river infrastructure links and where necessary for access to ports, road infrastructure links, be improved[31].

Vessels using SSS routes have full seagoing capability though they are also able to navigate inland waterway networks, so that transshipment at coastal ports can be avoided. Short-sea and coastal shipping are based on the concept of carrying freight door-to-door, or factory to factory, much like in road transport. This is accomplished through the use of fast, modern ships and intermodal transport in collection and delivery. Short-sea shipping transit time is generally only slightly longer than road transport. Moreover, the costs can be considerably lower - up to 25 percent. Short-sea and coastal shipping advantages include: a cost-saving when compared to road transport; reliable transit times; environmental benefits; and flexibility (with the option to use 300 European inland and coastal ports)[32].

According to the White Paper for the European Transport policy for 2010, the Short Sea Shipping can play in curbing the growth of heavy goods vehicle traffic, rebalancing the modal split and bypassing land bottlenecks. The development of Short Sea Shipping can also help to reduce the growth of road transport, restore the balance between modes of transport, bypass bottlenecks and contribute to sustainable development and safety[33]. Short Sea Shipping is supposed to fulfill the European sustainable transport policy, especially the purpose of the Commission relevant to the need to build up coordination centers for SSS along the coast of every EU member state.

However, SSS still has to face - and obviously to overcome - several obstacles before being fully operative. The Communications COM (1999) 317 final, and COM(2004) 453 final, enumerated the limits to development of SSS (bottlenecks), as follows: it has not yet reached full integration in the intermodal door-to-door supply chain; it has not yet fully shed its past image of an old-fashioned industry; it involves complex administrative procedures; and it requires high port efficiency and services[34]. Therefore,

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[31] European Conference of Ministers of Transport (ECMT), CEMT/CM (2000)3/Final, Sustainable Development: Recommendations on Short Sea Shipping of 5 June 2000. The document was approved by the Council of Ministers on 30-31 May 2000 in Prague, p. 2.

[32] Ibid.

[33] See: http://europa.eu/scadplus/leg/en/lvb/l24258.htm.

[34] See: The Development of Short Sea Shipping in Europe: A Dynamic Alternative in a Sustainable Transport Chain - Second Two-yearly Progress Report, COM (1999) 317 final, 29.6.1999 and Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Region on Short Sea Shipping [SEC(2004) 875], COM(2004) 453 final, 2.7.2004, p. 3. Another useful document relevant to SSS and its implementation inside EU territory is Communication from the Commission on the Development of Short Sea Shipping in Europe – Prospects and Challenges, COM(95) 317 final, 5.7.1995.

the image of SSS as an efficient means of delivering goods should be spread not only among potential customers (i.e. enterprises, forwarding agencies and transport companies), but it should also involve local authorities and institutions, especially those with competence in maritime regions.

In 2004 – 2006 period, SSS accounted for over 60% of total EU-27 maritime goods transport, totalling nearly 2 billion tonnes.

In 2006, The North Sea and the Mediterranean took the largest shares of SSS by the EU-27 countries, with 28.1% (599 million tonnes), and 26.3% (560 million tonnes), respectively. Liquid bulk[35] (including liquefied gas, crude oil and oil products) played a predominant role in SSS (almost 50% of total cargo weight). In France, Italy, the Netherlands and Malta in particular, it accounted for over 55% of total cargo. In all the maritime regions, liquid bulk was the largest SSS cargo, both leaving and entering EU-27 ports[36].

Liquid bulk is generally transported by SSS vessels, as SSS has been shown to be safer than road transport for dangerous goods, such as liquefied gas, petrol and chemical substances.

The priority of maritime transport safety and prevention of accidents has been highlighted by the EU through 3rd Maritime Safety Package and COM(2009) 8 final on "Strategic goals and recommendations for the EU's maritime transport policy".

Since the Erika accident (December 1999) and the Prestige accident (November 2002), the EU has introduced legislation in order to strengthen the level of maritime safety. Preventing accidental pollution and environmental disaster by ships has become a priority in the EU over the last ten years.

SSS has gradually increased in the EU area since 2000. In the period 2000 – 2006, in the EU-15 area, shipment of goods through SSS rose by approximately 3% per year. In 2000, in the EU-15 1,505 million tonnes of goods were shipped by SSS, reaching 1,802 tonnes in 2006. Including new Member States (EU-27), during 2004 and 2005, SSS experienced a positive annual average growth of 4.5%, from 1,810 million tonnes to 1,892. In brief, the success of SSS depends on three key points.

First of all, the enlargement of the network of door-to-door Short Sea Shipping, also making use of fluvial networks. The EU institutions should finance projects to build new maritime and fluvial ports, in an attempt to start up a capillary network of loading/unloading points and to promote the door-to-door SSS. The combination of Motorways of the Sea and fluvial transport would be an excellent formula to decrease road traffic congestion. It is necessary to replace the current road door-to-door system, or at least road transport should be used exclusively for the final part of every single shipment (only a few kilometers to reach final destinations, i.e. consignee). Unfortunately, SSS is limited by its incapacity of penetrating very far inland waterways. In fact, given the extensive inland waterway networks in Central and Eastern Europe, short sea shipping and inland waterway transport throughout Europe could become a much more attractive option if they could be integrated and use inland waterways without hindrance[37].

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[35] Bulk cargo refers to unpackaged cargo which can be classified as liquid or dry. Liquid bulk is utilized to transport liquid commodities such as: petrol, liquid natural gas, chemicals, acids, oil. Dry bulk is used to ship solid materials, such as: coal, wood, cement, iron, copper, bauxite, various metals and scrap metals, fertilizer, grain, sand, salt.

[36] See: G. Amerini, "Short Sea Shipping of Goods 2000 – 2006", in Statistics in Focus, Transport, 2/2008, Eurostat, p. 1, available on: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-08-002/EN/KS-SF-08-002-EN.PDF.

[37] European Conference of Ministers of Transport (ECMT), CEMT/CM(2000)3/Final, p. 4.

Secondly, the development of essential harbor infrastructures for SSS transport systems in order to facilitate cargo handling operations, such as: improving the technology of overhead travelling cranes and portal cranes or increasing the number of cranes; enlarging berths and areas to load and unload containers (vessel-train or vessel-truck); building up modern and logistically efficient railroad terminals inside ports. Therefore, modern infrastructures must be realized in every European harbor with the purpose of implementing rapid techniques to load and unload docked vessels. In addition, logistics, handling and all administrative services provided by harbor authorities, have to be clearly based on quality and economic efficiency. In order to fulfill these economic criteria, professional and highly-skilled personnel are a fundamental prerequisite, as harbor authorities can play a central role in incorporating ports in logistics and transport networks.

Thirdly, the implementation of new administrative services in order to reduce the complexity of documents required to deliver goods by maritime transport. As inside the EU territory there is no customs check, especially the import and export procedures to ship outside EU area should be simplified, for instance shipments from EU ports to Northern African harbors or Middle Eastern coasts. The implementation of an e-Customs system (New Computerised Transit System – NCTS) and paperless administrative customs procedures will lead to transferring administrative and customs information electronically. Besides, the electronic customs system will have important advantages, such as: reducing customs clearance costs and times; improving the exchange of information and the flow of data among EU customs authorities (departments and agencies) of Member States, so that more accurate customs controls and inspections will be achievable; harmonizing customs procedures between Member States and "enabling economic operators to use one single interface to lodge electronic customs declaration, even if the customs procedure is carried out in another Member State[38].

Furthermore, the chance of SSS to supplant road transport may vary according to a range of factors linked with the social and economic conditions of each country, for example: legislation of the country; infrastructures (road network and railway development); investment in technology; influence and pressure of motor companies or petrol lobbies on local and central governments; presence of active green and ecologist political parties.

Last but not least, we should pay attention to the location of a country. Several geographical factors can influence the growth of maritime traffic, including the development of SSS, for instance: kilometers of coasts. Italy and Croatia can take advantage of this; access to international sea-water. Slovenia might face limited access to international sea-water in consequence of the unsettled question with Croatia concerning the border in Piran Bay; geological coastal conformation (for example, the presence of cliffs in Ireland and Brittany or fjords in Norway).

[38] See: Decision No. 70/2008/EC of the European Parliament and of the Council of 15 January 2008 "on a paperless environment for customs and trade". The Decision is relevant to the electronic customs system and the decrease of paper-format customs documents. Article 1 of the Decision No. 70/2008/EC states that: The Commission and the Member States shall set up secure, integrated, interoperable and accessible electronic customs systems for the exchange of data contained in customs declarations, documents accompanying customs declarations and certificates and the exchange of other relevant information. The Commission and the Member States shall provide the structure and means for the operation of those electronic customs systems.

With reference to the Adriatic coasts SSS will permit the development of regions and areas along the coasts, such as the province of Ravenna, the coast around the city of Chioggia in Italy, as well as the port of Koper in Slovenia and the whole Croatian coastline, from Rijeka up to Dubrovnik. In addition, SSS will allow for the growth and increase the importance of main harbors in the Northern part of the Adriatic Sea (Venice, Monfalcone, Trieste, Koper and Rijeka) for the traffic of goods from Central Europe to South-eastern Mediterranean countries.

Besides, countries like Austria, Hungary, Czech Republic and Slovakia, having no coasts and no access to the sea, would benefit from the proximity of Northern Adriatic harbors.

These EU member States might open up new potential markets in the Eastern Mediterranean area, such as Cyprus, Israel, Lebanon, or in Middle Eastern regions, instead of moving and delivering goods by maritime transport exclusively from the major harbors of Northern Europe (for example Rotterdam, Antwerpen and Hamburg).

In Slovenia intermodal transport and SSS is progressively growing, but it is still undersized. Slovenian maritime traffic is concentrated in the harbor of Koper. A remarkable increase in volume of goods was registered during the period 2000 - 2008, especially in vehicles (+ 246%) and containers (+ 325%)[39].

The port of Koper needs to be expanded. In particular services and infrastructures for ro-ro vessels and a new efficient container terminal should be developed. The project for the construction of a third pier housing a modern ro-ro and container terminal has been approved. The third pier will be realized in the coming years (2010-2012) in order to build up an advanced intermodal terminal useful for SSS. This project is vital for the modernization of the harbor of Koper.

It should allow Koper to increase its role as a maritime hub in the Northern part of the Adriatic Sea for products like fruit, vegetables, livestock, timber and moreover cars. Today the car terminal in Koper is one of the largest and most modern in the Mediterranean, so investments have to be directed to keeping the car terminal competitive and efficient. Currently, the Koper container and ro-ro terminal has regular connections with the main hubs ports in the Mediterranean sea, such as: Gioia Tauro, Malta, Piraeus, Haifa and Taranto. The Port of Koper has also scheduled a weekly ro-ro/multipurpose connection with the harbour of Ravenna. The ship-owner is Grimaldi Lines[40].

In order to encourage the growth of intermodality and the efficiency of the Port of Koper, another Slovenian priority is making the new railway line between Koper and the city of Divača fully operational as well.

However Slovenia has to face another negative aspect limiting the growth of its maritime economy and the development of SSS. Slovenia has not opened its own Short-Sea Promotion Centre (SPC) yet and it has not taken part in the European Short-sea Network (ESN) either. SPCs were opened by several EU Member States (Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Holland, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Spain, the UK) and no-EU Countries (Croatia, Norway, Turkey) in order: to provide information about SSS advantages among forwarding agents, shipping agents and potential users; to analyze problems limiting the SSS; to encourage cooperation between institutions and private enterprises, promoting partnerships between Member States to develop new SSS connections; and to strengthen cooperation between Europe and its bordering countries.

[39] See: Port of Koper (Luka Koper), http://www.luka-kp.si.

[40] For additional details concerning ro-ro services and connections in the Adriatic Sea, see: http://www.shortsea.it.

Slovenia should follow other EU member states in order to promote short sea shipping and sea motorways as the easy way to overcome the dependence to access Europe and to increase the awareness of short sea shipping as an economically viable and environmentally friendly mode of transport[41].

Concerning Adriatic Italian harbors, during 2006 in terms of SSS, Trieste was the main Italian harbor and it was the 9th in the EU-27 rank. It accounted for 1.5% (37.5 million tonnes) of all SSS of the EU-27 harbors (2.5 billion tonnes)[42].

In 2007 and 2008, total movement of goods in Trieste harbor was respectively 46.11 million tons (of which 37.26 liquid bulk) and 48.27 million tons (of which 34.76 liquid bulk), i.e. a 4,7% growth in one year[43].

In 2006, Ravenna was the 5th most important SSS European harbor for dry bulk cargo, after Rotterdam, Riga, Amsterdam and London. In Ravenna 11.1 million tons of dry bulk cargo were shipped during 2006, just 2.4 million tons less than Rotterdam (13.5 million tons).

In 2006, total movement of goods (liquid bulk, dry bulk, containers and ro-ro) at Ravenna port was 26.77 million tons[44].

Venice is another important Adriatic port. During the period 2002 - 2008, the overall movement of goods was around 30 million tons each year.

Important growth was registered in traffic of containers (TEUs), from 262,337 in 2002 to 379,072 in 2008, i.e. an increase of 45% in six years[45].

In order to make a brief comparison between container traffic in Northern Europe and the Adriatic Sea, in 2008 Rotterdam, Hamburg and Antwerp harbors registered respectively 10.8 million TEUs, 9.7 million TEUs and 8.6 million TEUs[46].

A small Adriatic port with possibilities of development, thanks to its strategic position, is Monfalcone. The movement of goods was nearly 3 million tons in 2008 and the volume of container traffic is still limited (1,584 TEUs in 2008 and 1,519 TEUs in 2007)[47], nevertheless this port can be extremely helpful to implement an effective SSS network in the Northern Adriatic.

Analyzing SSS figures for the period 2004 – 2005, SSS showed positive trends in Slovenia and Italy. In Italy SSS rose by 3.8% (from 310 million tonnes to 322) and in Slovenia by 5.7% (from 6.9 million tonnes to 7.3).

However, in Italy the positive trend ended in 2006, as SSS decreased to 308 million tonnes. The reduction is mainly linked to the decrease in demand for containers.

Slovenia has experienced noticeable increases in SSS since the new Millennium. In 2001, 5.4 million tonnes were shipped using SSS and in 2006 the amount rose up to 8.7 million, with an increase of over 60% in 5 years.

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[41] See: B. Beškovnik, "Importance of Short Sea Shipping and Sea Motorways in the European and Slovenian Transport Policy", in Journal of Maritime Studies (Pomorstvo), Vol. 20, No. 1, Faculty of Maritime Studies, University of Rijeka, 2006, pp.32-33.

[42] Source: G. Amerini, p. 8.

[43] See: Trieste Port Authority (Autorità Portuale di Trieste, Ufficio Statistica), http://www.porto.trieste.it.

[44] See: Ravenna Port Authority (Autorità Portuale di Ravenna), http://www.port.ravenna.it.

[45] See: Venice Port Authority (Autorità Portuale di Venezia, Direzione Pianificazione, Strategia e Sviluppo - Area Studi e Progetti), http://www.port.venice.it.

[46] The world rank in terms of container traffic is led by the harbors of Singapore (29.9 million TEUs), Shangai (27.9 million TEUs) and Hong Kong (21.4 million TEUs). Source: "Containerisation International" Review, http://www.ci-online.co.uk.

[47] See: Azienda Speciale per il Porto di Monfalcone, http://www.porto.monfalcone.gorizia.it.

In 2006, Italy utilized SSS to deliver 42.5 million tonnes of containers, 32.2 of ro-ro units, 42.6 of dry bulk and moreover 172.9 million tonnes of liquid bulk. These figures indicate once again that liquid bulk is the predominant type of cargo shipped by SSS in the majority of the EU Countries.

Regarding Slovenia, in 2006 SSS was used to ship 1.9 million tonnes of containers, 3.9 of dry bulk and 2 million of liquid bulk.[48]

During the period 2004 – 2006, Slovenia shows growth in container transit in terms of TEUs (20-foot ISO containers), while in Italy SSS of containers is steady or slightly decreasing (from 4.39 million in 2004 to 4.1 million in 2006).

Concerning a brief outlook on fleets (in gross tons), Slovenia has a very limited fleet in comparison with Italy and Croatia.

The Slovenian fleet is only 2,000 gross tons, while the Italian and Croatian ones are respectively 12,571,000 and 1,157,000 gross tons[49].

Regarding Croatia, in 2008 SSS was mainly based on feedering. As a matter of fact, all big Croatian ports (Rijeka, Ploče, Split and Zadar) were connected with hub terminals of the central Mediterranean by means of feeder lines. Feeder lines have thus been operating between Croatian ports of Rijeka, Ploče, Split and Zadar, and Gioa Tauro, Malta and Taranto[50].

An interesting project called the "Adriatic 3S Project" has been recently elaborated in order to promote SSS. This project involves Croatia and Italy and it will be based on the improvement of maritime infrastructures and services in both countries.

**Conclusion**

Powerful cooperation among the main harbors along the coast of the Upper Adriatic Sea will be vital for the implementation of new strategies and policies in order to create an efficient area of trade, along with a well-organized network of intermodal transport.

The UE should support more effective investments and projects regarding collaboration and assistance between port authorities, institutions, forwarding agencies and any other stakeholder involved in the expansion of the Northern Adriatic maritime traffic network.

On 17 April 2009, the Presidents of Maritime Authorities of the harbors of Trieste, Venice, Ravenna and Koper gathered in Venice, with the purpose of enhancing infrastructures and maritime trade in the Northern Adriatic. They signed the agreement "Articulating the North Adriatic Multi-port Gateway" within the European maritime transport strategy.

Thanks to cooperation and synergies between the four Adriatic ports, an important single Northern Adriatic interregional hub may be created, both for movement of goods and passengers. In fact, this agreement is part of the EU strategy in order to implement interregional harbor networks.

[48] See: G. Amerini, p. 6.

[49] For further details on maritime transport and fleets, see: UNCTAD (United Nations Conference on Trade and Development), "Review of Maritime Transport 2007", Annex III (a), New York and Geneva, 2007, pp. 143-147, available on: http://www.unctad.org/en/docs/rmt2007_en.pdf.

[50] See: European Shortsea Network, "Annual Report 2008", p. 7, available on: http://www.shortsea.info. For further details see also: http://www.shortsea.hr.

Therefore, the Multiport Gateway plan will also integrate minor Adriatic ports, such as Monfalcone, Chioggia (close to Venice) and Porto Nogaro (province of Udine). The port of Rijeka may also take part in the agreement, once Croatia joins the EU[51].

In particular, with the support of the European Commission, the Adriatic Maritime Authorities of Trieste, Venice, Ravenna and Koper aim: to improve the intermodal transport (rail-ship) in the Italian regions Emilia-Romagna, Veneto and Friuli Venezia Giulia as well as in Slovenian cross-border regions and along the Slovenian coast (mainly Koper). Therefore, the Slovenian railway network must be enhanced rapidly, especially the Koper – Divača connection; to harmonize administrative procedures and customs clearance operations. A single IT system and a "single window" to facilitate the exchange of information must be implemented; and to develop the Adriatic-Baltic corridor, according to the TEN strategy[52].

## BIBLIOGRAPHY

Accordo dei porti del Nord Adriatico, "4 banchine per un solo sistema portuale", 17 April 2009, available at: http://www.port.venice.it

Amerini G., "Short Sea Shipping of Goods 2000 – 2006", in Statistics in Focus, Transport, 2/2008, Eurostat, available at: http://epp.eurostat.ec.europa.eu/cache/ ITY_OFFPUB/ KS-SF-08-002/EN/KS-SF-08-002-EN.PDF

Anderson J., O'Dowd L., Wilson T. M., "New Borders for a Changing Europe: Cross-border Cooperation and Governance", Frank Cass, London, 2003

Autorità Portuale di Ravenna, "Comunicato Stampa" of 6 February 2009

Beškovnik B., "Importance of Short Sea Shipping and Sea Motorways in the European and Slovenian Transport Policy", in Journal of Maritime Studies (Pomorstvo), Vol. 20, No. 1, Faculty of Maritime Studies, University of Rijeka, 2006

Commission Staff Working Paper, "Guide to Customs Procedures for Short Sea Shipping", SEC(2002) 632, 29 May 2002

Commission Staff Working Paper, "Towards a European maritime transport space without barriers", SEC(2007) 1351, 18 October 2007

[51] The Port of Rijeka is vital for the economy of Croatia, as this country imports and exports large volumes of goods through the harbor of Rijeka. This port is fundamental for goods in transit from Hungary, Slovakia, the Czech Republic, Austria and Italy as well. The expansion of the port will largely depend on the Zagreb – Rijeka motorway, "as skeleton of Croatian road and traffic network". In fact, the harbor is located in the centre of the city, so lack of roads and adequate transport infrastructures have always hindered the competitiveness and the growth of the Port of Rijeka. For further details concerning the development of the Port of Rijeka, see: Č. Dundović, B. Hlača, "New Concept of the Container terminal in the Port of Rijeka", in Journal of Maritime Studies (Pomorstvo), Vol. 21, No. 2, University of Rijeka, December 2007, pp. 51-68, available at: http://www.pfri.hr/pomorstvo/2007/02/05_dundovic_hlaca.pdf. Additional information regarding traffic flows and enhancement of the Port of Rijeka can be found in Portal of Scientific Journals of Croatia (Hrčak - Portal znanstvenih časopisa Republike Hrvatske), http://hrcak.srce.hr./search/?q=rijeka+port.

[52] Autorità Portuale di Ravenna, "Comunicato Stampa" of 6 February 2009 and "Accordo dei porti del Nord Adriatico: 4 banchine per un solo sistema portuale" of 17 April 2009, available at: http://www.port.venice.it.

Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, "Short Sea Shipping", COM(2004) 453 final, 2 July 2004

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "Communication and action plan with a view to establishing a European maritime transport space without barriers", COM(2009) 10 final, 21 January 2009

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "The Development of Short Sea Shipping in Europe: A Dynamic Alternative in a Sustainable Transport Chain", Second Two- yearly Progress Report, COM(1999) 317 final, 29 June 1999

Communication from the Commission, "First progress report on the implementation of the NAIADES Action Programme for the promotion of inland waterway transport", COM(2007) 770 final, 5 December 2007

Communication from the Commission, "The Development of Short Sea Shipping in Europe – Prospects and Challenges", COM(95) 317 final, 5 July 1995

Communication from the Commission, "The Promotion of Inland Waterway Transport NAIADES: An integrated European Action Programme for Inland Waterway Transport", COM(2006) 6 final, 17 January 2006

Decision No. 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade

Decision No. 702 of the Council of 6 October 2006 on Community Strategic Guidelines on Cohesion, "Guideline: Making Europe and its regions more attractive places in which to invest and work", Official Journal L 291, 21 October 2006

Decision No. 884/2004/EC of 29 April 2004 (amending Decision No 1692/96/EC on Community guidelines for the development of the trans-European transport network), adopting a revision of the Trans-European Transport Networks (TEN-T), including the Motorways of the Sea projects

Dundović Č., Hlača B., "New Concept of the Container terminal in the Port of Rijeka", in Journal of Maritime Studies (Pomorstvo), Vol. 21, No. 2, University of Rijeka, December 2007, pp. 51-68, available at: http://www.pfri.hr/pomorstvo/2007/02/05_dundovic_hlaca.pdf

European Conference of Ministers of Transport (ECMT), CEMT/CM(2000) 3 final, "Sustainable Development: Recommendations on Short Sea Shipping of 5 June 2000", Prague, 30-31 May 2000

European Shortsea Network, "Annual Report 2008", available at: http://www.shortsea.info

Federal Ministry of Transport, Innovation and Technology (BMVIT) of Austria, "National Action Plan Danube Navigation", Overview of Measures, February 2006

Scott J. W., "EU Enlargement, Region Building and Shifting Borders of Inclusion and Exclusion",Ashgate, Aldershot, 2006

UK Commission for Integrated Transport to the British Government, "Transport and climate change", 2007, available at: http://www.cfit.gov.uk/docs/2007/climatechange/pdf/2007 climatechange.pdf

UNCTAD (United Nations Conference on Trade and Development), "Review of Maritime Transport 2007", Annex III (a), New York and Geneva, 2007, available at: http://www.unctad.org/en/docs/rmt2007_en.pdf

Unione di Navigazione Interna Italiana, “Il trasporto per acqua sugli assi padano e adriatico: navigazione interna e cabotaggio”, Conference documents, Ravenna, 4 June 1993

United Nations and Economic Commission for Europe (UN/ECE), the European Conference of Ministers of Transport (ECMT) and the European Commission (EC), “Terminology on Combined Transport”, New York and Geneva, 2001, available on: http://www.unece.org/trans/wp24/documents/term.pdf

White paper of 1992: “The future development of the Common Transport Policy”, COM(92) 494, 2 December 1992

White paper of 2001: “European transport policy for 2010: time to decide”, COM(2001) 370, 12 September 2001

**Internet Sites**

http://ec.europa.eu/transport/inland/index_en.htm
http://epp.eurostat.ec.europa.eu
http://europa.eu/scadplus
http://hrcak.srce.hr
http://www.ci-online.co.uk
http://www.donau.bmvit.gv.at/en/project
http://www.donauschifffahrt.info
http://www.ennshafen.at
http://www.freightbywater.org
http://www.hafen.co.at
http://www.luka-kp.si
http://www.mierka.com
http://www.naiades.info
http://www.port.ravenna.it
http://www.port.venice.it
http://www.porto.monfalcone.gorizia.it
http://www.porto.trieste.it
http://www.shortsea.hr
http://www.shortsea.info
http://www.shortsea.it
http://www.statistik.at
http://www.unctad.org
http://www.wienerhafen.com