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INFRASTRUCTURE AND SUSTAINABLE TRANSPORT DEVELOPMENT IN THE BALTIC STATES: THE LITHUANIAN PATTERN

Abstract

Transport contributes significantly to economic development of the Baltic States. The Baltic area sees increasing flows, mainly those goods. Now, Cargo, issues of sustainability are very high. The economic and social benefits from increased traffic are difficult to reconcile with the high environmental costs. The aim of this work is to make it through the Lithuanian case, the relationship between development and sustainability of transport in the Baltic States, recalling the organization of regional transport system and strategies to achieve the goal of sustainability.

KEYWORDS: TRANSPORT, SUSTAINABLE, DEVELOPMENT, BALTIC STATES.

Introduction

The geographic location of the eastern Baltic region place it as a passage between the eastern and western Europe, and secondly, between Scandinavia and Central Europe. Today, the transport infrastructure of the Baltic States is unable to fit the changing needs of transportation and hinders the development of sustainable transport networks.

Sustainable transportation is a concept developed in response to negative consequences of transport policy and practice during the last century. The notion of sustainable transportation or sustainable mobility is often defined in such terms: Sustainable transport aim to respond to the present mobility needs without compromising the ability of future generations to meet their needs.

According to the Lithuanian Ministry of Transport, the mission of the transport system of Lithuania is to ensure a seamless mobility of passengers and freight by maintaining a dynamic development of national economy and increase Lithuania's competitiveness on international markets. The official role assigned to the Lithuanian transport system clearly illustrates its impact on the economy. It also demonstrates the low priority given to environmental and sustainability concepts in its approach.

1. The transport system in the eastern Baltic

1.1. Transport in Lithuania

The Lithuanian transport system has a major role in the economy and a very high value in the social field. After the accession of Lithuania to the EU, it is also becoming an integral part of the European system. Moreover, due to the geographical situation of Lithuania, transport is primarily used for transit traffic between Western Europe to Russia and the CIS. These countries are rather connected

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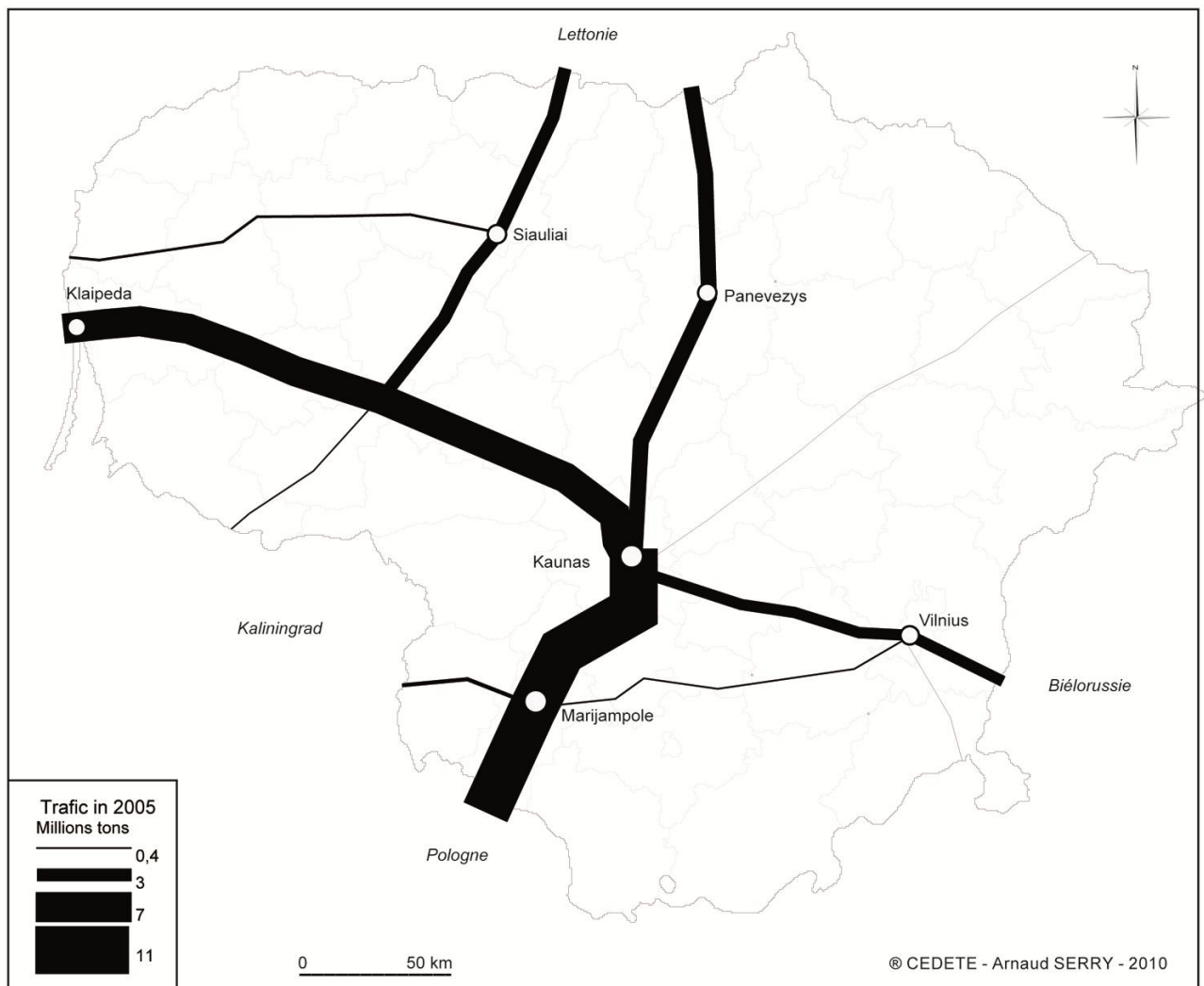
by railways, air and pipelines for oil. Many constructions are planned in these transport modes to develop and improve the current infrastructure.

Lithuanian transport's main strength is road transport, which explains that many efforts have been made to maintain this situation. By the way, Latvian and Estonian policies have focused on their strengths, mainly shipping ones.

The share of road transport in total inland freight transport continues to grow, even if Lithuania is below the European average. In Lithuania, the share of road transport has increased due to the reduction of rail transport: the last one has decreased from 50% of total freight in 1995 to 38% in 2005. In addition, the share of inland waterways in the structure of Lithuanian transport is insignificant.

The road main function is to link the Baltic and the EU. These flows are mostly meridians, except those related to Klaipeda port traffic.

Figure 1. Road flows in Lithuania in 2005



Source: Lietuvos Respublikos Susisiekimo Ministerija, 2010.

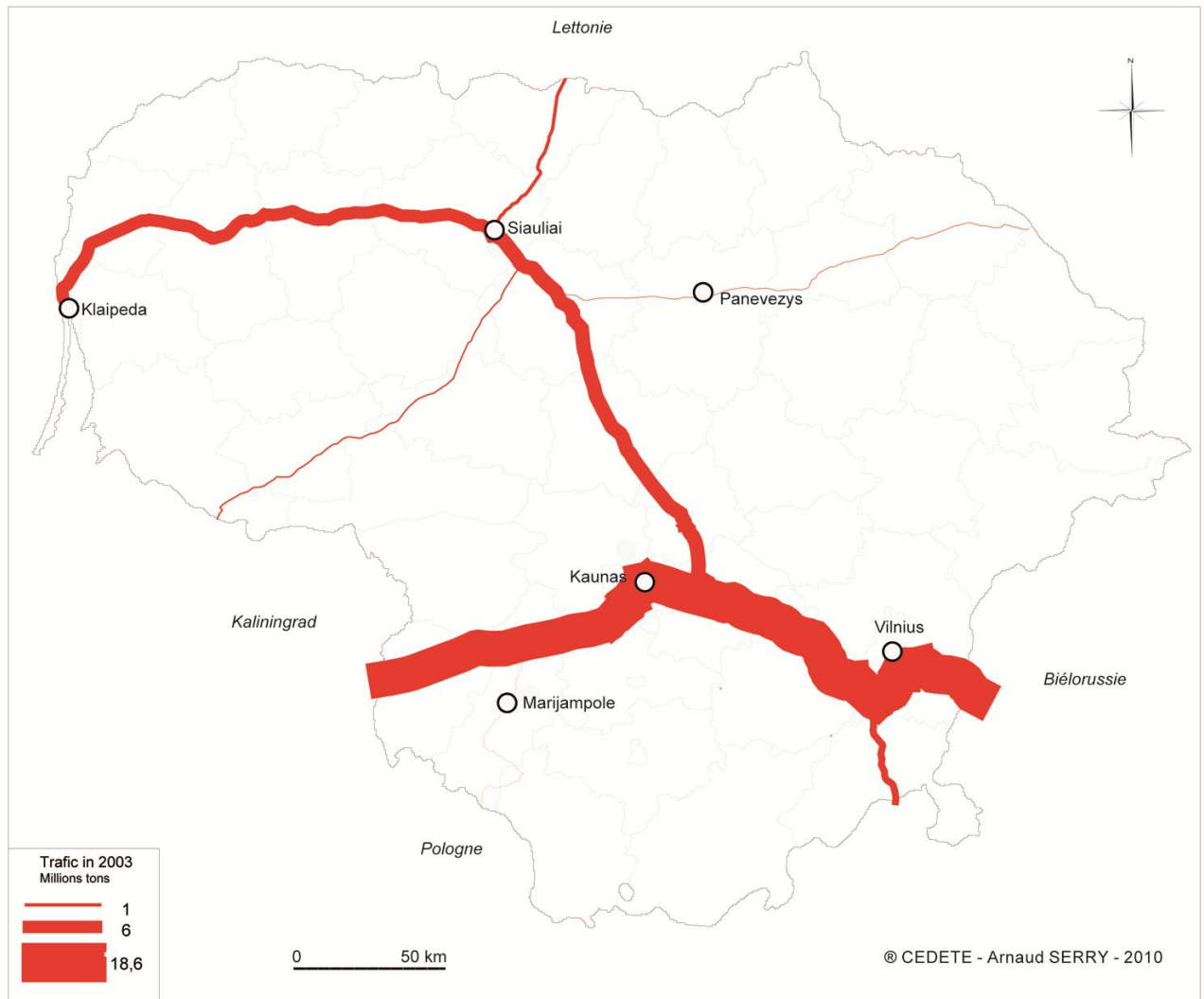
The development of the project "Via Baltica" highway, linking Helsinki to Prague via Tallinn, Riga, Lithuania and Warsaw crosses from North to South, over 280 km. It is already ranked European motorway (E67). Project is partially achieved.

Regarding rail transport, the historical operator, "Lietuvos Gelezinkeliai", still state keeps the monopoly of rail transport. The passenger traffic tends to decline, while the transport of goods is constantly increasing. In 2004, LG has shipped 45.5 million tons of cargo, 55 MT in 2008 and 43 Mt in 2009, due to the economic crisis.

Important improvements needs exist in almost all areas: track equipment, rolling stock, signaling and telecommunications, modernization of stations, tunnels... (Bakanaite, 2009).

Rail transport is a major protagonist in the relationship with Russia (including Kaliningrad Oblast) and the CIS. It is linked with the port activities, whether in terms of export of bulk (eg fertilizer), or import of goods containerized.

Figure2. Railway flows in Lithuania



Source: Lietuvos Respublikos Susisiekimo Ministerija, 2010.

The project "*Rail Baltica*", which seeks to link Warsaw to Tallinn (via Kaunas) will be the main axis of development of Lithuanian network, and even the Baltic, in the coming years.

Lithuania has a single port, Klaipeda, The main commodities handled are petroleum products and fertilizers. The container traffic is rapidly increasing. To be able to cope with expected traffic increases and above to accommodate ships of type baltmax, a study envisages the creation of a new deepwater port.

The airline traffic is dominated by passenger traffic and concentrated in the Vilnius airport, which continues its program of renewal and adaptation. In particular, a new terminal is built, in order to treat separately the non EU passengers. Moreover, Kaunas airport grows in relation to low cost flights.

This brief analysis of the Lithuanian transport system shows a modal distinction based on strong orientation flows. Meridian ones are dominated by road transport while rail supports the majority of east / west flows. This scenario is common to the three Baltic States.

1.2. *A Baltic transport system?*

The transport system in the Baltic States can be defined as unbalanced as a result of economic and political differences. The transport systems of Estonia, Latvia and Lithuania are surely different. Historical, economic and geographic data's make them similar:

- Maritime transport is particularly important. Exports dominate imports, in other words, there is an imbalance of flows, those east / west prevailing. The eastern Baltic ports have an important function of transit for Russian natural resources. Although common, this trend is about to decline because of the many pipelines redirection and of the Russian port reorganization.

- In the region, road transport now accounts for 75% of freight movements with the European Union, while road density is among the lowest in the EU. To cope with this increased traffic, road infrastructures are expanding.

- The railroad has no more recovered its important function, at least in relations with the EU. The reasons are mainly technical: low network density, specific characteristics such as gauges... Oriented towards Russia, rail is experiencing a significant role in the transit traffic related to port activities. The transit traffic is strongly devoted to Russian energy and therefore raises questions on specific environmental issues.

- The role of inland waterways is limited because of lack of modern infrastructure, short navigation period's, seasonal changes in water level of rivers, and an obsolete and inadequate fleet.

- The airway sector was the first to adapt, while changing its trading partners. Trends show that passenger traffic increased since 1990 while air cargo traffic is low.

Most striking elements of differentiation are the following:

- In Lithuania, the transport policy focuses on the renovation of existing roads and building new ones because the country does not have a very dense network. The main priority in the railways is the extension of the network, while the rolling equipments must be modernized or replaced. The inland waterways have a more interesting development potential than that of Latvia and Estonia, due to better geographical conditions.

- The strength of the Latvian transport is based on complementarities between ports and rail, serving a corridor to Russia and other CIS countries. The road network is dense even if the renovation is necessary.

- In Estonia, the modal split is interesting: rail is still overlooking road transportation of cargo. The road infrastructure must be improved. The rail industry is different from other Baltic states,

because it is privatized. As in the other Baltic States, the binomial rail / port (s) supports the majority of transit flows. One key advantage of Estonian ports door on possible river-sea routes and potential intermodal transport.

The general situation of transport infrastructure in Lithuania, Latvia and Estonia is satisfactory but there is a strong need for development and modernization. The new networks must be developed to improve connection with the rest of the EU. Currently, most major infrastructures lead to Russia because of historical phenomena, but also because of main goods flows. The analysis shows that Lithuania and Latvia have closer problems than Estonia. For example, they need to reduce the number of accidents on the roads or to upgrade their railway infrastructure.

1.3. Transport sector in the Baltic economies

Studying Baltic States economies is actually difficult because of the international crisis. After several years of rapid growth the “Baltic Tigers” have been overtaken by the crisis at the end of 2008. So, the situation in Lithuania quickly deteriorated but the indicators for 2010 suggest a better situation.

Transportation and storage activities play an important role in Lithuania's economy: in 2004 they have accounted for 11.9% of GDP against 9% in 1996. In 2004, the sector employed 4.5% of the workforce and had 5350 companies. This omnipresence of the sector in the national economy has continued to grow. Despite the emergence of the economic crisis, the Lithuanian transport sector remained dynamic in 2008, employing 104,500 people or 6.9% of the workforce and contributing to 12.7% of GDP. Baltic transporters, mainly Lithuanian, now appear very competitive and have found their place in the European market for transport services. In Estonia, about 7.5% of national workforce is employed in the transport sector which accounts for more than 10% of GDP, while this proportion reached 14% in Latvia. In fact, the transport sector in the eastern Baltic States occupies the largest share of GDP across the EU.

In the Baltic States, transport value exceeds the economic aspect. During the early years of independence they formed through a national affirmation against Russia, which gave them a geopolitics sense.

We can also say that the transit traffic plays a key role in the Baltic economies. Even if transit is seen as the transportation of goods from a third country, it may be the start of the development of the Baltic economies. The location of the Eastern Baltic States and their recent history grant a privileged role in the relations between CIS countries and Western Europe and even the world. In all three countries, ports are the hubs of these transit flows and nodes of interaction between modes, mainly rail and sea.

The transit corridors through the Baltic area are East / West and North / South. Largest goods flows are moving from east to west through the ports, from Russia, or CIS. The largest investments in transport infrastructures are motivated by improving transit traffic. Taking into account the negative impacts of these activities and flows of transit is not a priority in the reflection, while transported materials are often hazardous. Sustainable development policies exist, but under pressures of economic conditions.

2. Approaches of sustainability in the eastern Baltic

Transportation is a crucial part of the Baltic economies illustrating their rapid development. Despite all the benefits of transport, the rapid development of transport system generates many negative effects. The most important ones are: increased consumption of nonrenewable energy resources, air pollution and accelerating climate change.

2.1. Lithuanian politics and actions

Transport is indeed one of the main sources of gases disposal, it is also intimately related to all energy interrogation. The transport sector in Lithuania is responsible for three quarters of the overall air pollution in Lithuanian and has a negative impact on human health (Dagiliute, Juknys, 2004). Efficient use of energy resources and pollution not exceeding acceptable levels are the main conditions for a sustainable transport system. But the recent and very rapid growth of the transport flows in the country creates a barrier to achieving sustainability. In addition, the car fleet consists mainly of vehicles older than 10 years. The emissions from these vehicles are relatively high. Due to strict requirements on carriers in the EU countries, the renewal of trucks is fast enough. Urban air noise pollution are increasing due to insufficient capacity in the city streets and inadequate public transport. The polluting modes of transport (road and air) are developing rapidly, as modernization of methods of environmentally friendly transport (railways, waterways) requires heavy investment. The rate of road accidents is stable but at a high level.

Management of sustainable transport in Lithuania is still a new approach while the former states of the EU have sophisticated their sustainable transport policies. Although Lithuania has established the European environmental requirements since 2004, pollution caused by transport continues to grow. European integration however provides opportunities for development and modernization of infrastructures.

During the transition period, the share of passengers and goods transported by road has increased significantly. Road transport now dominates passengers and freight flows: transportation of goods by road accounted only for 27% in 1990, while rail accounted for 71% of the total, but since the beginning of the century, most goods are transported by road (52% in 2002). It is particularly damaging in terms of sustainability.

In 2005, Lithuania adopted a strategy of long-term development of its transport system. It plans modernization and development of transport infrastructure to ensure quality, adoption and enforcement of environmental standards and safety regulations in the EU. The desire is to develop an efficient transport system. It needs to coordinate the development of all transport modes, giving priority to those environmentally friendly, improving the consumption of alternative fuels and reducing environmental pollution. At medium term it is planned to better organize and control the flows to reduce air pollution and noise. The long-term objectives of the strategy of sustainable transport are the following: coordinate the development of all modes of transport, giving priority to transport with less negative impact, increase transportation energetic efficiency so that to reduce environmental pollution and its impact on climate change and increase traffic safety.

2.2. Comparison with other Baltic States

The Latvian strategy for sustainable development was adopted in 2002. The main objectives and measures (in particular related to the establishment of a sustainable transport system) are almost the same as in the case of Lithuania. The biggest difference is about indicators used to measure changes in transport systems of both countries, which makes the comparison of the changes a bit difficult (Kabashkin, Vasiliauskas, 2009).

The main measures for implementing the long-term objectives are:

- Promote the modernization of transport, giving priority to those means are the less fuel and less pollution.
- Develop infrastructure in different modes of transport and improve their interactions.

Latvia and Lithuania are developing similar projects in the short and medium term to reduce the negative impact of their intense transport operations, for example:

- Enhanced road safety;
- Promotion of environmentally friendly transport modes, while "respecting the economy";
- Develop maritime transport;
- Highlighting the "polluter pays" and justify it from an economic point of view;
- Cycling network development.

In Estonia, the national strategy for sustainable development has by four main vague objectives, subdivided into large thematic lines:

- Viability of the Estonian cultural space;
- Improvement of social welfare;
- Society cohesion;
- Ecological balance.

The operational programme 2007-2013 for economic development has two main sets of priorities, too vague, for transport:

- The development of strategic transport objectives with the development of transport and improving accessibility and increasing road safety;
- Development of regional transport, which aims to create opportunities for connections between regional centers.

The sustainable transport policy in Estonia is less readable, but it may partly be explained by the lower weight of road transport as in the other Baltic States.

Sustainable transport policies exist in the Baltic States but their implementation tends to be delayed. Priority is now given to investments with immediate economic impact: States have limited funds and the main actions are often the facts of private actors. Without strong economic conditions, it will be impossible to develop a transport system respecting the environment. The polluter pays principle is not implemented in the transport sector.

However, now members of the EU, the Baltic States are also showing interest towards the development of better multimodal solutions between different modes of transport. The multimodal transport responds to environmental challenges and sustainable development and reduces congestion and bottlenecks.

3. UE, instigator and sustainability project manager

At the European level, the integration of sustainable development in the field of transport was enhanced in 2001 with the White Paper (Meunier Zeroual, 2006). It defines a comprehensive strategy which includes more than 60 specific measures to break the link between transport and economic growth and restore the balance between modes of transport. The EU Strategy identifies the transport system improvement as a priority. Thus, in the Baltic States, a rail project participates in a European axis, under the official name "TEN-T Priority Project No. 27", or *Rail Baltica*.

3.1 The railway project Rail Baltica

In the region, the absence of rail link with the rest of the European Union is due to boundaries and technical factors. However, Tallinn, Riga and Vilnius, are directly linked to St. Petersburg at least six times a week. The difference in gauge railways with the rest of the EU requires a reloading, source of delays. This organization inherited from the Soviet era today is an anomaly in the EU. .

Since 1992, the railway connection between the Baltic States was identified as a key for regional balanced development. In 2001-2002, Baltic and Polish governments have shown their

common determination to develop a high-speed rail link on the axis Warsaw-Kaunas-Riga-Tallinn-Helsinki. In April 2004, the EU set the project as priority in the transeuropean network. The project is estimated at four billion Euros. It will place the Baltic States as an interface between mainland Europe, Scandinavia and Russia offering competitive advantages over other modes of transportation:

- Rail transport is relevant in high volumes because of its capacity;
- Energy efficiency of rail transport: it is less polluting than road and air;
- The rail is considered in the region as the safer mode of transportation.

Construction of the new line must contribute to the "re-continentalisation" of the region, meaning the restoration of a fixed and permanent link in the borders of the EU. This link contains an economic social and emotional stake, as it is a source of emancipation of the radial transport infrastructure organization from Moscow or St. Petersburg (Orcier, 2009).

There are basically three possible scenarios ranging from an entirely new structure at a modest improvement of existing infrastructure. A proliferation of different routes has also complicated the decision until the last moment. Finally, the selected axis seems to satisfy most parties, without ignoring the regional cities or zigzag endless. One detail, however: the Lithuanian capital, Vilnius, is simply shelved. It includes a broad modernization of existing channels but also the construction of new sections. In consequence of the estimated costs, the revolution will be smooth, keeping initially Russian gauge rails. The primary is to reach an average speed of 120 km/h, for a 10-12 hours trip from Warsaw to Helsinki. The construction of some portions had already begun and should be completed before 2013. Before the economic and financial crisis, the line *Rail Baltica* should have been inaugurated in 2020. It will stretch over 1142 km exactly. The 80 km between Helsinki Tallinn will initially be covered by a ferry service. However, a feasibility study to build an underwater tunnel is underway under sponsorship of the EU. Such a project would be the height of *Rail Baltica*.

Rail Baltica project is therefore a long term vision lasting benefit to the entire region and having evident impacts on sustainable development:

- From an environmental point of view, any option for infrastructure development including acquisition of land plots has effects on the environment. However, all investments should reduce air pollution and emissions from transport through modal shift from road to rail.
- It seems that the basic problem of interoperability of national networks is not resolved despite the construction of intermodal platforms at regular intervals. The difference between European and Russian systems persist and threaten the future profitability of the project. The future role of *Rail Baltica* in freight transportation can't be defined: its direction is perpendicular to the mains flows and the prospect of a shift from road to rail flows north / south is not yet a reality.
- As an European Project, *Rail Baltica* does not included Kaliningrad and St. Petersburg, two major nodes of rail flows in the eastern Baltic.
- At least, the yard is obviously hit by the economic and financial crisis. Works have virtually ceased in the three Baltic States.

In all cases, two main problems persist: at first, the railway infrastructure is not used by some people because of the slowness of transportation and an incomplete coverage of the territory (Gobert, 2009). Secondly, the cost of building the new line raises the question of profitability: north-south flows remain low. How can this major north-south axis participate in the major goods flows from and to Russia? Russia fret elsewhere remains in one of major goals of shipping in the Baltic Sea.

3.2. Motorway of the Baltic Sea

Motorways of the Sea, initiated by the European Commission, are also involved in building a sustainable transport system in the eastern and in regional economic development.

The idea is greater complementarities of transport modes: road should no longer outclass goods transportation in Europe. The potential of rail, river and sea must be used: management of some traffic, reduce bottlenecks, lower environmental cost. For a rebalancing of transport modes, the watchword is then intermodal.

A motorway of the Baltic Sea is under construction. Maritime transport is a major factor in economic development and short sea shipping is omnipresent. Between 2003 and 2020, intra-regional traffic is expected to increase of 55%. This needs infrastructures and optimal management of traffic flows. The desired objective is not to create new transit lines, but to streamline the existing ones, also by upgrading infrastructures and marine services. In fact, ship-owners and other private operators must rely on competitive port services. To make supply chains more efficient, the idea is to create real logistics centers on main ports, with a greater intermodal integration ensuring continuity to rail and road.

Destined to be real business centers, ports are also key points to develop European motorways of the sea. In Estonia, Latvia, and Lithuania, there is the same desire to include their ports in an transeuropean and also global dynamic.

The operational reality of the motorway of the Baltic Sea is still negligible. Some links exist as the line Klaipeda - Karlshamms. Its purpose is to increase the share of intermodal transport in the corridor to 18% to 56% in 2015 and 71% in 2025. Two types of intermodal technical and commercial solutions coexist:

- Road transport and roll-on / roll-off vessels which provide sea crossings to link the terrestrial networks;
- The second option is the container. It is proposed in all ports, and all relationships. This is the most universal and most intermodal standard tool of international transport. It's also the cheapest and most fuel efficient way.

However, given the small number of effective links, bidding for projects are increasing for the Baltic Sea motorway. A major problem seems to arise: maritime dominant flows are between EU and Russia. However, private partners from third countries to the EU can take part in these projects, they are only eligible if they involve infrastructure of member countries.

All these considerations illustrate the difficulties facing the implementation of sustainable transport in the region. Major flows from going east to west, from Russia to the EU seems partly excluded from the potential represented by the Motorways of the Sea. This raises some more questions: will Motorways of the sea be a real alternative or complementary to the road? Will they offer a sustainable solution, while maritime trade of hydrocarbons is growing in the region? The question of the relevance of European actions is also in question. How can it simultaneously support major investments in roads such as *Via Baltica* and promote the development of environmentally friendly short sea shipping?

Conclusion

The contemporary development of the transport system in the eastern Baltic faces an ambiguous issue. A sustainable and socially acceptable transport system has to be organized, reconnecting Baltic States to central Europe by main land routes, providing a significant economic potential. Whatever the players in this (re)construction of the Baltic transport system, they must cope with this double logic.

Moreover, in the region, we must keep in mind the specificities generated by the collapse of the USSR. How is it possible to implement policies of sustainable transport in the region without involving

Russia? Baltic States have to establish national action for clean sustainable transport development, but are they capable to ensure the safety and reduce the risk of massive flows of Russian oil transit through their territories?

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