Inland Waterways' Importance for the European Economy. Case Study: Romanian Inland Waterways Transport

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Abstract: The paper deals to the need of a new approach for the inland water transport. There is a great contradiction between the European official documents related to the inland water transport and the practice. The analysis was focused on evaluating the present status of this type of transport and its future goals in the context of the new challenges to the EU28. The first intermediate conclusion of the analysis is that the great economic disparities between the Member States led to great disparities related to inland water fleet and infrastructure. As the result, the economic importance of this type of transport decreased in the EU28. A distinct part of the paper is dedicated to the inland water transport in Romania and focused especially on the Danube sector. This chapter points out the real economic, logistic and environmental challenges for Romania regarding the transport on Danube. A great challenge for the analysis in this paper was the difficulty to find official statistical data related to inland water transport across the EU28. The main conclusion of the paper is that the inland water transport will be not able to recover and develop on short and medium terms.

Keywords: Trans-European Fluvial Transport Network; inland water infrastructure; River Information Services; Danube highway

JEL Classification: R40; R4; R42; R58

1. Introduction

The widely accepted opinion is that the inland water transports become very important for the European economy. On the other hand, their development is not the best, even that their potential is high.

According to the latest official statistical data, the inland waterways cover only 6% of the inland freight transports in the EU, related to tonne-km (see Figure 1).

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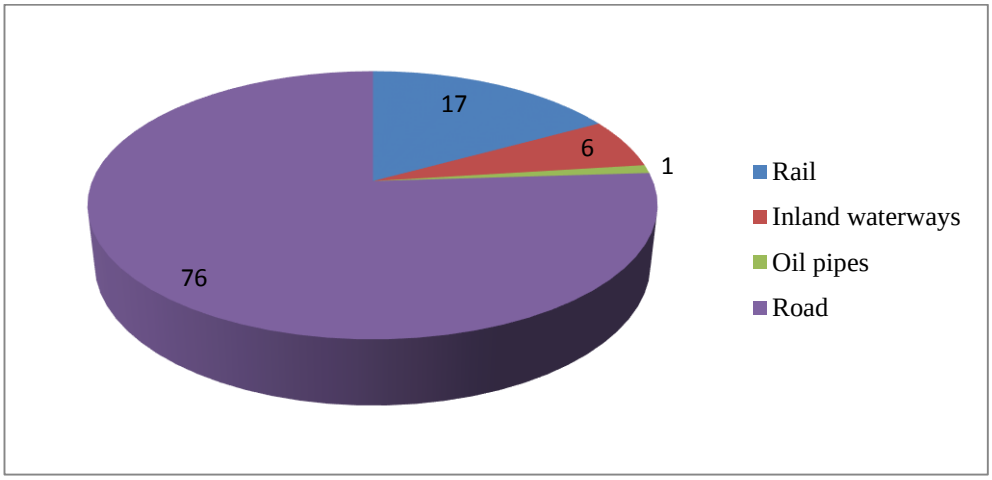

Figure 1. Modal split in inland freight transport (%)

Source: European Commission, 2011

20 Member States benefit from more than 46000 km of inland waterways. There were built interconnected waterway networks which cover 12 Member States, as well. The inland waterways are divided into navigable rivers and navigable canals. The transport of goods is very important, while the transport of passengers is less developed.

The navigable rivers of 29500 km are concentrated into two systems: Rhine-Main-Danube and Meuse-Scheldt. Finland has the greatest length of navigable rivers. On the other hand, this type of transport is well developed in Germany, France, Netherlands and Belgium. The Rhine-Main-Danube system is the most important. It covers almost 60% of the total volume of goods which are subject to shipping in the EU inland waters.

France has the greatest navigable canals network in EU28. The most important navigable canals are located in Western Europe (Eurostat, 2014).

The NUTS1 regions which have the largest inland waterways networks are placed in: Finland, Poland, Croatia, Germany, France, Hungary, Romania, Belgium, Czech Republic, Netherlands, Italy and Sweden (see Tables 1 and 2).

Table 1. NUTS1 regions with largest navigablerivers networks

Navigable rivers	Length (km)	km/million inhabitants	km/1000 km^2 of total area	Per 1000 km^2 of total area
EU28	31111	62.3	7.0	6.5
Manner-Suomi (Finland)	7889	1468.3	23.4	16.5
Poland	3315	86.0	10.6	22.6
Hrvatska (Croatia)	1017	237.8	11.6	16.8
Mecklenburg-Vorpommern (Germany)	943	576.9	40.7	21.8
Niedersachsen (Germany)	940	118.8	19.7	19.9
Ouest (France)	877	102.0	10.3	30.5
Dunantul (Hungary)	782	261.1	21.4	8.4
Brandenburg (Germany)	719	288.1	24.4	11.6
Rheinland-Pfalz (Germany)	716	179.0	36.1	10.5
Macroregiunea 2	716	122.7	9.9	27.2
Alfold es Eszak (Hungary)	700	175.2	14.1	9.0
Belgium	641	60.1	21.0	9.4
Czech Republic	637	60.6	8.1	10.6
Oost-Nederland (Netherlands)	619	174.7	56.4	8.8
Italy	612	10.3	2.0	82.2
Sodra Sverige (Sweden)	577	140.3	7.2	4.6
Macroregiunea 3	521	96.3	14.4	16.2
Sud-Ouest (France)	514	74.5	5.0	3.4
Ostra Sverige (Sweden)	513	139.8	10.7	11.2
Bayern (Germany)	507	40.3	7.2	13.6

Source: (Eurostat, 2014, p. 230)

According to Table 1, Finland has the largest navigable rivers network, and a huge density (1468.3 km/million inhabitants). Mecklenburg-Vorpommern has the best territorial network (40.7 km/1000 km^2 of total area), while Italy built the best network per 1000 km^2 of total area. Both Romanian NUTS 1 regions have better navigable rivers networks than EU28 average.

Table 2. NUTS 1 regions with largest navigablecanals networks

Navigable canals	Length (km)	km/million inhabitants	km/1000 km^2 of total area	Per km^2 of total area
EU28	15325	30.4	3.4	0.3
Bassin Parisien (France)	2246	208.6	15.4	2.0
West-Nederland (Netherlands)	2091	265.3	175.8	1.9
Noord-Nederland (Netherlands)	1334	776.1	117.1	1.0
Est (France)	1146	213.2	23.9	1.1
Italy	950	16.0	3.2	1.4
Belgium	875	82.0	28.7	2.0
Oost-Nederland (Netherlands)	782	220.7	71.3	1.0
Zuid-Nederland (Netherlands)	629	175.4	86.3	4.1
Ile de France (France)	612	51.6	50,9	2.8
Niedersachsen (Germany)	539	68.1	11.3	1.1
Nord-Pas-de-Calais (France)	478	118.3	38.5	2.4
Nordrhein-Westfalen (Germany)	476	26.7	14.0	2.2
Mediterranee (France)	428	54.2	6.3	0.7
Schleswig-Holstein (Germany)	390	137.4	24.7	0.7
Brandenburg (Germany)	341	136.6	11.6	0.2
Sud-Ouest (France)	316	45.8	3.1	18.9
Ouest (France)	313	36.4	3.7	0.8
Bayern (Germany)	171	13.6	2.4	1.5
Manner-Suomi (Finland)	125	23.3	0.4	11.8
Berlin (Germany)	121	34.6	135.7	0.9

Source: (Eurostat, 2014, p. 230).

The main advantages of the inland waterways transport are: reliability, low environmental impact, high potential for increased use and the number of accidents, traffic jams, noise and air pollution (7 times lower than for the road transport, for example).

2. European Regulations on Inland Waterways Transport

The European Commission introduced a subsidies mechanism able to support the construction of inland waterway vessels in 1990. Moreover, the inland waterway transport obtained the cabotage liberalization at the beginning of 1993.

In 1983, the European Commission implemented five proposals made by the European Parliament, relating to: entry on the market, working conditions, the introduction of tariffs, cabotage and access to the Rhine navigable. In addition, was adopted an action programme relating to the fleet restructuring, the state aid granting for new vessels construction and for this type of transport infrastructure modernization (Ionescu & Marchis, 2012).

France, Belgium and Netherlands expressed their interest to coordinate their investment policy in this type of transport since 2000. Their action was a response to the European Commission's initiative to build a trans-European Fluvial Transport Network from 1995.

A distinct part of this above process was focused on rules and regulations. The old Mannheim Convention provisions (1848) were completed by the European Commission's regulations related to technical parameters and the mutual recognition of the navigability licences (82/714/EEC and 76/135/EEC).

The Regulation 91/3921/EEC, related to the transport of goods and passengers was abolished in 2000 and this type of transport has been completely liberalised.

The European Commission's White Paper from 2001 asked for promoting this type of sustainable transport (European Commissions, 2001).

The increasing of the inland waterway transport's importance was supported by the European Parliament and Council in 2006, which regulated the statistics of goods transported by inland vessels (European Union, 2006).

The need of building a single European transport network, including the inland waterways network, was pointed out by the European Commission in a new White Paper in 201. According to this document, an important goal in the new transport strategy is "to establish an appropriate framework to optimise the Internal Market for Inland waterway transport, and to remove barriers that prevent its increased use. Assess and define the necessary tasks and mechanisms for their execution, also with a view to the wider European context" (European Commission, 2011, p. 19).

3. The Economic Analysis of the Inland Waterways Transport

The volume of goods transport by inland waters increased during 2012-2014. On the other hand, the volume trend had periods of fluctuation as a result of the global crisis' impact during 2007-2011 (see Figure 2).

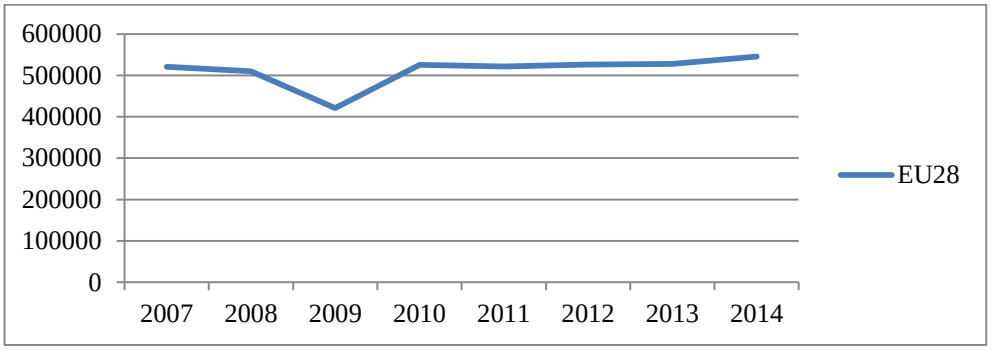

Figure 2. Goods transport by inland waterways (thousand tonnes)

Source: Personal contribution using Eurostat, 2016

It is a very large gap between the top and the bottom volumes of goods transport by inland waters 457.1:1 (Netherlands vs Czech Republic).

Moreover, the volumes of goods transport by inland waters on Member States are very different. The latest official statistical data led to the following diagram:

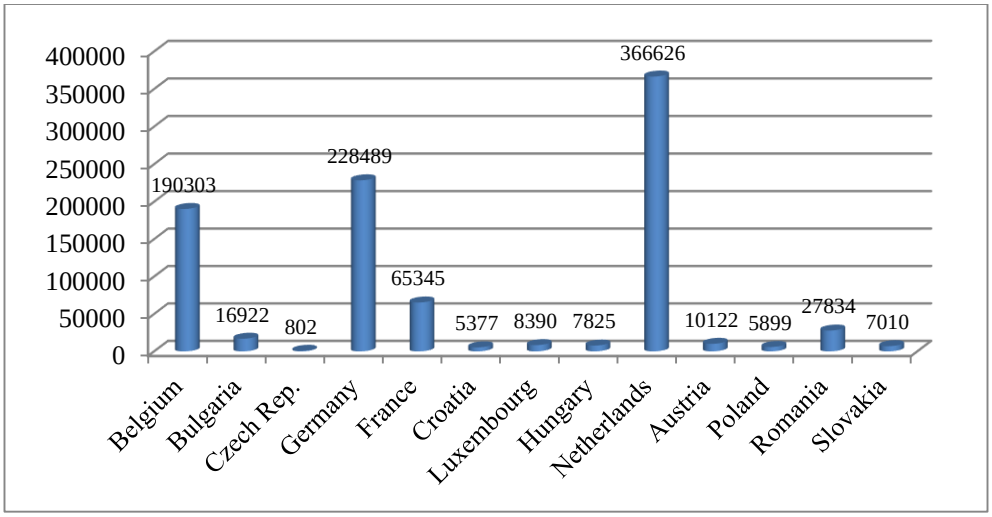

Figure 3. Goods transport by inland waterways in 2014 (thousand tonnes)

Source: Personal contribution using Eurostat, 2016

According to Figure 3, Netherlands, Germany and Belgium cover more than ¾ from total volume of goods transport by inland waters.

It is very difficult to find data related to employment in inland waterways transport enterprises. According to Eurostat, the employment decreased to 13262 persons in 2012 (Eurostat 1, 2015). The trend of the employment in this type of transport is

presented in Figure 4.

The greatest employment is in German enterprises. During the latest time period, Slovakia increased employment in its inland waterways transport enterprises. Unfortunately, is very difficult to obtain data from Romanian enterprises.

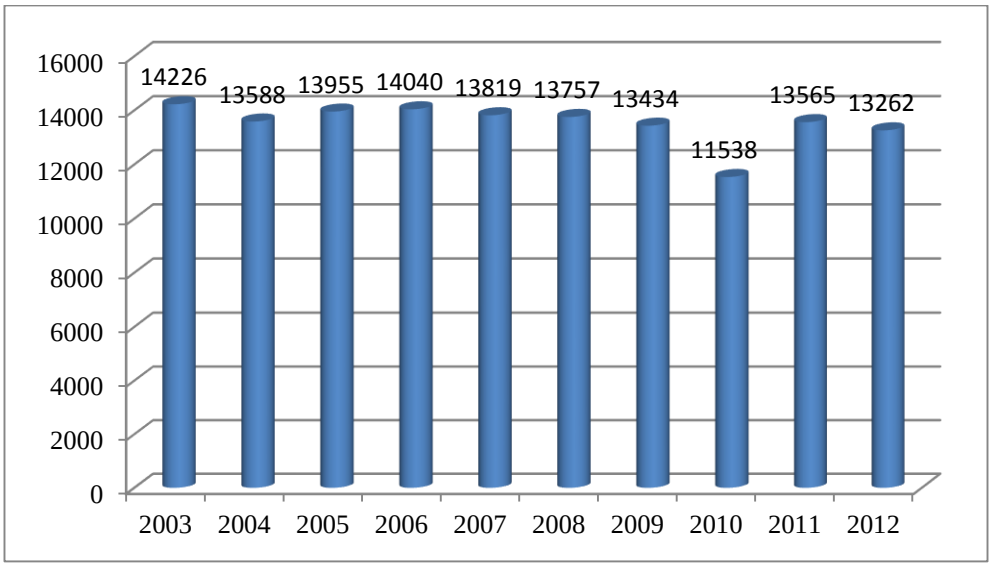

Figure 4. Employment in inland waterways transport enterprises (person)
Source: Personal contribution using Eurostat 1, 2015

The inland water fleet decreased constantly, from 3805 vessels in 2003, to 3397 in 2012 (see Figure 5).

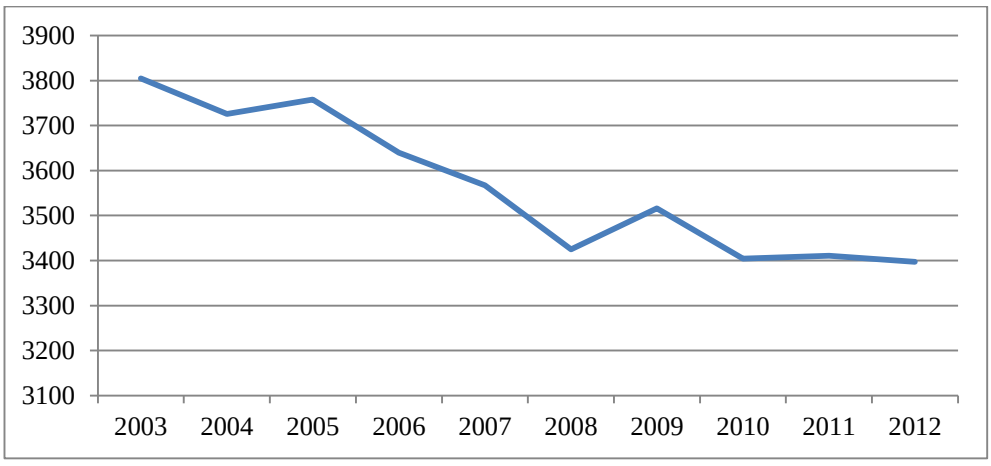

Figure 5. Number of vessels in inland waterways transport enterprises
Source: Personal contribution using Eurostat 2, 2015

The negative trend of the inland water fleet was doubled by inadequate investment in vessels and inland water infrastructure. According to the official statistical data, the top investment and maintenance level was achieved in 2010 (Eurostat 3, 2015). The expenditures differ on categories and years (see Figure 6).

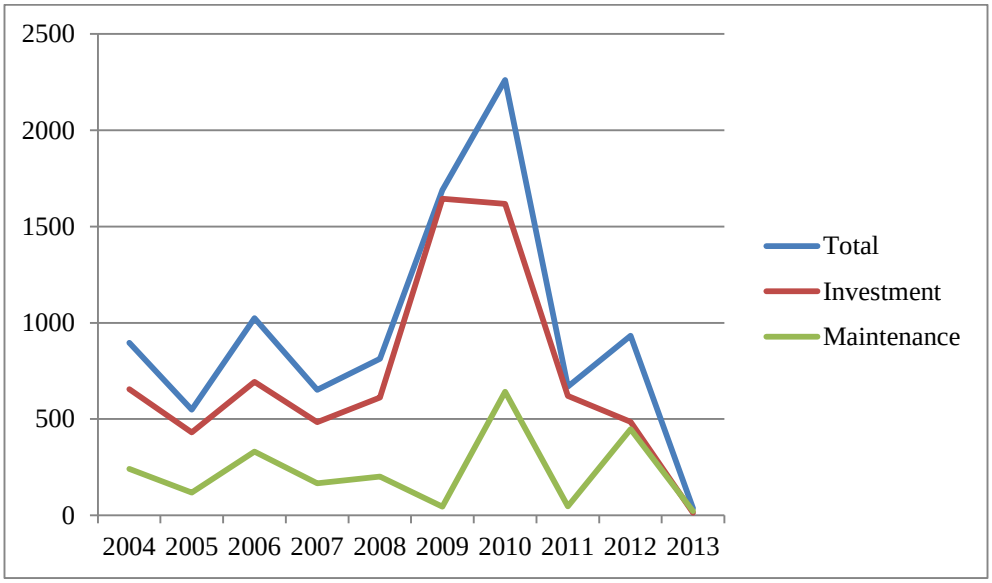

Figure 6. Investment in vessels and inland water infrastructure (million euros)

Source: Personal contribution using Eurostat 3, 2015

The lack of investment led to an old inland fleet. As a result, only 101 self-propelled barges, 568 dumb and pushed vessel and 228 tugs and pushers were built during 1980-1989. They cover 10.53% from the whole inland waters fleet. The difference represents old vessels with low technical and economic performances (Eurostat 4, 2015).

4. The Economic Impact of the Transport on Danube on Romanian Economy

The European Commission's action plan NAIADES pointed out the main advantages for the naval transport on Danube: Danube is the shortest and efficient route from the Black Sea to the Central Europe; only 15% of the Danube's transport capacity is currently used; all types of goods can be transported; Danube is covers by high information and communication technologies (RIS- River Information Services); the transport on Danube is very safe; the impact of the transport on environment is low (European Commission, 2013).

Romania adopted its Strategy of intermodal transports in 2011. It covers 2012-2020

and a distinct part is focused on water transport, including inland water transport, as well (Romanian Government, 2011).

According to this document, the Priority Axis no. 18– Rhine/Meuse–Main–Danube becomes important in order to realize European connections under TEN-T approach.

The inland water transport in Romania covers Danube River and Danube-Black Sea/Poarta Alba – Midia Navodari canal. There are 28 inland harbors, including Galati, Braila and Tulcea which can operate on vessels until 12500 tdw. The above strategy is too general and covers just few objectives for inland water transport only in connection to other transport types.

This is why the Transport Masterplan of Romania started from the situation in which Romania achieved the second rank in the EU28 related to the volume of the goods transported on inland waters (Romanian Government, 2014).

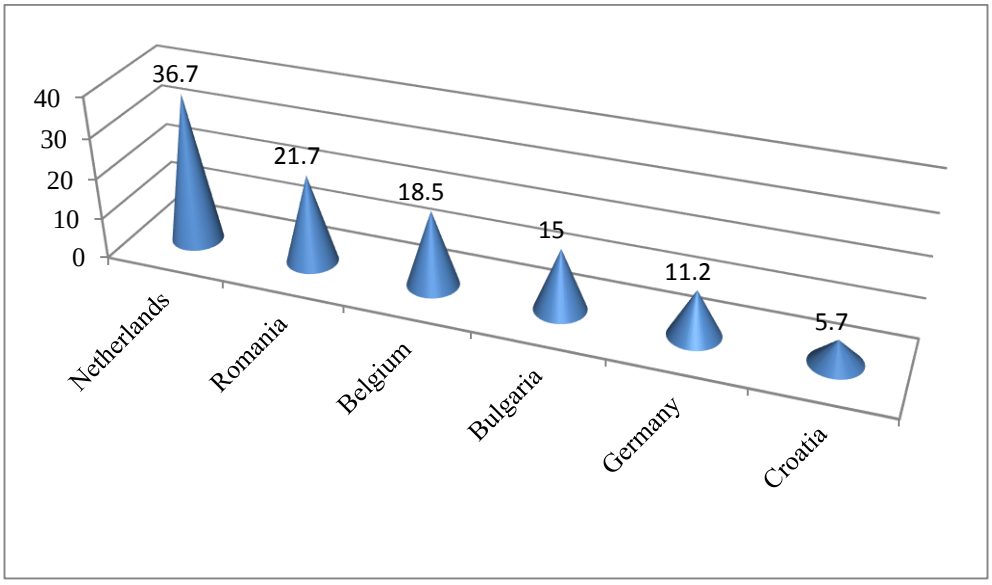

Figure 7. Volume of the goods transported on inland (% of total volume of goods)

Source: Personal contribution using Romanian Government, 2014, p. 87

The increasing importance of the transport of goods on Danube supported the idea of realising a new highway on the Danube, able to connect Romania to the Western Europe. This project started in 2014 and will cost more than 200 million Euros for the next five years. 11 inland harbours will be modernised, while Constanta harbour will increase its capacity with 100%. The harbours' renovation has to be finished until 2030 and will cost about 0.5 billion Euros. The final result will be a navigable Danube for 365 days per year (Grama, 2014).

On the other hand, a lot of money has to be used in order to maintain traffic on Danube. Austria spent more than the other Danube countries (80 million euros), even that if has the less sector (250000 euros/km). It is followed by Romania, with 17 million euros and 11333 euros/km. Bulgaria spent only 1 million euros (2128 euros/km). Starting to 2014, Bulgaria was not able to allocate funds for improving navigation on Danube.

Despite of the above situation, Romania succeeded to stop the decreasing of the volume of goods transported on the Danube to a reasonable level (see Figure 8).

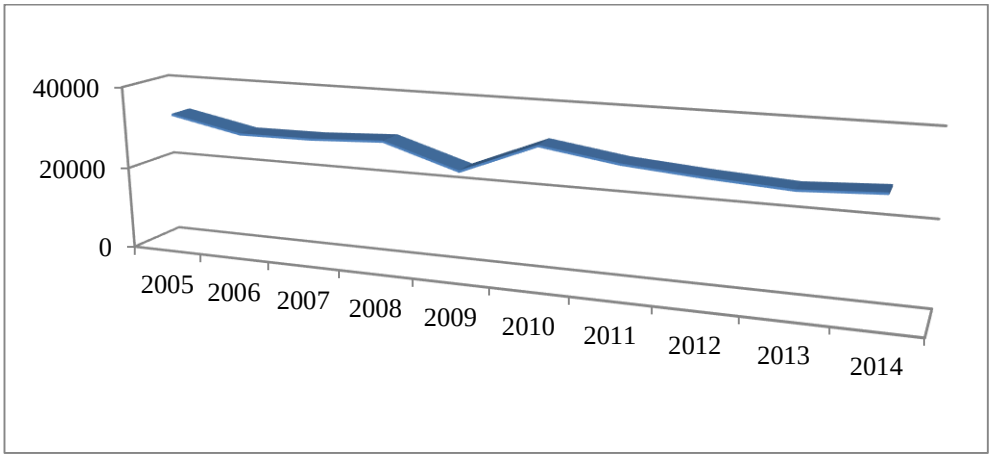

Figure 8. Volume of the goods transported by Romania on Danube (thousand tonnes)

Source: Personal contribution

Unfortunately, Romania was not able to invest and to maintain its inland waterways transport infrastructure during the last 10 years. This supports its greatest number of accidents across the EU28 (Eurostat 5, 2015).

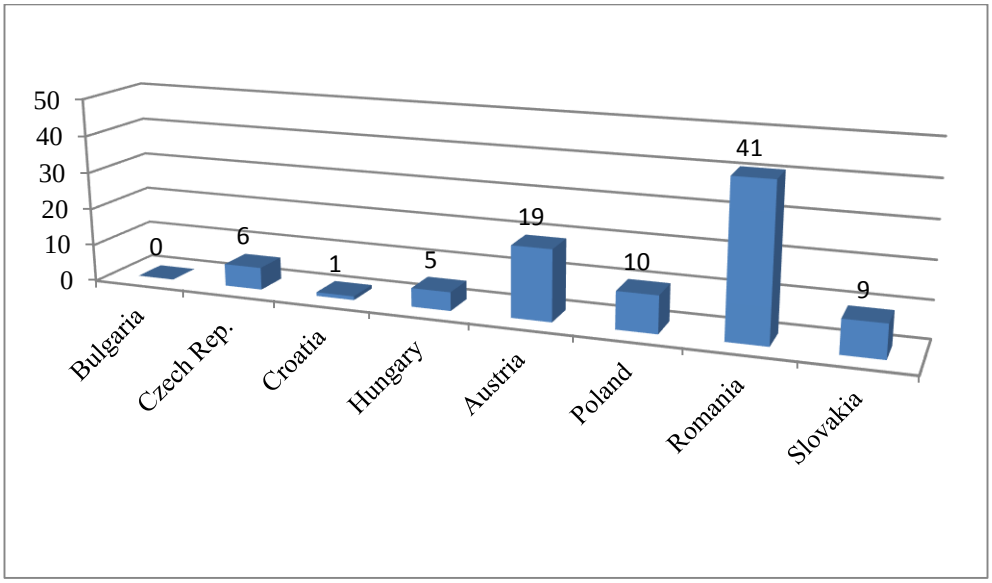

Figure 9. Number of accidents in 2014

Source: Personal contribution using Eurostat 5, 2015

The volume of total transported goods on inland waters in Romania achieved the peak in 2010 (Eurostat 2, 2016).

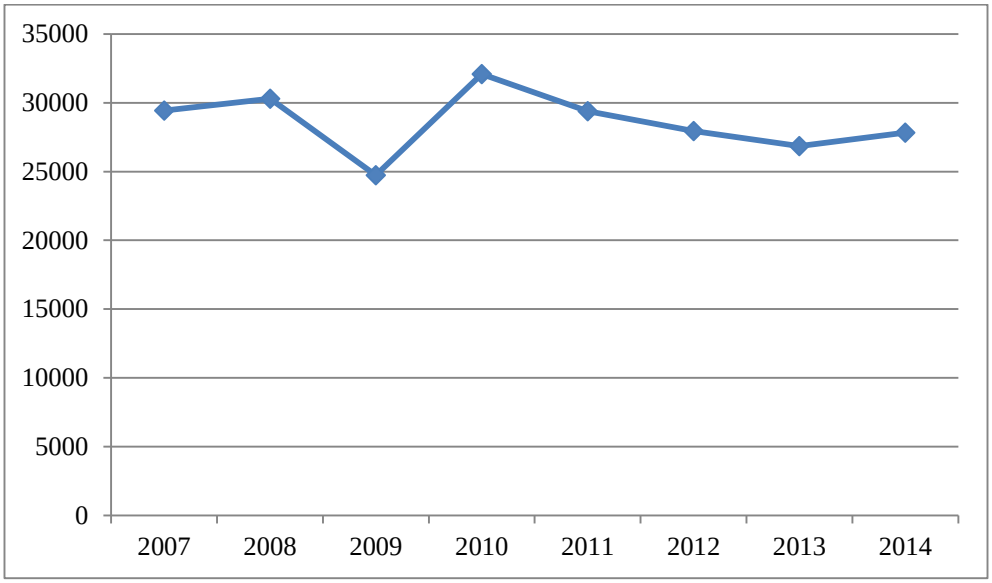

Figure 10. Total transported goods on inland waters in Romania

Source: Personal contribution using Eurostat 2, 2016

On the other hand, Romania had the 5th rank across the EU28 in transporting goods on inland waters in 2014, after Netherlands, Germany, Belgium and France (5.04% from EU28 total goods transported on inland waters.

5. Conclusion

The inland water transport is considered very important nowadays. Its importance increased in the context of the global crisis as a result of its advantages related to other transport types.

On the other hand EU28 is not able to finance a powerful sustainable development of the inland water transport. Moreover, the expenditure in improving inland fleet and infrastructure depend on the implication of every specific Member State.

As a result, those Member States which achieved higher economic development standards will be able to finance the inland water transport. The idea of building inland highways, including Danube, is not realistic because the economic disparities between riparian states are too great.

Under this regional context, Romania faces to great difficulties in maintain its Danube sector. The expenditures are too great and the Romanian inland water fleet is too old.

The Romanian inland harbours operate especially rare materials and the container inland water transport is close to zero. Even the Strategy of intermodal transport in Romania and the General Transport Masterplan are not generous with inland water transport financing.

Perhaps, the solution will be found together with the macroeconomic sustainable development in Romania. On the other hand, the EU28 financing seems to decrease as long as the present EU priorities are different.

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