

# **Baltic States and Poland - Trade Logistics Review**

Enhancing trade competitiveness by improving transport and logistics

**Transport Unit, Sustainable Development Department  
Europe and Central Asia Region**

July 2010

Vice President, Europe and Central Asia:	Phillipe H. Le Houerou
Country Director/Manager, ECCU5:	Peter C. Harrold/Thomas Blatt Laursen
Sector Manager, Transport ECSSD:	Henry Kerali
Task Team, ECSSD:	Cordula Rastogi
	Jung Eun Oh

The study was prepared by World Bank team from the Sustainable Development Department (Europe and Central Asia Region) comprising staff and consultants in the Transport Unit. The study was led by Cordula Rastogi and Jung Eun Oh. World Bank management oversight was provided by Thomas Blatt Laursen, Country Manager and Henry Kerali, Transport Sector Manager. Bonita Brindley provided editorial advice and support. Comments are gratefully acknowledged from Martin Raiser, Gerald Paul Ollivier, Radoslaw Czapski, Graham Smith, Cesar Queiroz, Michel Audige, and government counterparts.

# Contents

<b>Acronyms.....</b>	<b>ii</b>
<b>Figures.....</b>	<b>iii</b>
<b>Tables .....</b>	<b>iii</b>
<b>Executive Summary .....</b>	<b>iv</b>
 <b>Trade Logistics Review and Policy Recommendations</b>	
<b>I. Objectives and Scope of the Study .....</b>	<b>1</b>
<b>II. Transport Logistics Review .....</b>	<b>1</b>
Macroeconomic Overview .....	1
Key Trade Flows and Trends in the Region .....	2
Key Transport Corridors in the Region .....	3
<b>III. Competitiveness Assessment: Strengths, Weaknesses, Opportunities and Challenges.....</b>	<b>5</b>
Strengths .....	5
Weaknesses.....	8
Opportunities .....	9
Challenges .....	12
<b>IV. Strategic Priorities to Enhance Competitiveness.....</b>	<b>13</b>
Priority I: Develop a Long-term Vision and Strategy .....	13
Priority II: Build Institutional Capacity and Accelerate Reform .....	14
Priority III: Develop and Improve Transport Infrastructure and Intermodal Connections .....	15
Priority IV: Improve the Efficiency of Border-Crossings .....	15
Priority V: Capture and Support a Strategic Position in the International Trade Market .....	16
 <b>Technical Annex</b>	
<b>Trade Demand: Trend and Future .....</b>	<b>18</b>
North-South Corridor Trade Pattern .....	18
East-West Corridor Trade Pattern .....	20
Impact of the Recent Global Economic Crisis on the Region's Trade: Snapshots.....	23
<b>Route Selection and Modal Split.....</b>	<b>24</b>
Key flow 1: Natural Resources from Russia to Western Europe .....	24
Key flow 2: Consumer Goods – Eastbound and North-South.....	25
Cargo Volume by Mode and Route.....	26
<b>Corridor Conditions and Performance .....</b>	<b>30</b>
Railway Network .....	30
Road Network.....	33
Sea Ports .....	34
Conditions and Performance of Intermodal Connections .....	36
Efficiency of Border Crossing and Customs Processing .....	37
<b>References.....</b>	<b>39</b>

## Acronyms

BCP	Border Crossing Point
BPO	Baltic Ports Organization
CIS	Commonwealth of Independent States
ESN	European Short-Sea Network
EU	European Union
GDP	Gross Domestic Product
GPS	Global positioning system
IWW	Inland Waterways
LDZ	Latvijas dzelzceļš
LPI	Logistics Performance Index
PKP	Polskie Linie Kolejowe
Ro-Ro	Roll-on/Roll-off
SOP-T	Sectoral Operation Program for Transport
SPC	Short-Sea Promotion Centers
SSS	Short-Sea Shipping
TEN-T	Trans-European Transport Network
TIR	Transports Internationaux Routiers
UK	United Kingdom
USD	US Dollar
WTO	World Trade Organization

## Figures

Figure 1. Changes in Cargo Turnovers of Major Ports: Impact of Crisis and Post-Crisis Recovery .....	3
Figure 2. Schematic diagram of total and intra-region maritime transport of BSR countries in 2003.....	4
Figure 3. Annual Percentage Change in GDP of Baltic States, Poland and their neighboring countries .....	6
Figure 4. Correlation of freight transport versus GDP growth .....	6
Figure 5. Projections of shortage of port capacity .....	10
Figure 6. Revenues from international transport and related logistics services earned by Estonian road, rail, and waterborne operators during 2001-07 (in million Estonian kronas) .....	10
Figure 7. Comparison of volumes and values of trade across the Baltic States and Poland by direction .....	11
Figure 8. Growth rates of EU freight transport by mode, 1995-04 (index 1995=100) .....	11
Figure 9. Trends of international freight volumes on north-south axis (1996-06).....	18
Figure 10. Trends of international freight values on north-south axis (1996-06).....	19
Figure 11. Trends of cargo structure along north-south axis: Finnish and Swedish Exports (1995-2006).....	19
Figure 12. Trends of cargo structure along north-south axis: Imports to Finland and Sweden (1995-2006) .....	20
Figure 13. Freight volumes traded between northwest Europe and CIS countries, million tonnes (1995-2006) .....	21
Figure 14. Trade in goods between north-west Europe and CIS countries, million USD (1995-2006).....	21
Figure 15. Dynamics of east-west cargo structure and volumes (1995-2006).....	22
Figure 16. Dynamics of west-east cargo structure and volumes (1995-2006).....	22
Figure 17. Change in cargo turnover during Q1 in 2008 and 2009 .....	24
Figure 18. Total cargo turnover of selected Baltic ports.....	24
Figure 19. Russia's automobile demand trends and projections.....	26
Figure 20. Trends in total transport cargo volume by mode (in million tons) .....	27
Figure 21. Freight volumes transported by Lithuanian railways in 2004-07 per traffic type .....	28
Figure 22. Lithuania: goods carried by road .....	29
Figure 23. Composition of <i>total cargo</i> handled by each port, 2006 .....	30
Figure 24. Composition of <i>inward and outward cargo</i> handled by each port, 2006 .....	30
Figure 25. Access Charges in 2008 for Typical 2000 Gross Ton Freight Train (Euros/Train-Km) .....	32
Figure 26. Areas of frozen sea (white) in the Baltic Sea during average and severe winters .....	35
Figure 27. Sea and road, sea and rail routes, all cargoes, 2003 .....	36

## Tables

Table 1. Country comparison of Logistics Performance Indicators (2009) .....	7
Table 2. Country comparison of Ease of Doing Business Indicator (2009) .....	7
Table 3. Cost comparisons per port call for container ship companies (in 2007 Euros).....	7
Table 4. Comparison of costs for one port call for containership companies (in 2002 Euros) .....	7
Table 5. Comparison of port infrastructure capacity .....	34
Table 6. Days of traffic restrictions due to frozen sea condition in the Baltic Sea .....	35
Table 7. Comparison of operational performance, or “competitiveness.” .....	36
Table 8. Comparison of the Enabling Trade Index .....	37

## Executive Summary

**The Baltic States—Estonia, Latvia and Lithuania—and Poland are situated along strategic trade corridors within Europe, constituting the EU’s eastern border with Russia and other CIS countries.** EU membership has triggered rapid economic growth for the Baltic States and Poland due to the removal of trade barriers and reduced transaction costs. A heavy influx of EU grants has targeted development and improvement of transport infrastructure, and this support will continue until 2015.<sup>1</sup> The EU grants are largely used for development of international corridors, which play a key role in strengthening the competitiveness of these new member states.

**Since their accession to the EU in 2004, these countries enjoyed remarkable growth.** While the countries underwent varying degrees of contractions in 2009, signs of recovery are showing albeit with considerable uncertainty in the future. Growth in Estonia, Latvia and Lithuania in recent years has been unsustainable and was driven by a disproportionate increase in the non-tradable sector (construction, financial intermediation, real estate). This has had negative implications for competitiveness. The global economic crisis in 2009 has ended Poland’s fast economic expansion over the recent years, but in contrast to its neighbors Poland has avoided a decline in economic activity. Over the medium term, growth in Poland is expected to accelerate steadily in line with an improving external environment.

**The Baltic States and Poland are relatively competitive in trade logistics and have initiated reforms to facilitate trade, compared to their eastern neighbors, particularly Russia.** Despite the plunge in 2008, freight transport and logistics development in the region has potential to continue to grow in the medium-term as some signs of recovery have begun to appear. The current economic situation has triggered a significant overcapacity of transport and warehousing which is characterized by very low prices for these services. While Poland remains relatively stable, Estonia, Latvia, and Lithuania are exhibiting higher vulnerability to external shocks.

**The most critical bottlenecks of transport logistics in the Baltic States and Poland are found in the deteriorating condition of their transport infrastructure, particularly that of road networks, less-developed intermodal connections, and inefficiency of custom processing at border crossing points.** Deteriorating road condition in these countries is largely due to inadequate maintenance and a comprehensive asset management system, albeit improving. Intermodal connections that are often inefficient are partly attributed to institutional arrangement that lacks inter-agency collaboration at the level of policy development and public investment. Custom procedures are particularly cumbersome and inefficient at the borders to non-EU member states. Nevertheless, the Baltic States and Poland have relative strengths in efficiency of domestic transport/logistics, cost-efficiency of trucking industry, and price-competitive port operation.

**The report lays out the following recommendations for strategic policy priorities for the Baltic States and Poland** to leverage their own strengths to respond to various opportunities and challenges:

Priority I - Develop a long-term vision and strategy. A long-term vision and strategy for trade logistics need to take into consideration of several policy and technical parameters, such as an increased focus on market diversification and strategic approach to respond to the EU-level climate initiative. Also, the recent crisis pronounced the importance of planning and strategizing as a means of enhancing resilience of the sector.

Priority II - Build institutional capacity and accelerate reform. Given the level of development of the transport sector of these countries, good management of existing infrastructure asset, rather than

---

<sup>1</sup> Currently, the EU’s Regional Development Programs and Sector Operational Programs are for 2007-2013 cycle, and will be disbursed until 2015. Details of the next cycle (after 2014) are not determined, but it is generally believed that the amount will be reduced, provided that the new member states will have achieved intended development objectives.

expansion of the network, will become growingly important. A comprehensive and efficient asset management system requires strong institutional support and transparency, in addition to technical competence. Railway sector of Poland demands further reform that is beyond cosmetic changes in the organizational structure. Continued effort to improve operational efficiency at seaports is advisable.

Priority III - Develop and improve transport infrastructure and intermodal connections. Also critical is continued investment in intermodal connections and capacity improvement at bottleneck infrastructure. Key investment items include infrastructure rehabilitation and maintenance, transport service quality improvement, and port-city interface. Regional cooperation is also advisable in addressing shared issues across borders.

Priority IV - Improve the efficiency of border-crossings. Multi-dimensional solutions can be devised to improve border-crossing efficiency at the borders with non-EU member states, often through bilateral relationships.

Priority V - Capture and support a strategic position in the international trade market. In the medium- and long-term, market diversification that looks into the ones with high growth potential and lucrative markets will become growingly important. They will include eastbound transiting, north-south trade, short-sea shipping within Europe, and trade with East Asia.

**Since cargo volumes on the main trade corridors depend largely on external economic and political circumstances, a better understanding of international trade demand is crucial.** In this respect, this report recommends a *detailed supply-chain analysis* of key commodity flows, such as automobiles, electronics and other consumer goods transported from west to east, and natural resources shipped from east to west.

# Trade Logistics Review and Policy Recommendations

---

## I. Objectives and Scope of the Study

1. **This study examines opportunities to enhance trade competitiveness in the Baltic States and Poland by improving their transport and logistics systems.** Transport in these countries is particularly important because distances are long—internally to the rest of Europe and to the wider world—and traffic conditions are often difficult. Key objectives include the following:

- a. First, the study identifies key international trade flows that are relevant to transport and logistics of the Baltic States and Poland, reviews their trends, and assesses what will affect their future development;
- b. Second, the study assesses how such goods movements are distributed among various transport modes and routes, and analyzes the reasons behind it, including comparative advantages and disadvantages of key transport corridors;
- c. Third, the study identifies trade competitiveness of the Baltic States and Poland, both collectively as a regional block and as individual countries, in terms of transport and logistics efficiency;
- d. Finally, the study offers recommendations for the Baltic States and Poland to leverage their own strengths and opportunities to respond to various opportunities and challenges.

2. **This study covers the movement of international goods via ground and sea transport that originates from, is destined for, or transits through, the Baltic States and/or Poland.** Transport infrastructure and operation of roads, railways, seaports and maritime subsectors are the main concern, in addition to border crossing and institutional issues. The study identifies components of the international supply chain that shippers and logistics service providers believe to be inefficient in terms of introducing excessive costs and delays. Of the many activities within the supply chain, the study attempts to identify those that contribute most to delay and uncertainties, such as bottlenecks of transport and logistics relevant for policymakers.

3. **For the study, the team carried out an extensive review of previous literature, related policy documentations, financial reports, statistics, and other articles, and interviewed a broad range of stakeholders,** including government agencies (planning agencies, line ministries, custom agencies), state-owned enterprises (infrastructure owners and operators), private companies (freight operators, forwarders, shippers, cargo owners, and so on), academia, and regional coordinating bodies. This study, however, did not engage in a detailed supply chain analysis for selected commodities, which would have helped to further elaborate cost estimation for such bottlenecks.

## II. Transport Logistics Review

### Macroeconomic Overview

4. **Since their EU accession in 2004, the Baltic States—Estonia, Latvia and Lithuania—and Poland, enjoyed remarkable growth.** While the countries underwent varying degrees of contractions in 2009, signs of recovery are showing albeit with considerable uncertainty for the future. In the Baltic States growth in recent years has been unsustainable and was driven by disproportionate increase in the non-tradable sector (construction, financial intermediation, real estate). This has had negative implications



for competitiveness. Reallocating resources to export-oriented and profitable activities would not be easy given high level of private indebtedness, current deflation, low potential growth and limited foreign direct investment. In contrast to its neighbors, Poland has avoided a decline in economic activity.

5. **Since late 2008, Poland has been hit by two shocks: the recession in high-income countries, which hurt external demand for exports; and the global financial crisis, which reduced capital inflows and thereby lowered domestic demand.** Nevertheless, growth remained positive throughout the last four quarters. In fact, Poland is the only one of 27 EU member states whose economy has continued to expand throughout the crisis. Poland grew by 1.7 percent in 2009, while the EU declined by 4.1 percent and the EU10 region by 4.2 percent according to preliminary EC estimates.

6. **Macroeconomic consolidation has started to deliver results in Latvia.** The economy seems to be contracting much more slowly, the external current account has swung into huge surpluses and necessary wage and price correction continues. Despite achieved macroeconomic stabilization, Latvia's policy management continues to face unprecedented challenges due to a still high fiscal imbalance compared to the authorities' fiscal target of meeting the Maastricht fiscal criterion (deficit of 3 percent of GDP) in 2012. The sharp decline in economic activity has masked the better than projected contribution of net exports to growth (13 percentage points in 2009).

7. **While the economy of Estonia is undergoing recession and contracting sharply, a full-fledged crisis has been avoided.** Sizable fiscal reserves during recent years, very low public debt, swift adjustment measures taken in 2008-2009, and EU structural funds have helped the government to keep the deficit under control. The fiscal adjustment leading to a 3 percent deficit in 2011 seems to be achievable, given that it has already achieved less than 3 percent in 2009, and euro adoption in 2011 seems to be on track.

8. **The Lithuanian economy is undergoing a severe adjustment with macroeconomic policies focusing on restoring fiscal sustainability.** For 2010, the approved budget is targeting the public sector deficit to be at 8.1 percent of GDP. External imbalances are set to narrow. Although exports have been falling throughout 2009, the collapse in domestic demand caused an even greater decline in imports and a sharp narrowing of the trade balance, they key component of earlier current account deficits. In 2010, the current account is expected to remain in small surplus (around 0.5 percent of GDP).

9. **Recently, the private sector has experienced rapid growth, revealing an array of advantages and challenges.** For example, Latvia's industrial sector was diversified during the Soviet era but is no longer competitive. Estonia's strong electronics and telecommunications sectors are influenced by developments among its biggest trading partners—Finland, Germany, and Sweden—and its industries are characterized by small enterprises, diversified production, and dependence on imported energy and raw materials. Lithuania's leading industries are textiles and food production. Poland has funneled substantial investment into infrastructure and the country's well-developed private sector features large industries in food processing and beverage production, vehicle manufacturing, and chemicals.

## **Key Trade Flows and Trends in the Region**

10. **Highly diverse trading goods indicate diverse transport needs along the north-south and east-west axes.** The Baltic States' imports from EU countries are primarily motor cars; most imports from non-EU members are petroleum products. Trade on the north-south axis also comprises highly diverse goods, indicating the need for a diverse range of transportation modes. International trade demand that may be transported across the Baltic States and/or Poland can be classified into four groups based on the direction of flows as below:

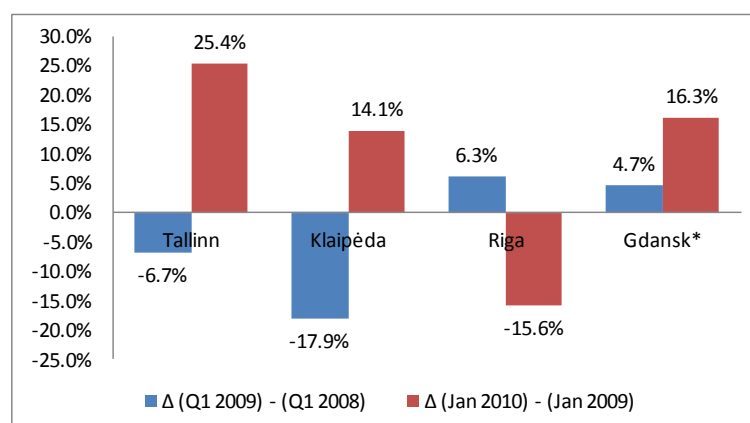
- a. *Southbound*, from North European countries—Norway, Sweden, and Finland—to Central and South-East European countries—Slovak Republic, Hungary, Slovenia, Romania, Bulgaria,

Greece, Ukraine and Belarus with main trades in manufactured goods such as machinery and automobiles;

- b. *Northbound*, the reverse flows to southbound with main trades in petroleum and iron products;
- c. *Westbound*, from countries on the east of Baltic States and Poland—Belarus, Moldova, Russia and Ukraine—to North-West European countries—Austria, Belgium, France, Germany, Ireland, Luxemburg, the Netherlands, and the UK with main trades in oil and oil products, other natural resources, wood products, and fertilizers; and
- d. *Eastbound*, the reverse flows to westbound with main trades in consumer goods, automobiles, electronics, and processed foods.

11. **Trade volumes in all directions grew consistently until 2008**, after which most of them were hit by the global recession. Westbound trade is the strongest with an annual share of about 14 percent of total tonnage since 2001, with demand more than triple all other flows combined in terms of tonnage. As of 2006, 250 million tons of goods were transported westbound; 19 million, eastbound; 27 million, southbound; and 32 million, northbound.

12. **The international trade volumes in the region have shown some signs of recovery after a disruption caused by the global recession, but have not achieved pre-crisis level** (further details on the global recession are discussed in the Technical Annex). In sea transport for example, cargo turnover fell at several major ports—during the first quarter of 2009, total volume transshipped to and from Tallinn decreased by 6.7 percent, and Klaipėda by 17.9 percent compared to the same period in 2008. The varying degree of recovery is observed since the second half of 2009 in different ports as shown in Figure 1. In many ports, cargo turnover in January 2010 was considerably greater than that in January 2009. Exceptionally, perhaps reflecting more pronounced impacts of financial crisis in Latvia, port of Riga has experienced further decrease in cargo volume, mainly attributed to a dramatic drops in demand for coals (-41 percent) and construction materials (-63 percent).



\* Depicted for the Gdansk port is the difference of cargo turnovers between December 2009 and December 2008.

Figure 1. Changes in Cargo Turnovers of Major Ports: Impact of Crisis and Post-Crisis Recovery

## Key Transport Corridors in the Region

13. **The EU agenda on the Trans-European Transport Network (TEN-T) has shaped national policies on developing the roads and railway networks in these new accession countries.** This will

continue during the second cycle of operation programs that ends in 2015.<sup>2</sup> National transport policies typically prioritize completion of the TEN-T network, but notable differences emerge in sub-sectoral priorities (further details on infrastructure condition and performance are discussed under Technical Annex). For example,

- a. Poland prioritized the three major motorway connections for their investment plan, including two east-west connections and one north-south connection; railways are lower priority.
- b. Estonia is emphasizing railway network development, including improving intermodal connections with road networks, the Port of Tallinn, and the international connection to Russia.
- c. Latvia envisages its role as a transit center, and has developed an ambitious agenda to promote multi-mode international transshipping.
- d. Lithuania's focus is on road transport, port development, and intermodal connections.

14. **Historically, the Baltic States have positioned themselves as transit countries connecting the economies of their larger neighbors; Poland's transit cargo share is secondary to its own imports/exports.** This tendency is particularly true in sea transport as depicted in Figure 2, where thickness of arrows schematically reflects the trade volumes involving the countries in the Baltic Sea Region (BSR countries).<sup>3</sup> In the left diagram, the arrows connecting the outer circle represent trade between each BSR country and external economies. The arrows connecting the inner circle represent trade between each BSR country and other BSR countries. Thicker arrows indicate that Germany, Norway, and Russia have larger volumes both in extra-BSR and intra-BSR trade. Further information on the internal trade among the BSR countries is depicted in the right diagram of Figure 2. The larger trade volumes are from Russia to Germany, from Russia to Poland, from Norway to Germany, followed by Finland's imports from Russia, Sweden's imports from Norway, and Lithuania's imports from Russia. Trade destined to or originating from the Baltic States is not a significant portion of the market.

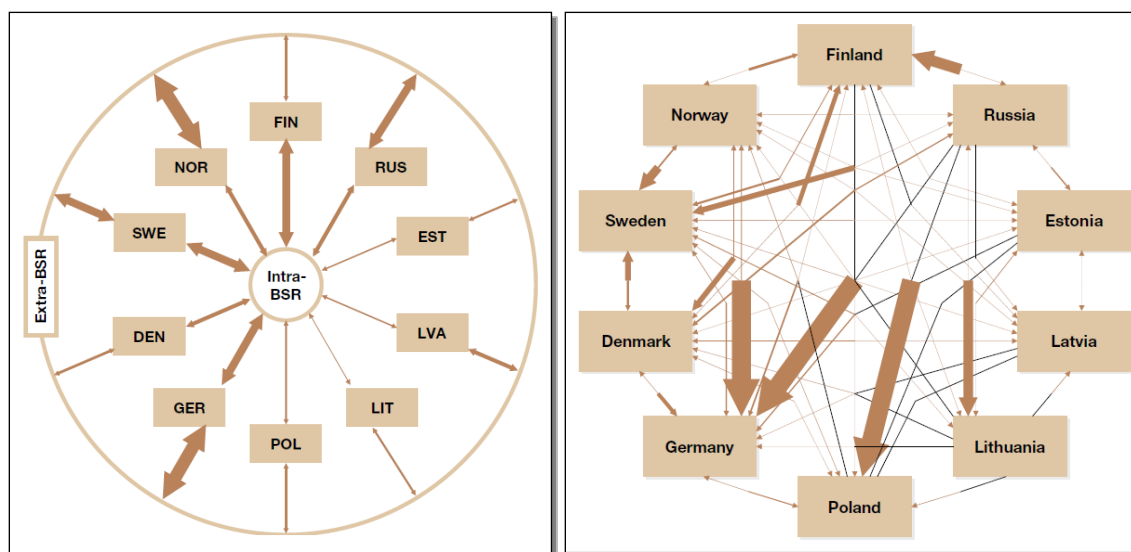


Figure 2. Schematic diagram of total and intra-region maritime transport of BSR countries in 2003<sup>4</sup>

<sup>2</sup> The program cycle is 2007-13, but disbursement can be made until 2015, according to the "N plus two" rule.

<sup>3</sup> They include countries surrounding the Baltic Sea: Norway, Sweden, Finland, Germany, Poland, Baltic States, and Russia Federation.

<sup>4</sup> European Commission (2006), Baltic Maritime Outlook 2006. Thickness of arrows indicates the relative volumes.

15. **Most of Russia's natural resources are transported by rail or pipeline through the Baltic Sea outlets to final destinations, including Western Europe.** Railways and pipelines have relative cost advantages in carrying these heavy bulk goods—primarily gas, oil, oil products, and raw materials such as coal, metals, and timber—compared to roads and other transport modes. Western Europe's high demand for and dependency on Russian oil and other natural resources have driven the development of east-west transport corridors, including railways and pipelines connections in the Baltic States. For example, westbound railway traffic of the Baltic States is dominated by Russia's exports to the west. Conditions and performance of such infrastructure are discussed in detail under Technical Annex.

16. **Russia's imports from the Western Europe and other countries, which are mostly containerized, use various modes of transport and largely pass through the Baltic States and Poland.** Several options exist to transport consumer goods from the west to Russia: (a) ground transportation from origins such as Germany, through Poland; (b) sea shipping to Polish ports, connecting through Poland's ground transport; (c) sea shipping to Baltic State ports and connecting through their ground transport; and (d) sea shipping directly to Russian ports, connecting through Russian ground transport. Conditions and performance of such infrastructure are discussed in detail in the Technical Annex.

### **III. Competitiveness Assessment: Strengths, Weaknesses, Opportunities and Challenges**

#### **Strengths**

17. **EU's financial supports and reform agenda on various sectors have commonly benefited these newer member states in removing physical and institutional barriers of trade logistics.** A heavy influx of EU grants is targeted for developing and improving transport infrastructure, particularly key international corridors, to strengthen competitiveness among new member states. This support through various forms of grants will continue until 2015 (for details on such development, see the Technical Annex).<sup>5</sup> On the institutional side, EU's railway, seaport and airport reform agenda have considerably liberalized respective sectors, fostering greater efficiency and competition. Border-crossing and custom procedures within the EU have been streamlined, resulting in considerable reduction of transaction and transport costs of international trade between member states.

18. **Growth potential: Despite the decline in GDPs in 2008-09, the Baltic States and in particular Poland have potential for growth, probably greater than the overall EU average.** Until the recent crisis, GDPs of these countries grew much faster than the EU average, which was 2.1 percent in 2005, and ranged from 5.0 to 12 percent during 2001-07 (Figure 3). Despite the 2008 decline due to the global financial crisis, freight transport in the region shows medium-term growth potential as signs of recovery have begun to appear. To this effect, Figure 4 shows the correlation between growth in the economy and growth in freight transport for EU-15 countries. The correlation is visible from the distribution, but it is also clear that there is a relatively broad range of different economic growth rates that can lead to the same growth in freight transport.

---

<sup>5</sup> Currently, the EU's Regional Development Programs and Sector Operational Programs are for 2007-2013 cycle, and will be disbursed until 2015. Details of the next cycle (after 2014) are not determined, but it is generally believed that the amount will be reduced, provided that the new member states will have achieved intended development objectives.

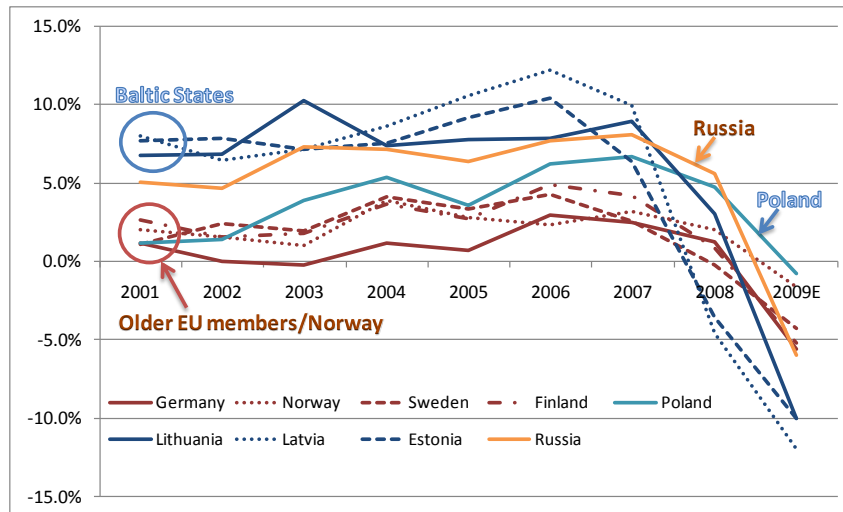


Figure 3. Annual Percentage Change in GDP of Baltic States, Poland and their neighboring countries<sup>6</sup>

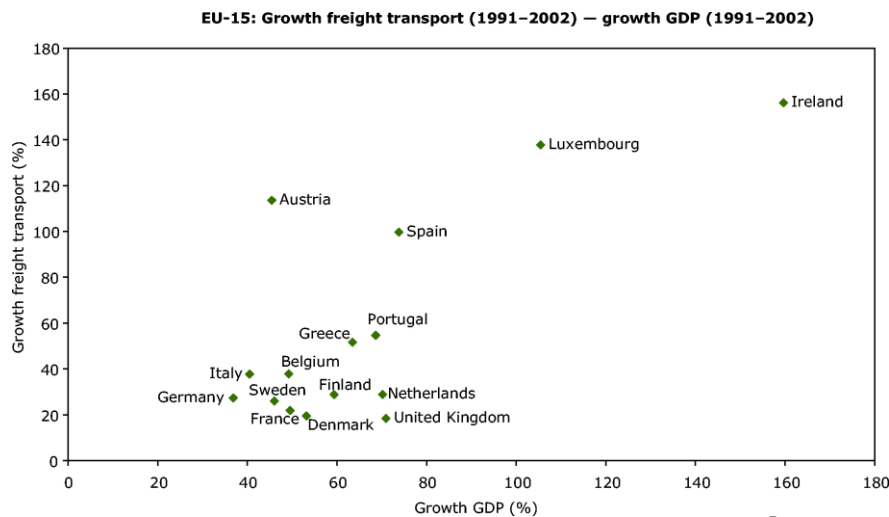


Figure 4. Correlation of freight transport versus GDP growth<sup>7</sup>

19. **Additionally, relative strengths in further economic development of the Baltic States and Poland are two-fold:** (i) more streamlined and efficient trade facilitation when compared to their eastern/southern neighbors; (ii) lower labor costs and subsequent price competitiveness of transport operations when compared to their western/northern neighbors. Each point is discussed below:

20. **The Baltic States and Poland are competitive in trade facilitation, compared to their eastern neighbors, particularly Russia.** According to the Logistics Performance Indicator, Poland ranked 30; Latvia, 37; Estonia, 43; and Lithuania, 45 out of 155 countries (Table 1). Poland's strengths include relatively low domestic transport costs, efficient customs, and competent logistics; Latvia is strong in international shipment and timeliness; Estonia has efficient domestic logistics; Lithuania's strengths are international shipments and timeliness. An "Ease of Doing Business" Indicator scale for 181 countries ranks Estonia 22<sup>nd</sup>, Lithuania, 28<sup>th</sup>, Latvia, 29<sup>th</sup>, and Poland, 76<sup>th</sup>. These countries excel in "ease of trading", ranked much higher than the overall ranks (Table 2).

<sup>6</sup> IMF, World Economic Outlook Database, <http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx>

<sup>7</sup> EEA, 2006, Fact sheet 13, 2005 data sheet (based on Eurostat, 2004).

Table 1. Country comparison of Logistics Performance Indicators (2009)

<i>LPI (scores)</i>	<i>Countries</i>	<i>Customs</i>	<i>Infra- structure</i>	<i>International shipment</i>	<i>Logistics competence</i>	<i>Tracking &amp; tracing</i>	<i>Timeliness</i>
<b>1</b> (4.48)	Germany	3	1	9	4	4	4
<b>2</b> (4.09)	Singapore	2	4	1	6	6	15
<b>12</b> (3.89)	Finland	7	8	19	10	11	25
<b>26</b> (3.51)	Czech Rep.	27	34	17	35	27	19
<b>30</b> (3.44)	Poland	34	43	35	36	33	2
<b>37</b> (3.25)	Latvia	40	49	21	46	29	49
<b>43</b> (3.16)	Estonia	33	53	44	38	65	53
<b>45</b> (3.13)	Lithuania	48	54	38	56	46	35
<b>99</b> (2.61)	Russia	115	83	96	88	97	88
<b>102</b> (2.57)	Ukraine	135	79	84	77	112	114

Table 2. Country comparison of Ease of Doing Business Indicator (2009)

<i>Rank '09</i>	<i>Country</i>	<i>Trading rank</i>	<i>Docs/Days export</i>	<i>Cost to export (\$/container)</i>	<i>Docs/Days import</i>	<i>Cost to import (\$/container)</i>
1	Singapore	1	4/5	456	4/3	439
14	Finland	4	4/5	495	5/5	575
22	Estonia	5	3/8	730	4/8	740
25	Germany	11	4/7	822	5/7	887
28	Lithuania	26	6/10	870	6/13	980
29	Latvia	25	6/13	900	6/12	850
76	Poland	41	5/17	884	5/27	884
120	Russia	161	8/36	2150	13/36	2150

21. **In the Baltic States and Poland, the trucking industry and port operation are more efficient and competitive than in eastern and western neighbors.** In particular, the Polish trucking industry is more cost-competitive than its western neighbors are (earlier EU members) and can take advantage of lowered trade barriers after Poland become a Member State. The Baltic States are competitive but to a lesser degree mainly due to their smaller market share and closer ties to Russia.

22. **Ports have a comparative advantage in vessel dues and charges.** This is according to a study carried out by Center for Maritime Studies at the University of Turku in 2007 (Table 3) and by the Baltic Ports Organization (BPO) in 2002 (Table 4). Compared to St. Petersburg and Helsinki, ports of Tallinn, Riga, Ventspils, Klaipeda and Swinoujscie charge significantly lower dues and fees for use. However, a simple comparison of charges per port call is not possible since the fee structures and charging systems are generally complex. For example, some fees are negotiable and can be reduced or even dismissed; sometimes higher charges reflect higher-value services, such as efficient connections to transfer cargoes to hinterlands, so higher costs do not erode the competitiveness of such a port.

Table 3. Cost comparisons per port call for container ship companies (in 2007 Euros)<sup>8</sup>

<i>Company</i>	<i>Tallinn</i>	<i>Riga</i>	<i>St Petersburg</i>	<i>Klaipeda</i>	<i>Helsinki</i>	<i>Hamina</i>	<i>Kotka</i>
OOCL Narva	6,530	7,467	9,241	9,565	12,857	14,399	14,506
Arctic Fox	3,995	4,733	5,787	7,946	8,112	9,232	9,297

Table 4. Comparison of costs for one port call for containership companies (in 2002 Euros)<sup>9</sup>

<sup>8</sup> Hilmola et al., 2007; Included are port dues and charges-per-call that are eligible for discount after 25 calls.

<sup>9</sup> Port pricing, Working Group Final Report, BPO Communication Committee, 2002

Vessel type	Tallin	Riga	Venstpils	Klaipeda	St.Petersburg	Helsinki	Stockholm	Swinousjje	Wismar
Bulker (1)	5 080	8 216	7 785	7 732	10 173	16 871	6 730	6 283	5 006
Bulker (2)	30 889	63 583	59 705	60 023	60 222	117 878	40 520	60 265	n.a.
Container	1 964	2 216	2 337	1 777	6 669	2 394	2 286	n.a.	1 771
General cargo	3 210	3 987	3 745	4 508	6 251	10 604	3 961	3 792	3 950
RO-RO	10 122	13 159	14 304	7 912	14 008	5 934	8 659	21 258	3 981
Tanker (1)	78 888	87 618	81 893	102 327	n.a.	126 653	n.a.	n.a.	n.a.
Tanker (2)	22 662	21 379	20 446	26 558	29 213	52 647	15 997	28 855	15 165
Passenger	4 714	5 350	n.a.	n.a.	6 098	6 674	6 624	n.a.	n.a.
Cruise (1)	14 074	25 556	n.a.	n.a.	43 434	41 342	16 680	16 946	22 682
Cruise (2)	9 311	n.a.	n.a.	n.a.	10 842	16 048	8 628	n.a.	n.a.

## Weaknesses

23. **The Baltic States' low trade volume in the region affords them little influence on international trade markets.** These countries heavily rely on exports of textile and processed foods and imports of energy, and are not primary origins or destinations of traded goods in the region. This makes them market followers rather than market drivers. Consequently, the effectiveness of their policy and strategy for transport and logistics depend on external circumstances—trade markets and the roles of bigger players in those markets, which is why they need a cohesive approach to their trade policy and facilitation strategy.

24. **Since a significant share of the Baltic States' international cargo is transit traffic, transport performance is highly vulnerable to external changes.** The traffic flow analysis, discussed earlier in this report, shows that most intra-BSR trade occurs between Russia and older EU member states. Since most cargo is transshipped, the ports have little control over transit demand, and are vulnerable when political motives dominate economic incentives. For example, recent political tensions between Estonia and Russia led Russia to divert its exports through western countries.

25. **The efficiency of the entire supply chain is substantially hampered by a few physical, institutional and administrative bottlenecks.** They include cumbersome border-crossing and customs procedures, several links of road and railway networks that are in very poor condition, poor and uncoordinated intermodal connections particularly between ports and land transport, and differences in railway gauges (details are discussed in the Technical Annex). The key points are

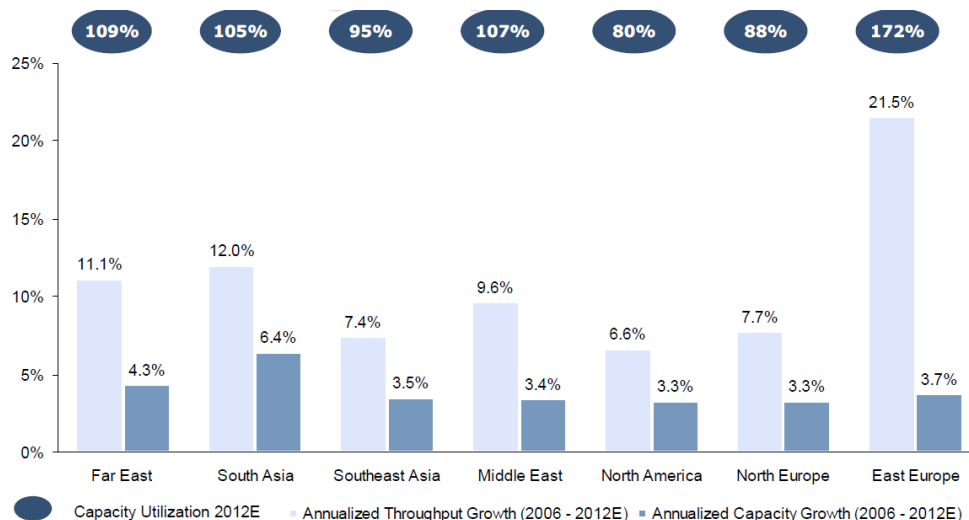
- a. **Border-crossing inefficiency is one of the biggest trade bottlenecks in the region.** Border crossings are highly politicized, particularly in CIS countries; therefore, national efforts to improve logistics efficiency are insufficient to resolve border-crossing issues. Bottlenecks at borders frequently are linked to the following issues: bilateral arrangements on license issuance for truck drivers; complex custom processes, legal aspects of trade with non-WTO member countries, and vulnerability to external circumstances, such as decisions made by Russia's western trade partners.
- b. **A lack of strategic infrastructure asset management systems poses a great threat on trade facilitation.** Until budget allocations for maintenance and repair increase significantly, accompanied by efficient asset management systems, infrastructure conditions would continue to deteriorate and transport and logistics costs would escalate. Maintenance expenditures have lower priority in the budget allocations of most of the Baltic States and Poland, except Estonia.

## Opportunities

26. **The Baltic States and Poland can seize opportunities to grow by leveraging the structure of the region’s economy, in which nations are highly specialized in different industries, as the current trade patterns show.** For example, northern regions dominate the forest industry; Norway and Russia are oil producers; and Germany and Poland dominate the metals sector. Specifically, Sweden’s industrial production is concentrated in timber and iron—wood pulp, paper, metal production, automotive manufacturing, machinery production, telecommunications, and pharmaceuticals are important. Finland’s highly industrialized economy is concentrated on manufacturing—primarily wood, metals, engineering, telecommunications, and electronics. Therefore, specialization would continue to dominate international trade needs among countries in the region, including short-distance intra-EU trade. This would provide opportunities for transit countries that are well-positioned in the market with attractive prices and service quality.

27. **The Baltic States and Poland can strategically position themselves in the market utilizing various platforms for regional cooperation.** One example is the “Northern Dimension Partnership on Transport and Logistics”, under preparation and to begin in 2010, would be a new regional cooperation forum, combining both the transport and logistics policies and coordinating infrastructure projects. Similar regional partnerships among Scandinavian countries and Germany have brought in mutual gains over a decade, in solving common problems in more efficient ways and finding areas of collaborations.

28. **As the traditional gateway ports of Europe reach capacity, the Baltic States and Poland can scale up and expand their share of the market.**<sup>10</sup> Capacity of existing major ports is difficult to expand since most are located in historic settlements, subject to archeological, environmental, and cultural constraints. As suggested in Figure 5, trade volumes in Eastern Europe are expected to expand more rapidly than those of many other regions, and port capacity growth is estimated to be far too low to keep pace.<sup>11</sup> Many predict that capacity expansion will continue to be relevant to the ports of the Baltic States and Poland, and eventually lead to increases of their market shares in the BSR. One note of caution, however, is that seaport capacity is contextual and commodity-specific so any investments in capacity expansion need to respond to market demands (further details on port capacity are discussed in the Technical Annex).



<sup>10</sup> Traditional gateway seaports for western and central Europe are Hamburg, Rotterdam, and Antwerp.

<sup>11</sup> This is a 2006 estimate; the global recession, has slowed transport growth since the second half of 2008, but signs rapid recovery in international trade is abundant as of the first quarter of 2010, when this report is finalized.



Figure 5. Projections of shortage of port capacity<sup>12</sup>

29. **International transit markets will continue to provide opportunities for economic growth to the Baltic States and Poland.** Figure 6 shows that in Estonia, transit service has been profitable across all modes of trade and total revenues have continued to grow during recent years. In 2007, revenues from waterborne transit traffic increased by 16 percent. Typically, transit trade and storage sectors account for a considerable share of GDP in the Baltic States. For example, in 2007, Estonia's transit trade sector contributed about 5.0 percent to GDP; in Latvia, transit and storage sectors together accounted for 10 percent of GDP. Market shares in Russia's strategic export bulk are no longer secured for traditional transit routes through the Baltic States and Poland. Refocusing on containerized flows seems to offer promising opportunities and potentially significant future revenues. Growing volumes of container handling in these countries seem to back up their optimism.

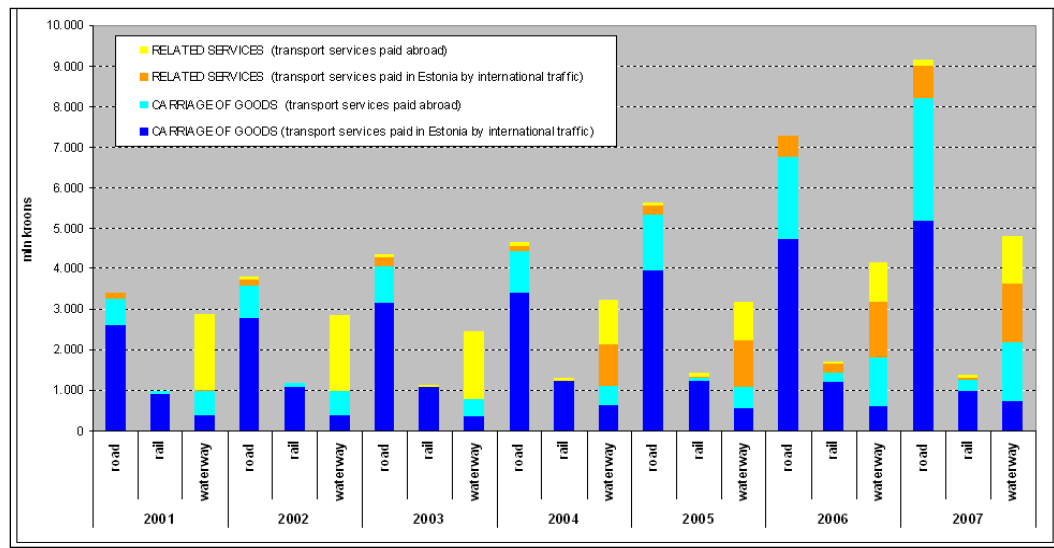


Figure 6. Revenues from international transport and related logistics services earned by Estonian road, rail, and waterborne operators during 2001-07 (in million Estonian kroons)<sup>13</sup>

30. **It is recommended that the Baltic States and Poland consider diversifying their target market segments and respond proactively to market shifts to improve their market share.** Eastbound flows and north-south traffic offer opportunities to leverage their status as EU member states. Figure 7 shows that while westbound traffic has much higher volumes, other trade flows have greater value per ton. Hence, the liner shipping market for high-value goods offers future growth potential. Capturing that market would require strategic ports services improvements to ensure reliability and accuracy. In addition, diversifying to a wider range of countries' trade demands would reduce the risk of relying on a few neighboring countries, such as the westbound flow that is highly concentrated with exports from Russia to Western Europe.

<sup>12</sup> Drewry Publication (2007) Annual Review of Global Container Terminal Operators 2007, based on confirmed expansion plans

<sup>13</sup> NEA report, 2009.

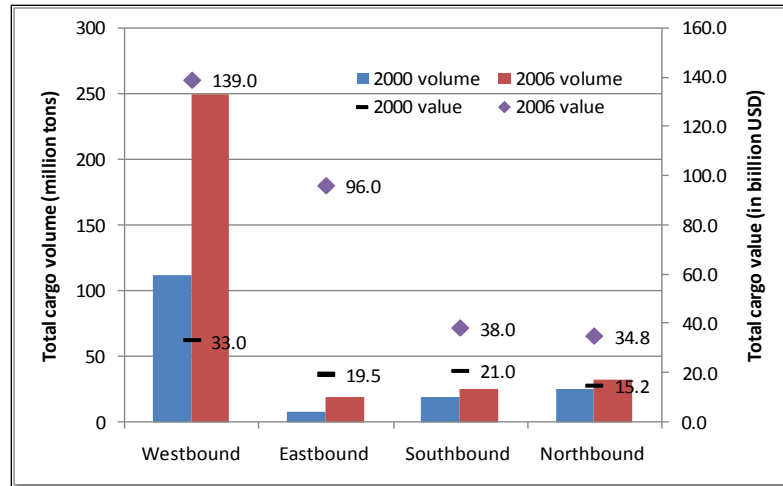


Figure 7. Comparison of volumes and values of trade across the Baltic States and Poland by direction<sup>14</sup>

31. **Short-sea shipping (SSS) within Europe is an efficient and environmentally friendly mode that could enhance the future of Baltic seaports.** The SSS mode refers to waterborne transport by hinterland sea (e.g., Baltic Sea, Black Sea) or inland waterways (IWW), and as Figure 8 shows, volume has grown steadily at a rate comparable to road transport. The existing SSS market share is second only to road transport in cargo volumes, but it is not yet sufficiently integrated with other modes to achieve efficient door-to-door multimodal chains.<sup>15</sup>

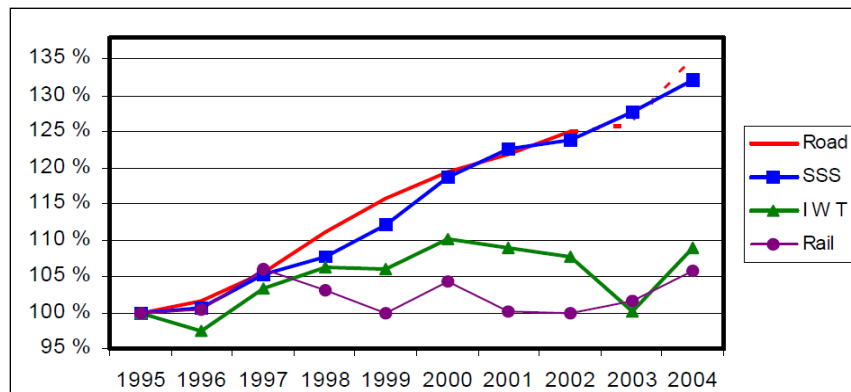


Figure 8. Growth rates of EU freight transport by mode, 1995-04 (index 1995=100)<sup>16</sup>

32. **The growing trend in Europe toward SSS could motivate Poland and the Baltic States to develop maritime and IWW transport.** In 2003, the European Commission established the “Programme for the Promotion of Short Sea Shipping,” which included legislative, technical, and operational action plans to improve SSS efficiency. Many countries, including Norway, Netherlands, Germany, Romania and Lithuania, have Short-sea Promotion Centers (SPCs) that coordinate national efforts to support SSS. The European Commission not only supports national efforts, but also helps coordinate and integrate within the European Short-sea Network (ESN), an agreement between member countries.

<sup>14</sup> NEA report, 2009; the bar chart shows total cargo volumes and the dot chart shows total cargo value.

<sup>15</sup> The Center for Maritime Studies (2006), Short-sea Shipping on the Baltic Sea-Prospects and Challenges, Edited by Pekka Sundberg. University of Turku, Finland.

<sup>16</sup> The Center for Maritime Studies, 2006.

## Challenges

33. **Estonia, Latvia, and Lithuania are facing competition for their exports.** Recent economic growth was supported by massive capital inflows, growing domestic demand, and productivity increases. But subsequent labor costs created a price-wage spiral that eroded export competitiveness, and the economic downturn has worsened this situation. The European Commission estimated that manufacturing sector wages in Estonia have grown by 13 percent.
34. **The Baltic countries and Poland have been hit by the global economic crisis.** External demand has collapsed, driven by recession in the countries' main trading partners. Substantially decreased foreign capital flows, overall tight liquidity, and lack of lender confidence has further destabilized production. This unfavorable external environment has led to rapid deterioration of exports compared to imports. However, import contraction in the Baltic countries has succeeded in shrinking the current account deficit. Near-term prospects are for continued declines in imports, prices, and exports.
35. **Russia's port development strategy and trade policy poses a huge threat to Baltic ports.** In particular, Russia's transport strategy priorities aim to: (a) further develop the "north-south" transport corridor, utilize waterways of the Baltic Sea and Volga River, connect Northern Europe, Caspian Sea countries, Black Sea, and Danube; (b) modernize existing ports and building new ports in the Baltic, Barents, and White Seas, including roads, railways, and inland waterway access to the ports; (c) create stable transport links between Kaliningrad enclave and other Russian mainland regions; (d) provide regular transport services in the western North Sea Way; and (e) create marine navigation safety systems in the Baltic Sea.

### **Influence of Russian Policy on the Competitiveness of Baltic Ports—the Case of Klaipeda**

The Russian Federation is currently pursuing its transport policy to reorient Russian cargoes to Russian ports. Eliminating traffic discounts for transporting cargoes via Lithuania reduced the competitiveness of the Klaipeda port. Now, users must negotiate discounts by cargoes and routes and cooperate closely with Kaliningrad entrepreneurs to gain tariff discounts. To increase the competitiveness of the Klaipeda port, for example, cargo and railway tariffs in the port must be reduced. However, reducing railway tariffs alone is insufficient since compared with the port-handling tariffs; transportation costs are double for some goods via Lithuania by railway. For example, metal transportation and handling tariffs—the base tariff for metal transport via Lithuanian territory is US\$4.41 per ton and the base tariff for port handling is US\$8.5. If discounts are applied (comprising up to 25 percent), the price drops but remains higher than railway tariffs. Generally, base tariffs for port handling in Klaipeda are similar to those in the Baltic States. Discounts, quality of cargo handling, and time/reliability (e.g., use of vessels) considerably influence choice of port.

36. **By 2010, Russia aims to transport 95.2 percent of its own exports through Russian ports.** Russian investment priorities aim to achieve independent maritime transport through the Baltic Sea, according to its federal transport program. Russia's investments will include the following: (a) launch the Baltic pipeline system to operate at maximum capacity; (b) create a Baltic Sea ship management system to strengthen Russian independence in shipping Russia's oil products; (c) develop the Ust-Luga port to operate at full capacity; and (d) further develop St. Petersburg's railroad.
37. **Competition from Russian ports would continue to challenge ports in the Baltic States and Poland.** In response to these external pressures, and to seek opportunities for future development, every major port in the Baltic States and Poland has ambitious investment plans. However, whether and how the plans can be financed remains unclear, as does the issue of adequate institutional capacity of port authorities and adequacy of national transport policy.

## IV. Strategic Priorities to Enhance Competitiveness

38. The above assessment of the competition landscape provides the grounds for each country to develop a strategy for transport and logistics that aims to enhance trade competitiveness. Each country's strategy needs to reflect its unique circumstances. This study identified some common lessons that need to be taken into account in developing each country's strategy. They share, albeit to varying extent, several political, economic, and technical conditions: (i) challenges from being smaller economies surrounded by large economies, (ii) benefits from successful transitioning and EU accession, (iii) strong needs to build in sustainability while growing, among other things. In this respect, this report recommends that policy leaders in trade and transport/logistics consider the following strategic priorities in order to enhance their country's trade competitiveness:

- Priority I:** Develop a long-term vision and Strategy
- Priority II:** Build institutional capacity and accelerate reform
- Priority II:** Develop and improve transport infrastructure and intermodal connections
- Priority III:** Improve the efficiency of border-crossings
- Priority IV:** Capture and support a strategic position in the international trade market

### Priority I: Develop a Long-term Vision and Strategy

39. **Developing a long-term vision and strategy is essential to improve the trade competitiveness of the Baltic States and Poland.** Key policy and technical parameters that need to be reflected in the vision and strategy are:

- a. The current reliance on the transit of westbound trade entails a great external risk that is outside each country's transport/logistics policy, given Russia's long-term plan and investments to increase use its own ports for its exports;
- b. Market diversification is, therefore, recommended to be the center piece of the strategy for transport and logistics development, its one option being higher value goods transit of eastbound trade and growing trade with the Far East;
- c. The global as well as EU-level climate initiative will put a growing emphasis on the use of energy efficient and low-carbon transport mode, including rail and short-sea shipping, which will continue to have significant policy implications;
- d. Further liberalization and streamlining of border-crossing will continue to bring great benefits to the countries in the region, particularly along the eastern border of the EU;
- e. Planning and analysis capacity of the public sector would become more important as a lack of such will pose a significant constraint on the efficiency and competitiveness of trade logistics. The private sector of these countries has a strong potential to perform at internationally competitive level, provided that public sector creates an enabling environment removing various physical and institutional bottlenecks.

40. **The crisis underlines the value of planning and strategizing—scenario analysis, contingency planning, and stress testing—in order to build resilience of the sector.** What the recent economic downturn caused to international trade suggests the need for the transport sector to be alert to potential changes in global markets. An analytical framework needs to respond to market volatility, particularly in the energy market. Since cargo volumes on the main trade corridors depend largely on external economic and political circumstances, a better understanding of international trade demand is crucial. A cohesive framework across sub-sectors would help each mode avoid a silo approach and a national strategy would improve competitiveness of transport logistics. The recent plunge in cargo volume may have triggered cuts to operating expenses and downsized capital investment plans, but a longer-term perspective is

required in order to ensure pro-active decision making. In fact, decisions to cut back on capital investment actually hinder growth potential and contribute to loss of future market share. The transport sector needs to develop the capacity to respond flexibly to changing global economic conditions that govern trade volumes.

41. **The following strategic priorities naturally emanate from the above suggested directions for a long-term vision.** They include building institutional capacity, developing intermodal connections, improving efficiency of border-crossing, and capturing strategic positions in the international trade market.

## **Priority II: Build Institutional Capacity and Accelerate Reform**

42. **Create a system for comprehensive and coordinated management of transport infrastructure assets.** Despite the recent effort for development of the transport sector, the countries commonly suffer from poor conditions of some part of their infrastructure. As pointed out earlier in this report, it is these segments of the network that create bottlenecks of goods movement, severely undermining the overall transport efficiency and competitiveness. To break the chain of inadequate maintenance and system breakdown, a comprehensive and coordinated asset management system needs to be devised. A successful asset management system requires a clear investment and prioritization strategy, adequate budget allocation and staffing, legislative supports, monitoring and evaluation capacity, and checks and balances mechanisms, such as proper financial and technical audits and civil society participation that oversees accountability of public spending.

43. **Create an efficient and relevant railway sector.** This applies to Poland in particular.<sup>17</sup> The Polish railway sector suffers from low staff productivity, inadequate investment in automation and modernization of signaling and IT systems, maintenance backlogs, and a track-access charge structure that is non-competitive and inefficient. The railway authority—the state-owned infrastructure company—has no incentives to pursue operational efficiency levels beyond their public service obligations, for example, by closing loss-making lines. Cross-subsidies for passenger services burden the overall financial health of the railway sector and encumber freight operators. Institutional restructuring is required to balance corporate efficiency with the public service obligations of state-owned infrastructure.

44. **Create transparency and comparability of infrastructure cost structures and avoid inefficiency of transport service market, in particular to rebalance rail access charges.** The aim of full cost recovery through track access charges as applied in the Baltic States and Poland is not realistic, resulting in a loss of the railways' competitive position. While EU member states are not obliged to comply with relevant EU policies, the EU suggests charging truck drivers for the costs they impose in terms of congestion, noise and air pollution. Member states could choose to do so for vehicles weighing more than 3.5 tonnes, on any part of their road network, as of January 2012. The Baltic States and Poland need to review how to best incorporate EU policies and rebalance rail access charges through adequate road pricing.

45. **Improve port operational inefficiency and overall competitiveness.** Ports are handicapped by long-term inflexible contracts with stevedoring companies, which need to be reviewed and restructured to meet evolving market needs. Also, Baltic States and Poland port authorities need to modernize their information systems to provide more efficient and reliable services and seamless intermodal transport using technologies such as the Internet and global positioning systems (GPS) to catch up to better-performing seaports around the region. Systematic information sharing would significantly improve operational and managerial efficiency.

---

<sup>17</sup> The Baltic States are in a better situation, thanks to more aggressive reforms, smaller networks, and operations that focus on high-traffic lines.

### **Priority III: Develop and Improve Transport Infrastructure and Intermodal Connections**

46. **Improve network and intermodal connections of ports, particularly between seaports and major railway lines to boost competitiveness of main trade corridors.** In general, the region's ports have sufficient capacity, operate efficiently compared to Russian competitors, and are cost-competitive compared to Dutch and German ports. To leverage their position in the maritime sector, they need to improve network and intermodal connections to the hinterlands to compete successfully with Russia, whose overall railway and road network connectivity and quality are relatively weak. Existing intermodal connections in the Baltic States and Poland have weak physical infrastructure capacity and operating efficiency. Improving intermodal connections need to be viewed through the lens of the international trade network, including the TEN-T. Well-connected infrastructure can leverage port development and railway system competitiveness.

47. **Seek strategic and financial support to improve railway and road network infrastructure and service quality.** Recommended priorities include the following: (a) allocate sufficient funds for repair and maintenance of railway infrastructure; (b) invest in automation and modernization of the infrastructure and services; (c) implement electrification on remaining railway network diesel sections if traffic volume is sufficient to justify investment; and (d) improve road management system for cost-efficient allocation of resources for road maintenance (as noted under priority II).

48. **Improve port-city interface through better planning of urban/port infrastructure and facilities.** Most hinterland and port-city development is context-specific but some general guidelines apply. First, bring the urban function to the seaport hinterland, which requires long-term vision and planning to attract urban activities not directly related to port operations. Second, integrate horizontal and vertical functions; employ clustering and mixed land use to boost port-city efficiency and dynamics, as do many better-performing ports. Third, plan for flexible space utilization throughout the development of the port, intermodal connections, and the city. Finally, fully integrate environmental considerations to ensure a healthy future for the port city and mitigate any adverse impacts.

49. **Promote regional cooperation in solving common issues across borders.** There are already various platforms for regional coordination, including the "Northern Dimension Partnership on Transport and Logistics". Regional cooperation can be an instrument that helps the region implement a common strategy to increase accessibility and address external aspects in transport and logistics.

### **Priority IV: Improve the Efficiency of Border-Crossings**

50. **Investigate multi-faceted means to improve of border-crossing efficiency.** Border crossings are one of the most challenging barriers to international trade in the region and removing bottlenecks would require political, technological, economic, and institutional approaches. Poland and Belarus recently collaborated on benchmarking land crossing points, which suggests that bilateral cooperation may be an essential part of the solution. Similar actions are planned between Poland and Ukraine. The following recommendations can help tackle border-crossing inefficiency through bilateral relationships:

- a. **Form a joint working group:** include staff from state ministries (Ministry of Finance, Economy, and Infrastructure/Transport), regional customs officers, and staff from local clearance stations.
- b. **Evaluate the performance of each BCP:** including surveys and site visits and evaluate infrastructure, institutional capacity (staff numbers and skills), customs procedures for each transport mode (preferably at each activity level), and any other issues that affect crossing point capacity.
- c. **Analyze and implement the results of the evaluation:** through action plans at national, local/regional, and bilateral levels for each customs office. An organization under which the

national governments assume responsibility is preferable in order to secure political and policy level supports to adopt and implement recommendations.

51. **The Poland/Belarus joint working group action plans have been recently adopted by both governments.** Among their recommendations are to increase the number of staff at crossing points; to introduce ICT to reduce the paperwork; to inform all vehicle drivers of their estimated waiting times; and to provide equipment needed for customs control.

## **Priority V: Capture and Support a Strategic Position in the International Trade Market**

52. **A strategic and forward-looking positioning is essential for these economies surrounded by international big players given dynamics of global trade markets and competition.** Due to small markets in the Baltic States, it is essential that appropriate measures are taken up to upgrade the business environment. As a general guideline, the countries need to compete in the growingly diversified market; and to strategically position themselves in response to demand. The following four segments of the international trade market will continue to be of great importance to these countries, and thus, adequate strategies need to be identified to succeed in each one.

- a. **Market 1 – Eastbound trade:** The cargo composition of the eastbound trade from western world to Russia and other CIS countries represents higher-value commodity goods than the westbound flow. From the perspective of transiting countries—the Baltic States, and to some level, Poland—intermodal connections are key to succeeding in this lucrative market. Corridor development programs under each country’s SOPT are expected to improve quality and capacity of key connections, particularly within EU boundaries. However, bottlenecks will remain at intermodal junctions and EU’s eastern border. **Recommendation: Provide high quality logistics services to trading partners that are reliable and responsive to demand and, supported by “seamless” intermodal connections.**
- b. **Market 2 – North-south trade:** The value and volume of the north-south trade have significantly increased over the past years (see Figure 7). Flow of cargos to/from CIS countries, particularly Belarus and Ukraine, has notably increased in volume and monetary value. Nevertheless, one caveat would be weak ground transport connection and inefficiency related with border crossing between the Baltic States/Poland and these non-member states. Additionally, government strategies need to focus on developing missing links, such as for example a second track to the Latvia-Belarus-Russia rail line (which would increase the daily throughput capacity from 29 to 35 pairs of trains), and the building of a station in Budakai (Belarus railways line to Lithuania). **Recommendation: Analyze and evaluate existing trade demands and build on future prospects.**
- c. **Market 3 – Short-sea shipping:** Particularly in Poland, development of seaports needs to be strategically coordinated with improved inland waterway navigability. **Recommendation: Capturing a share of the growing SSS market will require improved service quality—reliability and seamless intermodal connections—connections between modes of transport to achieve uninterrupted door-to-door service.**
- d. **Market 4 – Trade with East Asia and Further:** Growing interactions between China and Europe would provide opportunities for Poland and the Baltic States—first, as a direct trade partner; and second, as China’s gateway to Europe. Specifically, the Baltic States and Poland are exploring the potential of the Trans-Siberia and Trans-Central Asia connections, a venture that is still too early to evaluate. Current volumes are insignificant, and many challenges remain, including deteriorated infrastructure and complicated collaboration with multiple CIS countries along the corridor. **Recommendation: Consolidate a strategic position in the transport/logistics market**

**based on solid understanding of trade trends and projections, pricing mix, and service quality to sustain competitiveness and profitability.**



## Technical Annex

### Trade Demand: Trend and Future

#### North-South Corridor Trade Pattern

**Sweden and Finland's trade along the north-south axis has grown steadily**, as shown in Figure 9 and Figure 10. In terms of volume, flows moving northwards and southwards are quite well balanced; in monetary terms, the south bound flows have some advantage, indicating that Finland and Sweden export higher-value goods to their southern partners. However, this difference tends to converge partly because southern countries experience continuously increasing production costs, thereby increasing the value of the goods they supply.

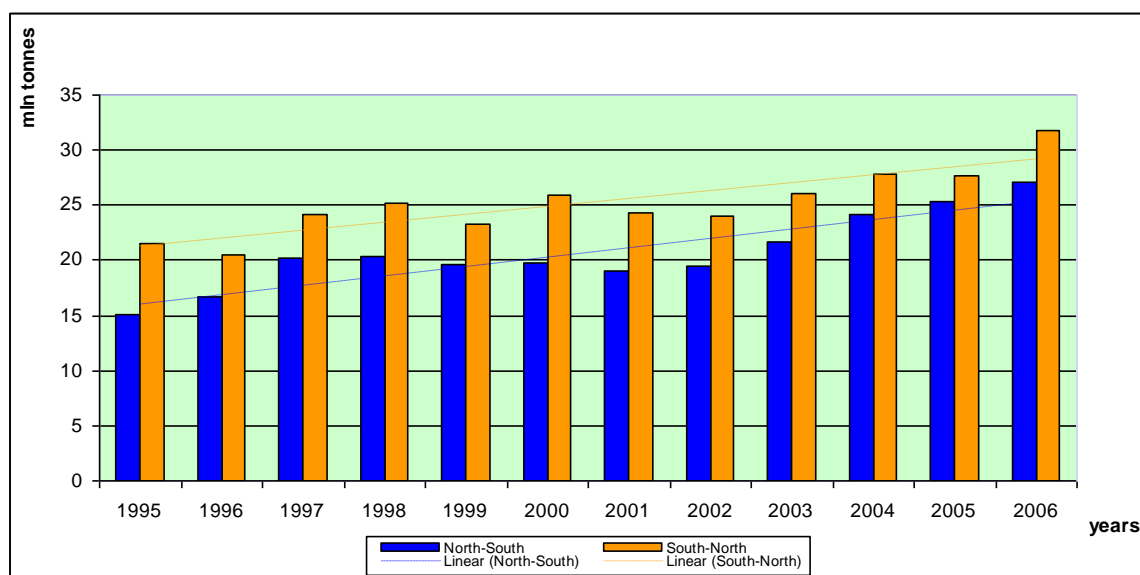


Figure 9. Trends of international freight volumes on north-south axis (1996-06)<sup>18</sup>

<sup>18</sup> NEA report, 2008

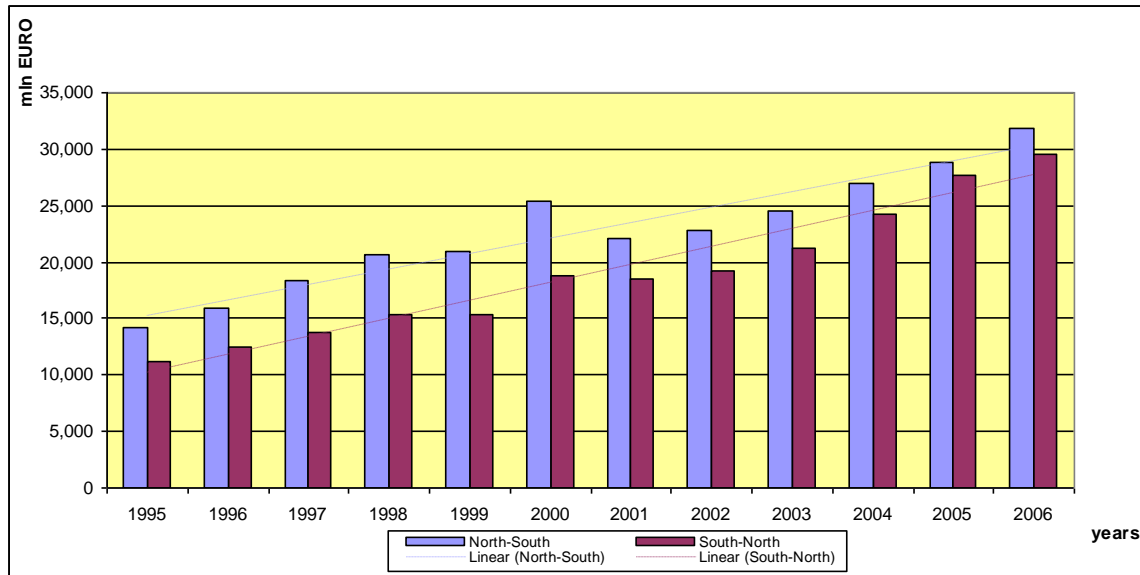


Figure 10. Trends of international freight values on north-south axis (1996-06)<sup>19</sup>

**The cargo volume along the north-south axis maintains an upward trend in several segments—general cargo and liquid and dry bulk.** Imports and exports from Finland and Sweden along the north-south axis illustrate that over the past few years trade growth has been based on cargo type (see Figure 11 and Figure 12). Furthermore, the trade flows feature a good balance per cargo type, which indicates that the same type of transport facilities and logistics chains can be used effectively to serve traffic in both directions.

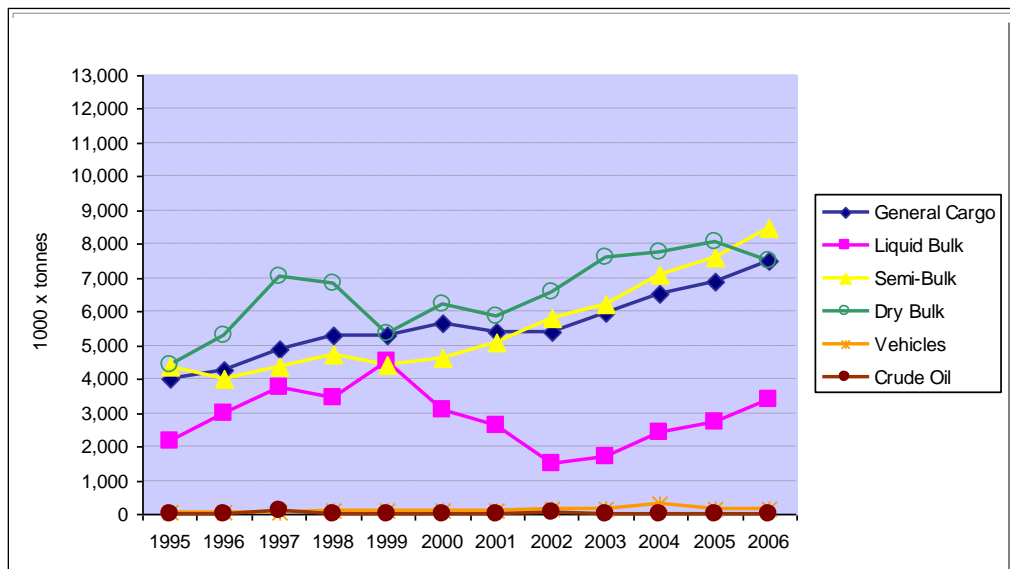


Figure 11. Trends of cargo structure along north-south axis: Finnish and Swedish Exports (1995-2006)

<sup>19</sup> ibid

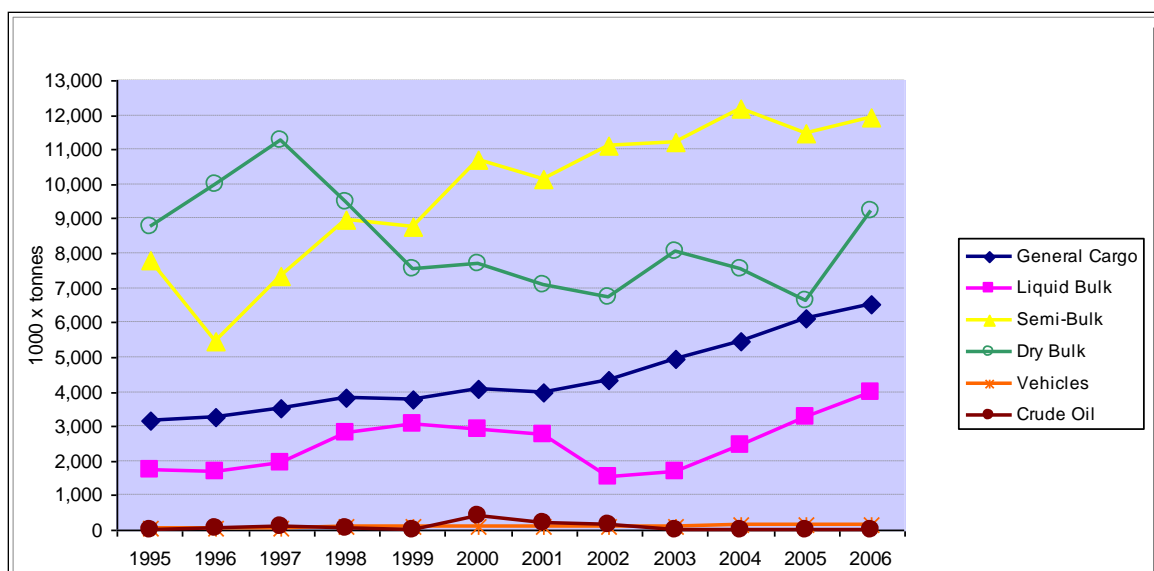


Figure 12. Trends of cargo structure along north-south axis: Imports to Finland and Sweden (1995-2006)

**Key characteristics of north-south trade are as follows.**

- Trade with the south by Estonia, Latvia, and Lithuania is dominated by Belarus and Ukraine.** Belarus and Ukraine are major exporters of petroleum and iron products to the Baltic countries. Belarus and Ukraine are also major importers of vehicles and medicaments from the Baltic States. However, this trade only represents two or three percent of the Baltic countries' imports and exports.
- Trade with the northern countries represents a bigger share of overall trade for the Baltic States.** Estonia's trade with the northern countries represents 18 percent of its exports and 16 percent of its imports; for Latvia, 14 percent for exports, and 11 percent for imports; for Lithuania, 7 percent each for imports and exports.
- Some 4 percent of Poland's imports and 6 percent of its exports are destined for northern countries.** Poland trades more with southern countries—6 percent of imports and 12 percent of exports.

### East-West Corridor Trade Pattern

**Trade over the east-west axis has grown in value and volume.** In 2006, volumes traded among CIS countries and countries in northwestern Europe are double those of 2000, both westward and eastward. However, significant imbalances exist in volumes traded per direction. In monetary terms, exports from CIS countries to the northwest of Europe in 2006 exceeded the 2000 values by more than four times while imports were tripled the 2000 values. In general, higher value-added commodities are transported eastwards.

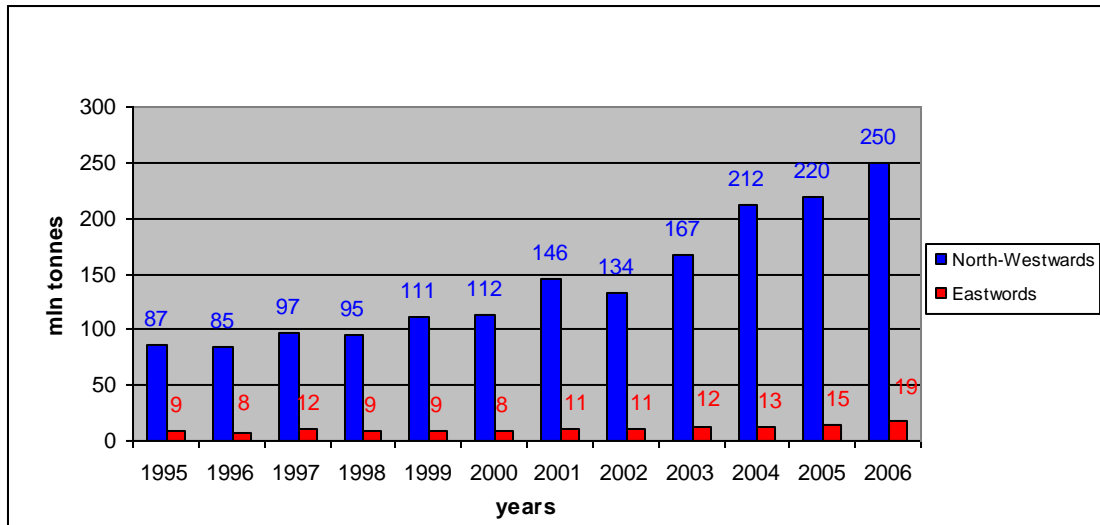


Figure 13. Freight volumes traded between northwest Europe and CIS countries, million tonnes (1995-2006)

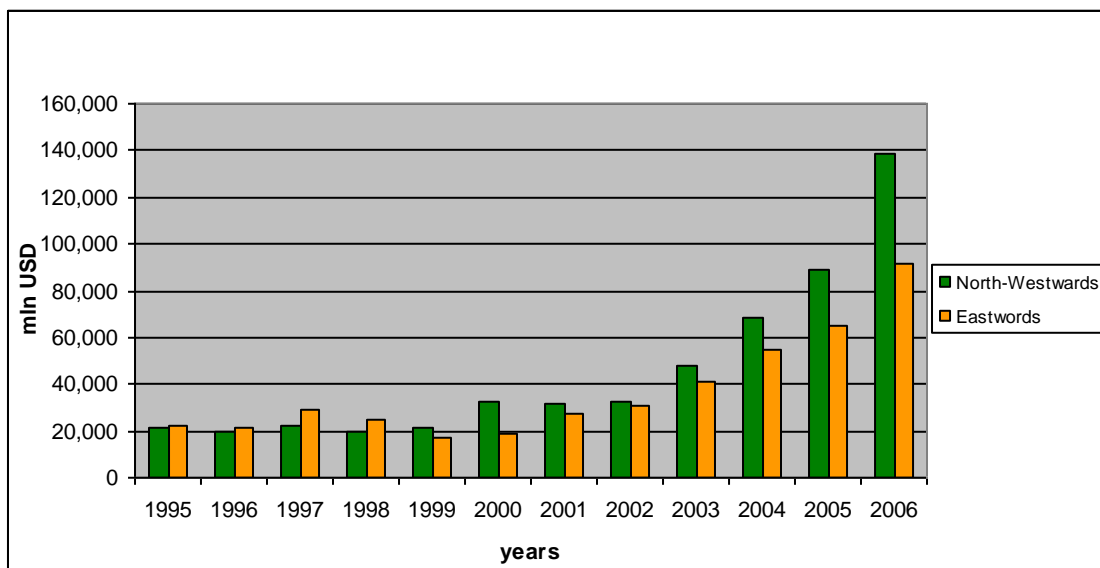


Figure 14. Trade in goods between north-west Europe and CIS countries, million USD (1995-2006)

**Cargo structure confirms this upward trend, depending on goods type.** The fastest growing cargoes from east to west include heavy goods, such as crude oil, liquid bulk, and dry bulk (Figure 15). Among goods shipped from west to east, the share and growth rate of general cargo are uniquely higher (Figure 16). These trends in cargo growth relate to trade pattern: Eastern countries, primarily Russia, export predominantly oil products; northwestern European exports are dominated by cargoes that can be unitized and containerized, illustrating the need for differentiated transportation modes and facilities. Westbound

cargoes—petroleum products and mineral fuels—require pipelines, railway networks, and port facilities; eastbound cargoes require containerized shipping and Roll-on/Roll-off (Ro-Ro)<sup>20</sup> activities.

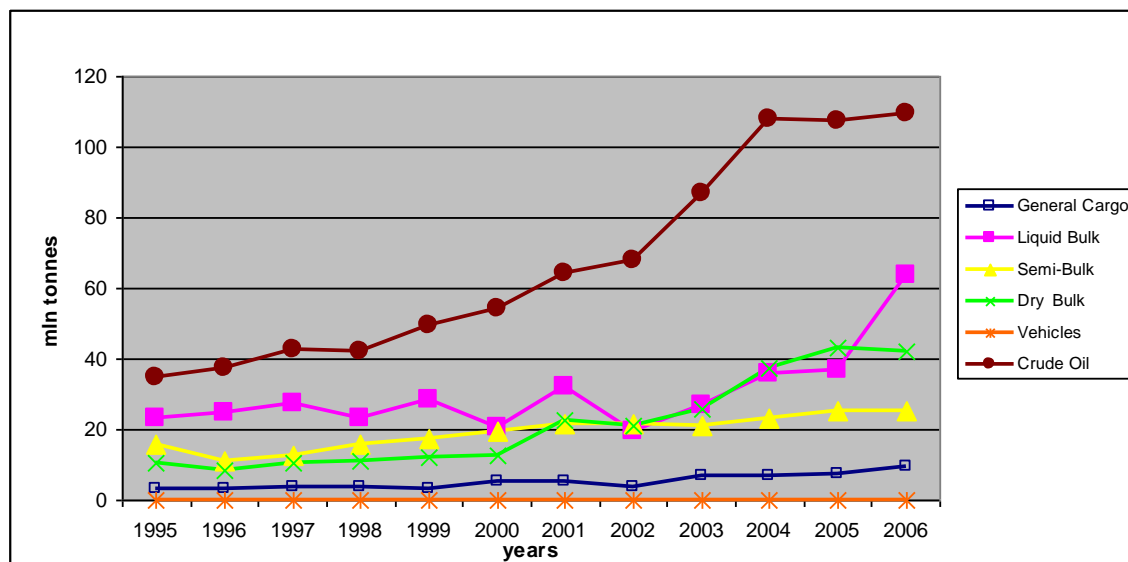


Figure 15. Dynamics of east-west cargo structure and volumes (1995-2006)

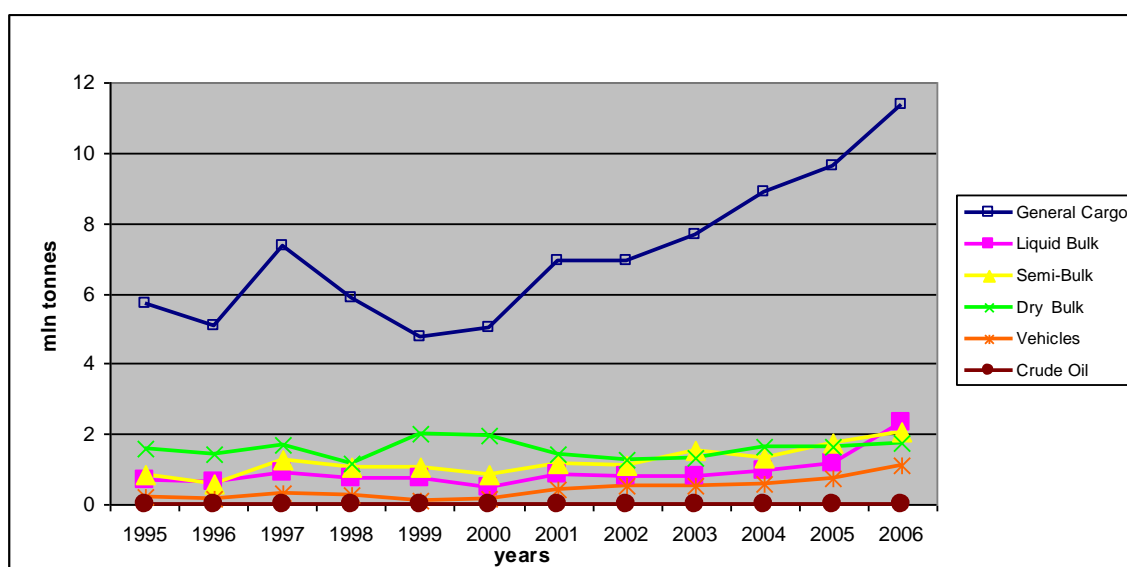


Figure 16. Dynamics of west-east cargo structure and volumes (1995-2006)

**Key characteristics of east-west trade are as follows.**

- a. **Germany is the major EU trading partner.** Germany accounts for 13 percent of Estonia's imports and 5 percent of its exports; 15 percent of Latvia's imports and 9.0 percent of exports; and 15 percent of Lithuania's imports and 10 percent of exports. Germany accounts for 24 percent of Poland's imports and 26 percent of exports.

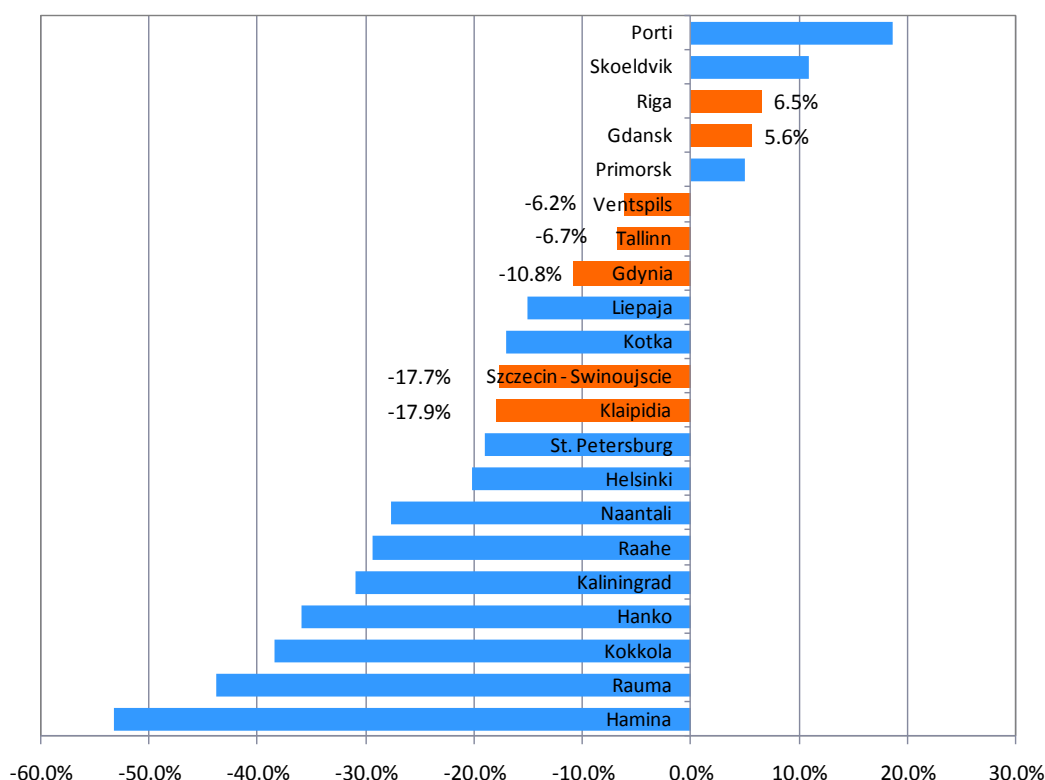
<sup>20</sup> Roll-on/roll-off is a method of transport (as a ferry or train or plane) that vehicles roll onto at the beginning and roll off of at the destination.

- b. **Russia is the major non-EU trading partner.** Russia dominates Estonia's imports at 10 percent and exports at 9 percent. Russia is responsible for 8 percent of Latvia's imports and 10 percent of exports. Lithuania trades more with Russia—18 percent of imports and 15 percent of exports. Only 5 percent of Polish exports and 4 percent of imports are Russian.

## Impact of the Recent Global Economic Crisis on the Region's Trade: Snapshots

**Dramatic behavior of the Baltic Dry Index (BDI) shows the unprecedented magnitude of the recent crisis and interdependency of the global economy.** The BDI, a global benchmark for dry bulk commodity freight cost (e.g., iron ore, coal, and grain), indicates the level of global demand of, and thus activeness of, international trade. The BDI was at a record high of 11,793 in May 2008, after which it plunged to as low as 663 in December 2008 as the crisis unfolded. Throughout 2009, despite severe volatility, the BDI moderately recovered, reaching about 3500 (30 percent of 2008 peak) at the end of the year.<sup>21</sup>

**The impact of the crisis was observed in the cargo volume of each mode, but with varying degrees.** Railway transport of goods dropped significantly in 2008 compared to 2007—Poland experienced a 40 percent drop. The road sector in most of these countries remained relatively stable, although 2008 truck volumes declined between five and ten percent over the previous year. Sea transport also experiences abrupt changes in cargo volume. During the first quarter of 2009, total cargo volumes transshipped to and from most the Baltic seaports decreased compared to 2008 (Figure 17). Among Baltic States and Poland, only Riga and Gdansk ports increased cargo turnover by 6.5 and 5.6 percent, respectively. Szczecin-Swinoujscie and Klaipeda ports' turnover dropped about 18 percent.



<sup>21</sup> Baltic Dry Index charts, available from various sources, including <http://www.bloomberg.com/apps/>.

Figure 17. Change in cargo turnover during Q1 in 2008 and 2009<sup>22</sup>

The crisis has provided mixed views on the future recovery trajectory of international trade volumes. On the one hand, it has raised some pessimism about the future of global trade, fostered by some recent political support for protection of domestic industries and jobs. It was argued that fundamental changes will transform national trade policies, slowing the pace of globalization and protecting domestic industries and jobs. However, the trends since late 2009 show that this could be a temporary setback before trade markets returns to pre-crisis growth patterns.

## Route Selection and Modal Split

### Key flow 1: Natural Resources from Russia to Western Europe

Typically, Russia's natural resources are transported by rail or pipeline through the Baltic Sea outlets to EU member countries. These heavy bulk goods—primarily gas, oil, and raw materials such as coal, metals, and timber—dominate westbound traffic in the Baltic States; therefore, most westbound railway cargo in the Baltic States is shipped in liquid form and as dry bulk cargo.

Russia's new trade policy aims to transship natural resources only through Russian ports, with a potentially significant impact in trade flows. Since 2002, total cargo turnover has dramatically increased at the two major Russian ports of St. Petersburg and Primorsk (Figure 18); in particular, cargo volume in Primorsk has increased over 700 percent. During the same period, total cargo turnover handled by each port in the Baltic States and Poland has marginally increased or decreased. Since 2006, the Estonian Port of Tallinn has suffered a 25 percent drop in volume.

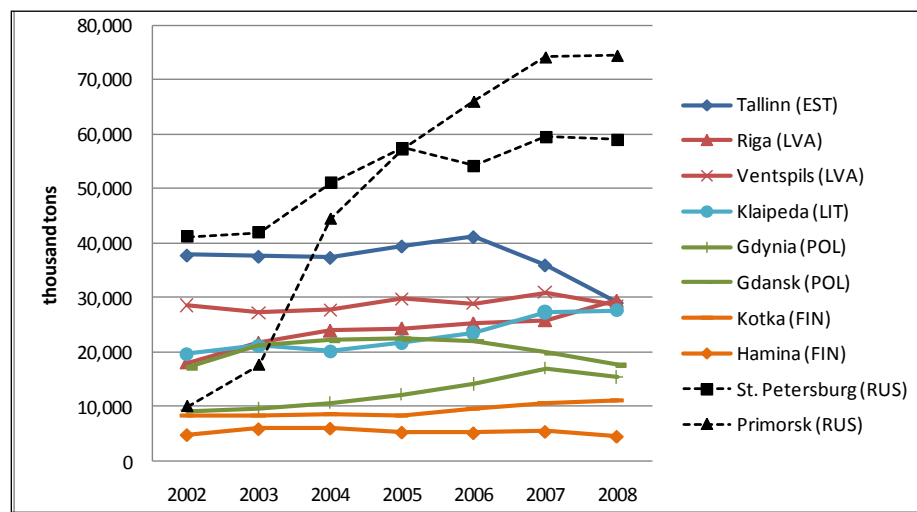


Figure 18. Total cargo turnover of selected Baltic ports<sup>23</sup>

East-west axis Baltic States railway routes connect ports with the hinterland, playing a major role in transit flows, in addition to pipelines. Technically, these railway routes leading to seaports have the

<sup>22</sup> Matczak M. (2009), Baltic Container Outlook 2009

<sup>23</sup> Statistics from each port authority website

same broad gauge (1520 mm) as those in neighboring CIS countries, excluding the need for transshipment of cargoes or change of locomotives for the entire hinterland leg.<sup>24</sup>

**Russia is pursuing bilateral relationships with trading partners that will impact trade flows.** Bilateral agreements between Russia and Germany—the key energy importer—are expected to decrease cargo turnover at ports in the Baltic States and, to a lesser degree, Poland. This would weaken the positions of transit countries in the region, such as the Baltic States.

## **Key flow 2: Consumer Goods – Eastbound and North-South**

**Russian imports from the EU have increased, creating eastbound containerized flows through the Baltic States and Poland.**<sup>25</sup> Several options exist to transport consumer goods from the west to Russia: (a) ground transportation from origins such as Germany, through Poland; (b) sea shipping to Polish ports, connecting through Poland's ground transport; (c) sea shipping to Baltic State ports and connecting through their ground transport; and (d) sea shipping directly to Russian ports, connecting through Russian ground transport. The route selection depends on supply chain reliability in addition to average time or cost of exporting and importing.

**Similar trends are developing in Belarus and Ukraine.** Other CIS countries are increasing imports of consumer goods from western and northern EU countries, transported as general cargo, which can be unitized and containerized, using predominantly road transport. Key routes involve border crossings between EU member and non-member states at Poland-Belarus, Poland-Ukraine, and Lithuania-Belarus borders.

**In Poland and the Baltic States, road/port connections are better than rail/port connections.** Most containerized goods and other commodities are transported via roads. In Estonia, containerized goods and truckloads dominate eastbound traffic. In Latvia, road transport is the main mode for general cargo and for containerized freight heading eastward. In Lithuania, overland road transit is common for trucking cargoes between EU member countries. Since Lithuania joined the EU in 2004, freight traffic has grown rapidly on the main roads. Transit road traffic destinations are more diversified in Poland due to its central location; about 87 percent of trucks crossing the Polish border head for EU member states, including new members such as Czech Republic, Slovakia, and Hungary.

**Russia's soaring demand for foreign automobiles is projected to continue.** In 2007, Russia was the fifth largest market in Europe for vehicles—2.6 million purchases; after Germany (3.5 million); UK (2.8 million); Italy (2.7 million); and France (2.5 million). General Motors Corporation predicted that Russia will become the largest market in Europe, with projected purchases in 2010 of 4.1 million vehicles; followed by Germany (3.7 million); and UK (2.7 million). The market share of foreign cars will continue to grow beyond the 60 percent in 2007, as shown in Figure 19.

---

<sup>24</sup> NEA, June 2008

<sup>25</sup> NIAS 2008



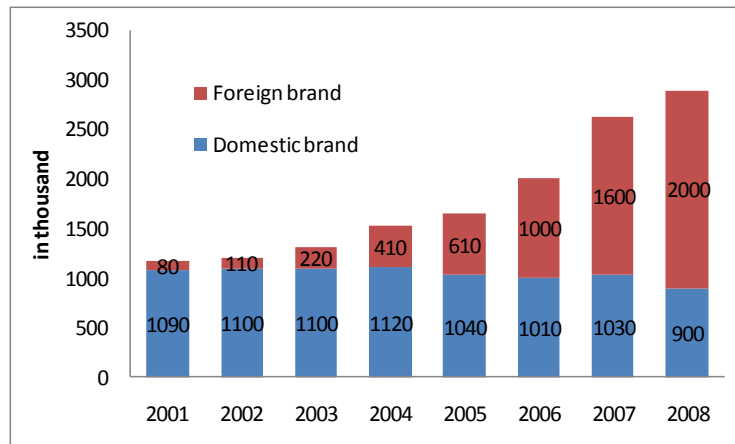


Figure 19. Russia's automobile demand trends and projections<sup>26</sup>

## Cargo Volume by Mode and Route

The key flows of goods, discussed in the previous section, are allocated on various routes via various modes available in the Baltic States and Poland. Analysis of cargo flows on the main national corridors, by modes and volume and composition shows some interesting characteristics.

### *Poland – roads and railways*

**Poland's cargo flow depends increasingly on the efficiency of its roads network.** In 2007, roads carried about 60 percent of total cargo (159,527 million ton-km) compared to 20 percent by rail (54,253 million ton-km).<sup>27</sup> Recent growth of cargo turnover is attributed largely to the growth of road transport (Figure 20), which has begun to dominate for three main reasons. First, the global recession has slowed production in many heavy industries that normally ship by rail. Second, railway conditions and service are seriously degraded after years of acute maintenance backlogs and little or no investment; many sections of track can no longer accommodate adequate speed, nor axle loads. Third, track access charges, which are higher than those in neighboring countries, make rail services less attractive to users than road transport.<sup>28</sup>

<sup>26</sup> General Motors Corporation estimates.

<sup>27</sup> Poland Central Statistical Office (2008), Transport – Activity results in 2007 (<http://www.stat.gov.pl/gus/>)

<sup>28</sup> This observation is independent of an argument on whether the current price for road transport is at optimal. Road transport is cheaper than rail in the absence of road pricing to internalize externalities. On the contrary, it is often argued that railway tariffs should be set lower to be competitive against trucking industries.

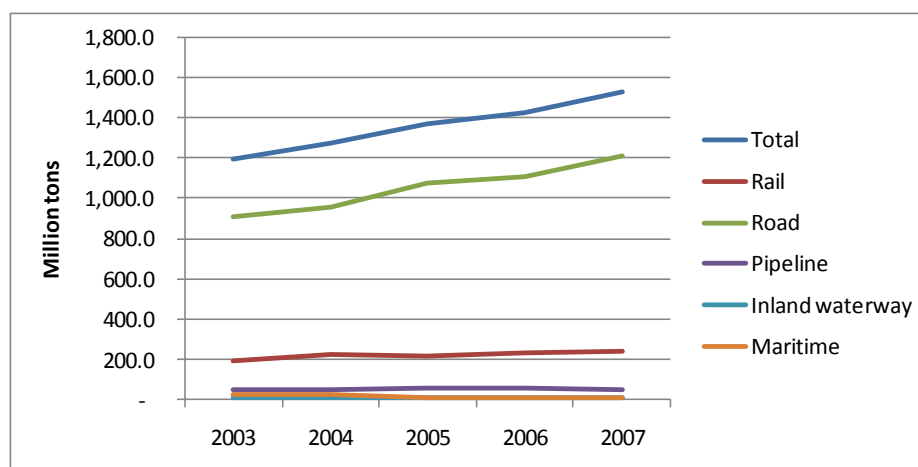


Figure 20. Trends in total transport cargo volume by mode (in million tons)<sup>29</sup>

#### Characteristics of cargo movements can be summarized as follows:

- Some 80 percent of Poland's land-to-sea cargo transit traffic originates in the Russian Federation; most sea-to-land cargo transit is destined for Slovakia, Germany, and Czech Republic. Smaller volumes are shipped to Hungary, Austria, and Ukraine. Polish international railway freight by volume is 21.1 percent hard coal and briquettes; 18.6 percent iron ore, iron, and steel waste and blast; and 12.6 percent metal products. Principal railway export traffic is to Austria, Germany, and Czech Republic; principal import traffic is from Russia, Czech Republic, Ukraine, and Germany. Railway goods transiting through Poland are 40 percent iron ore, iron, and steel waste; and 19.6 percent metal products.
- Overall, major volumes of goods transported by railways in Poland consist of hard coal and briquettes, 37.9 percent; and crude and manufactured minerals, 17 percent.

#### *Baltic States – roads and railways*

**The main north-south corridor through the Baltic States forms part of the Via Baltica corridor.** Via Baltica is the most important transport corridor that traverses Latvia north-south, and is the European transport corridor also known as motorway E67, which connects the cities of Helsinki, Tallinn, Riga, Kaunas, Warsaw/Riga, Kaliningrad, and Gdansk. This route is clearly dominated by road transport due to trading among EU countries and because most rail infrastructure along the Polish-Lithuanian corridor is obsolete. Between Poland and Lithuania, cargo customers opt for road transport over rail because the rail/rail cargo-handling superstructure is insufficient (due to different gauges) as is the rail/truck handling at Sestokai rail border-crossing station.<sup>30</sup> In December 2007, Estonia, Latvia, Lithuania, and Poland signed the Schengen Agreement, eliminating border control among Schengen members.

#### **International shipping dominates Baltic States rail transport; national volumes are minor.**

- In Latvia, in 2008, international traffic rail volumes were more than 30 times those of domestic traffic—primarily exports headed for Latvian ports. In the first five months of 2008, Latvian railways transported 8.7 million tons of oil products and 7.4 million tons coal, representing increases of 13.1 percent and 28.4 percent respectively over the previous year. Grain volumes

<sup>29</sup> Poland Central Statistical Office (2008), Transport Activity Results in 2007; Eurostat (2009), EU Energy and Transport in Figures 2009 (<http://epp.Eurostat.ec.europa.eu/>)

<sup>30</sup> NIAS 2008

increased by 49.2 percent, reaching 528 thousand tons; chemical products by 44.1 percent to about 1.0 million tons; metals by 9.3 percent, reaching 1.2 million tons; and container traffic by 11.4 percent, reaching 23,372 TEU units. Mineral fertilizer is usually the third most dominant cargo, but competition with Ventspils and Klaipeda ports reduced rail cargoes of fertilizer by 20.4 percent in the first five months of 2008.

- b. In 2008, 96 percent of Estonian railways containers were used for transit—volumes of transit freight were six times that of international freight. Rail transport of goods along TEN-T networks is most important along Tallinn-Tapa, from there, goods split to the Narva border with Russia, or south to Tartu and other Baltic States. Lithuanian Rail handles significant volumes of seaborne transit cargoes and overland transit cargoes,<sup>31</sup> compared to the other two Baltic States (Figure 21).

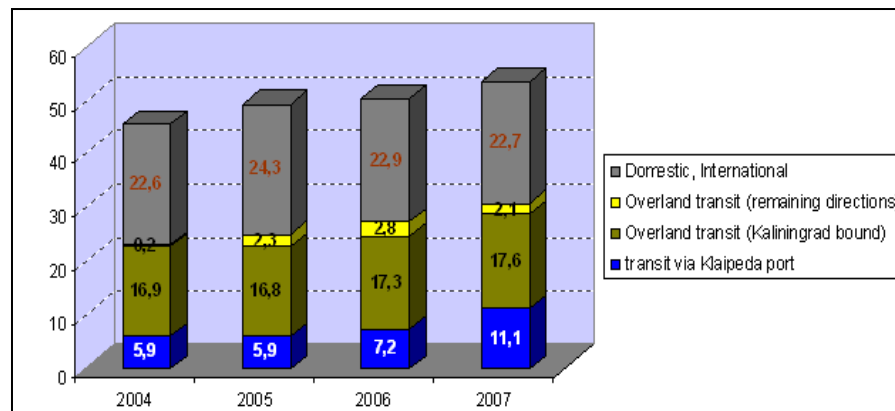


Figure 21. Freight volumes transported by Lithuanian railways in 2004-07 per traffic type<sup>32</sup>

- c. In 2007, on the route via Klaipeda port, rail traffic accounted for about 65 percent (the remainder was pipeline and road transport). Only 36 percent of these 2007 rail transit cargoes went to the Klaipeda port for onward sea shipping; the other 64 percent was overland transit (57 percent Kaliningrad-bound and 7.0 percent various overland directions). Transit via Klaipeda port grew by 54 percent in 2007 over 2006, in part due to rerouted rail traffic from Russia that used to go via Tallinn harbor in Estonia. The 2008 figures reported so far continue this upward trend for transit via Klaipeda port.<sup>33</sup>

**Domestic freight dominates Baltic States road transport.** In Latvia, in 2008, national traffic volume transported by road was more than five times that of international traffic. Primary cargoes are metal ores and other mining and quarrying products. Lithuania's main products for road transport are similar to those of Latvia in distribution of goods by categories, and are primarily for national use. (Figure 14)

<sup>31</sup> Mostly the Kaliningrad region bound freight.

<sup>32</sup> Lithuania Railways

<sup>33</sup> NEA, June 2008, Baltics Transit Freight Flows

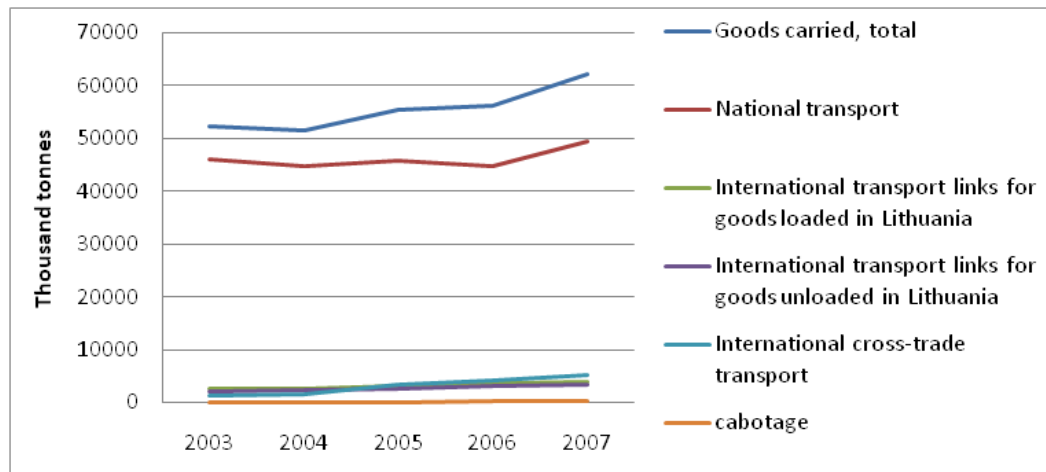


Figure 22. Lithuania: goods carried by road

### *Seaports and maritime transport*

**Most major Baltic States ports have significantly higher shares of traffic than ports in neighboring countries, including Poland and Finland.** In 2007, about 82 percent of total freight throughput of Tallinn consisted of transit flows; 94 percent for Ventspils; and 67 percent for Riga. A notable exception is Klaipeda port in Lithuania, where transit cargo shares dropped to 29 percent in 2005, from 64 percent in 2000, mainly because Russia rerouted exports to its own ports of St. Petersburg and Primorsk, and ports in other countries.<sup>34</sup>

**Each port specializes in a market segment due to mode and route selection.** Figure 23 and Figure 24 show the distinct cargo compositions of ports in the region by total, inward, and outward volumes. *Volumes of transiting cargo are aggregated in these charts.*

- Tallinn, Ventspils, and Gdansk: primarily oil shipping ports; over 50 percent of their cargo is liquid bulk goods.
- Riga: dry bulk goods are 60 percent of throughput; liquid bulk is less than 20 percent.
- Klaipeda: a hybrid; the share of dry bulk cargo is higher than that of oil-shipping ports, but the share of liquid bulk cargo is higher than Riga.
- Gdynia: container shipping port, handling large freight containers and dry bulk goods; liquid bulk goods are less than 12 percent of total throughput.

<sup>34</sup> In 2007, Klaipeda port regained transit cargo shares, which rose to 42 percent; the reasons remain unclear.

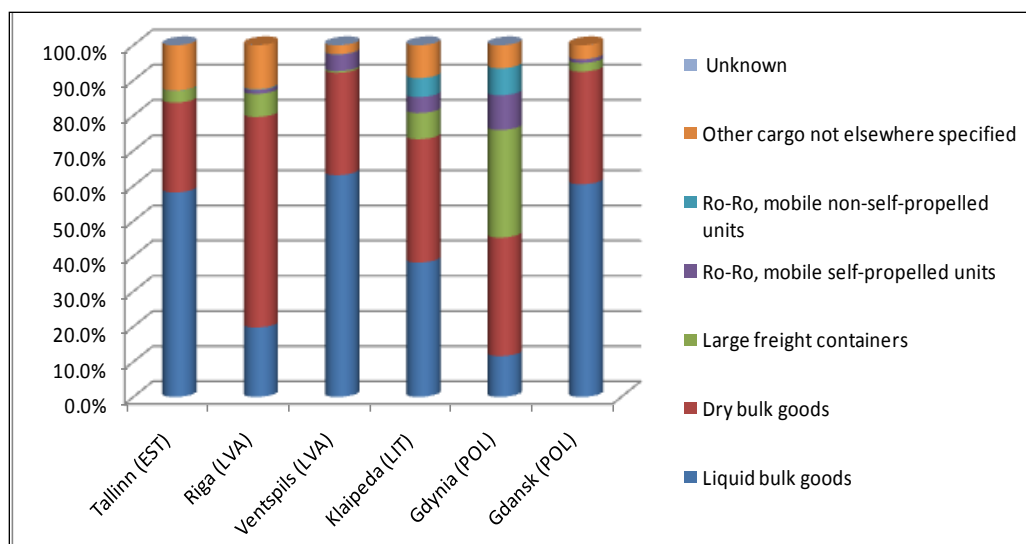


Figure 23. Composition of *total cargo* handled by each port, 2006<sup>35</sup>

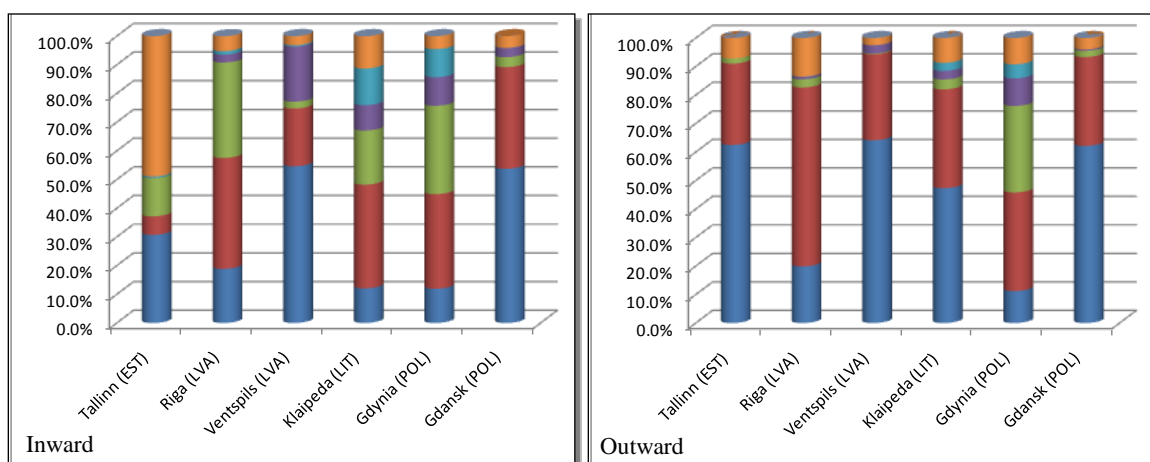


Figure 24. Composition of *inward and outward cargo* handled by each port, 2006<sup>36</sup>

## Corridor Conditions and Performance

### Railway Network

**Deteriorating railway infrastructure in the region is common due to maintenance backlogs.** Degraded track conditions compromise safety, forcing locomotives to operate at lower speeds, reducing service quality and reliability, and increasing travel times. The key characteristics of railway infrastructure and operation are as follows<sup>37</sup>:

<sup>35</sup> Data collection by NEA

<sup>36</sup> Data collection by NEA

<sup>37</sup> This includes some 1,386km of a total 1,771km, or 78 percent.

- a. Design speed is 120km/hr for the main lines of the Lithuanian railway system; but in most sections, operating speed is limited to 80 or 100km/hr due to poor track conditions. Almost 80 percent of the rail network is single-tracked.
- b. Poland and Baltic States' signaling equipment is outdated and fails to meet EU standards.
- c. Many bridges are 50 or more years old and no longer meet modern load specifications.

**Prior to EU accession, railway sector reforms took place in these countries according to the First and Second Railway Package.**<sup>38</sup> Despite some restructuring, inefficiencies remain in railway operation, management, fee structures, and organization.<sup>39</sup> Commonly in Poland and the Baltic States, state-owned joint stock companies own and manage railway infrastructure, and the private sector operates services, except in Lithuania, where the public sector fully owns and operates rail services.

**The Baltic States and Poland have begun the international Rail Baltica project, but its success would depend largely on strong coordination among the Baltic States and Poland.** In addition to maintaining traffic on the east-west routes leading to ports, the countries invested in technological modernization of the east-west corridor and applied flexible tariff policies to attract transit cargo customers. The Rail Baltica project anticipates development and formation of railway traffic on the north-south axis.<sup>40</sup>

**The Sectoral Operation Program for Transport (SOP-T) of each country includes a strategy and investment program to improve the physical condition and operational efficiency of their railway networks.**

- a. **The Government of Estonia has established an indicative list of investments (132 million Euros) to improve railway performance.** The planned investments for 2006-2013 as set forth in the SOP-T include preparing to establish a high-speed international rail connection to Central Europe (Rail Baltica) along the north-south axis; and developing the railways from Tallinn in a westerly direction to Paldiski (north of Haapsalu). Estonia also plans to develop electric commuter train transport in Tallinn to overcome railway network weaknesses. The plan includes, to ensure fast passenger connections, further automation, modernization and extension of the commuter train network, and modernization of rolling stock (new commuter trains to be purchased).<sup>41</sup> Railway planned investments include reconstructing the system of electric traction and reconstructed passenger platforms.
- b. **Latvia plans interventions in the east-west corridor and north-south along the Via Baltica.** Two main corridors exist in east-west directions: from the Belarusian border to Riga port, and from the Russian border to Ventspils port (main share of cargo traffic) and Liepaja port. Most of the cargo traffic now occurs along the Belarusian border route—Krustpils—Ventspils port, which is later expected to be the busiest route; therefore Government plans to reconstruct Rīga Railway Junction and construct Parallel Railway Track in Segment Rīga-Krustpils, north-south.<sup>42</sup>
- c. **Lithuania plans to invest about 360 million Euros to improve the railway network.** The Operational Programme for Economic Growth for 2007–2013, specifies upgrading the Vilnius-Kaunas railway section of Transport Corridor IXb for a speed of 160 km (175.6 million Euros) and upgrading alarm equipment of the Vilnius-Kaunas railway section of Transport Corridor IXb (57.2 million Euros); north-south, Lithuania plans to design and construct the railway project Rail Baltica (127.5 million Euros).<sup>43</sup>

<sup>38</sup> EU Directives 2001/12, 2001/13, 2001/14

<sup>39</sup> Modernization measures included organizational restructuring, separating infrastructure ownership from railway operation, and rationalizing track access charges and rolling stock, among other measures.

<sup>40</sup> NEA, June 2008, Baltics Transit Freight Flows

<sup>41</sup> Estonia, Operational Programme for the Development of Economic Environment, June 2007

<sup>42</sup> Latvia, Operational Programme for the Development of Economic Environment, June 2007

<sup>43</sup> Lithuania, Operational Programme for the Development of Economic Environment, June 2007

- d. **Poland focuses on modernizing railway lines included in the TEN-T network and purchase modern rolling stock.** The National Strategic Reference Framework of Poland for 2007-2013 set these priorities in the railway sector. Strategy for public transport support includes extension of the railway network (fast city train, tramway lines, subway) and trolleybus lines, purchasing of rolling stock, construction and reconstruction of change stations and points, and installation of telematic systems.

**Challenges remain in the railway sector.** First, organizational efficiency needs further improvement, particularly in Poland, where staff-productivity is significantly lower than in neighboring countries, including the Baltic States. Poland still lacks rail system automation and requires organizational restructuring. Second, rail gauge differences between Poland and the Baltic States is not technically prohibitive, but requires border cooperation between countries to change locomotives and trains.<sup>44</sup> Third, rail users pay most operational costs, but road users pay no direct fees, creating unfair competition between rail and road transport. Moreover, prices for railway services (cargo), including track access charges (Figure 25), are higher in Poland and the Baltic States than those of western neighbors, which could undermine their share of the international transit market.<sup>45</sup>



Figure 25. Access Charges in 2008 for Typical 2000 Gross Ton Freight Train (Euros/Train-Km)<sup>46</sup>

**Railways are not likely to recover their costs of infrastructure use when competing modes do not pay theirs.** The Baltic States and Poland try to finance rail infrastructure completely through track access charges resulting in track access charges that are among the highest in Europe. The aim of full cost recovery through track access charges is however not realistic, resulting in a loss of the railways' competitive position. Latvia is a typical case from the Baltic States, with high volumes of cargo traffic and limited passenger demand. Latvijas dzelzceļš (LDZ), the Infrastructure Manager is part of a holding company. It is already using a rather advanced activity-based cost model, which requires very fine distinctions between cost centers, but also within each cost center. Two more companies (along with the freight operator of LDZ) offer cargo services, while passenger services are handled by LDZ. The basic approach to charging is the full cost recovery model taking into account state funds.

**While there are mixed views on the importance of the structure of charges (marginal or full cost recovery), it is essential to create transparency and comparability of infrastructure cost structures and avoid discrimination.** Track access charges will have limited effects when cost recovery rates for trucks are low. EU member states are not obliged to charge truck drivers for the costs they impose in

<sup>44</sup> The Baltic States share the same gauge with Russia and other CIS countries.

<sup>45</sup> Nevertheless, it does not necessarily undermine the rationale of the current level of pricing. In general, higher prices are justified if they are adequately set to recoup marginal cost and to provide quality service, especially in case of transit services.

<sup>46</sup> International Transport Forum (2008), Charges for the Use of Rail Infrastructure 2008, by Louis S. Thompson.

terms of congestion, noise and air pollution, but could choose to do so for vehicles weighing more than 3.5 tonnes, on any part of their road network, as of January 2012. Charges could be capped at maximum levels and would have to vary according to the time of day, the distance travelled and vehicles' Euro emissions class type, which takes account of the NOx and poisonous particulate matter emitted. Tolls with barriers will then no longer be permitted and the collection of charges would have to be based on an electronic system so as to avoid hindrances to the free flow of traffic (although there would be a transition period up till January 2014).

**Improved north-south international railway connection would benefit the region, but its success will depend on the level of coordination among the Baltic States and Poland.** These countries need to agree on technical options for the north-south rail network, which would then determine required investment levels, and take account of the anticipated profitability of the rail link. The railway network is anticipated to complement the north-south road network, which provides an efficient link with Central Europe (Via Baltica). Better traffic conditions on this north-south route would improve links among the three Baltic countries and the rest of the European continent, expanding their opportunities in cargo transit. International coordination is critical, as the Via Baltica extends into Poland to connect Berlin via Warsaw towards Kiev and Moscow.

**Baltic countries' annual passenger traffic volumes and passenger turnover rates are low compared to cargo transport and compared to other European countries.** In 2007, Estonian Railways transit cargo transport was 72.1 percent of all cargo. Transit cargo volumes fell by 24 percent in 2008. Estonian railways suffered direct consequences from poor Estonian-Russian relations in 2007. As much as 75 percent of Latvian rail freight volumes are transit cargoes to Latvian ports and 60 percent of freight rolling stock are tanker wagons.

## **Road Network**

**The roads network infrastructure has deteriorated due to inadequate maintenance/repair and dramatic increases in heavy vehicle traffic.** Qualitative indicators of Baltic States motorways declined substantially over the past decade. Now, these countries must upgrade their road networks through investments to remedy damage from overloaded and insufficiently maintained networks where traffic flow intensity has exceeded forecasted increases.

- a. **Latvia has prioritized improved road infrastructure investments** by pursuing a strategy to achieve international standards for road infrastructure and road safety.
- b. **Estonia plans to invest some 484 million Euros in road improvements during 2006-13.** Government aims to develop the east-west corridor between the Port of Tallinn and the Russian border at Narva; the north-south corridor between the Port of Tallinn and the Latvian border; and the north-south corridor between Valga and Narva. Although the roads network is comparatively dense, most of it fails to meet modern standards. Recently, road conditions have improved noticeably along main motorways (most of which form part of the TEN-T network).
- c. **Lithuania roads carry more than 50 percent of all cargo and nearly 98 percent of all passengers.** According to the SOPT, Government plans to invest 95.6 million Euros to improve the E67 along the Via Baltica, recognizing that road infrastructure is a key to transport efficiency/socioeconomic development.
- d. **Poland's national transport policy aims to upgrade the road network to modern road transport requirements.** The country plans to introduce a roads hierarchy; strengthen paving and reinforce bridges. Basic road network development focuses on constructing selected sections of roads and motorways, and improving road network maintenance and safety. A program of building bypasses around cities and villages would ease the congestion in and around metropolitan areas, separating through traffic from traffic originated from or destined to cities.



Better road network maintenance would help freight forwarders become more competitive. Some 87 percent of trucks crossing Polish border are bound for EU member states, the remaining 23 percent are bound for Belarus, Ukraine, and Russia/Kaliningrad, among others.

## Sea Ports

**Baltic States and Poland seaports are better equipped than the Russian port of St. Petersburg.** Key parameters for port capacity include maximum deadweight, total berth length, maximum permitted depth, maximum vessel length, and supporting facilities capacity, such as storage. Table 1 compares parameters of selected ports in the Baltic States, Poland, and Russia. As of 2008, the ports of Klaipeda and Gdansk provide considerably larger total lengths of berths; but maximum permitted depths of each port are comparable.

**Capacity utilization ratios vary significantly across ports.** In 2008, Riga and Klaipeda used over 65 percent of their capacity, while Gdansk in Poland used less than 30 percent, suggesting different development strategies are required for each port to maximize comparative advantage in infrastructure conditions and performance.

Table 5. Comparison of port infrastructure capacity<sup>47</sup>

<i>Capacity parameters</i>	<i>Tallinn (EST)</i>	<i>Riga (LVA)</i>	<i>Ventspils (LVA)</i>	<i>Klaipeda (LIT)</i>	<i>Gdynia (POL)</i>	<i>Gdansk (POL)</i>	<i>St. Petersburg (RUS)</i>
Max. annual capacity (mln tons)		45		40		60	
Volume (2008) to capacity ratio (%)		65.7		69.2		29.6	
Max. dead-weight (000 tons)			150	170			60
No. of berths	73		60				34
Total length of berths (m)	13,813	13,818	11,012	27,022	17,700	21,200	5,977
Max. permitted vessel draft (m)		12.2	15	13-14.5		10.2-15	11
Max. depth (m)	9-18		17.5	15	10-20		
Max. length of vessel (m)	190-320		270				
Storage area (000 m <sup>2</sup> )			365	1,135		654.3	544
Liquid storage capacity (000 m <sup>3</sup> )			1,500	723.4			

**Winter traffic is restricted by frozen seas, for example, in Tallinn, Riga, and Russian ports.** Figure 26 depicts frozen areas boundaries depending on weather conditions. Table 5 shows the recent trend of traffic-restricted days for the Baltic States. Records for the past two years show that Riga operates 13 to 24 more days per year (4 to 9 percent) compared to the Gulf of Finland area (Tallinn and Russian ports). Except under extreme weather conditions, Ventspils, Klaipeda, and Polish ports are ice-free all year, offering consistent capacity to the cargo market.

<sup>47</sup> Each port authority's website

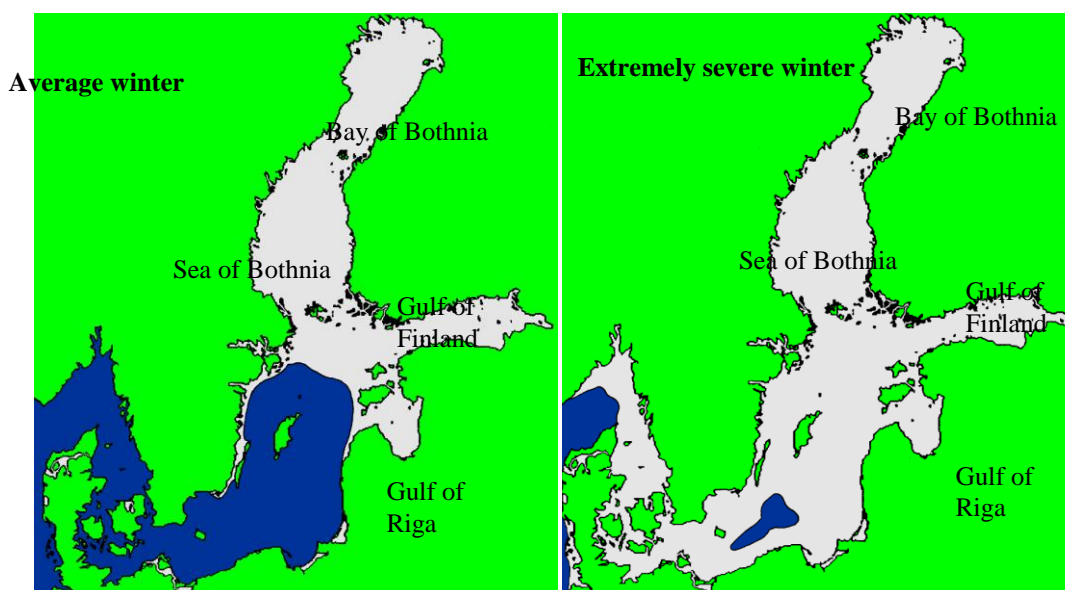


Figure 26. Areas of frozen sea (white) in the Baltic Sea during average and severe winters<sup>48</sup>

Table 6. Days of traffic restrictions due to frozen sea condition in the Baltic Sea<sup>49</sup>

	<i>Bay of Bothnia</i>	<i>Sea of Bothnia</i>	<i>Gulf of Finland</i>	<i>Gulf of Riga</i>
2007-08 days	142	128	83	59
2006-07 days	127	80	59	46

**Port ice-breaking capacity is more limited in the Baltic States, Poland, and Russia than in Scandinavian ports.** In 2006, there were 23-28 icebreaker vessels in the Baltic States. Estonia and Latvia had one each to service all their main ports; Russia dispatches three or four ships to the Baltic Sea, depending on weather severity; and neither Lithuania nor Poland have an ice breaker. Given the harsh and unstable weather conditions in the Gulfs of Finland and Riga, two icebreakers are inadequate to serve all ports in Estonia and Latvia. Although Polish and Lithuanian coastlines are less affected by ice, the existing system, using tugboats to carry out ice-breaking, is neither safe nor economically efficient.

**Port operations are more flexible in the Baltic States and Poland than those in most Western European countries due to fewer restrictions in their labor markets.** According to port authorities' self-assessment, operational efficiency in Baltic States and Polish ports is now comparable to many well-performing ports. These ports have recently expanded investments in information and communication technology (ICT), and less strict labor laws allow relatively flexible working hours and fewer conflicts with trade unions.

**Ports in the Baltic States and Poland compare favorably to their Russian counterparts.** Seaport operational efficiency and competitiveness are complex and difficult to measure. The Ministry of Infrastructure evaluated Polish seaport competitiveness against other ports with similar coverage (Central Europe) in the south Baltic: Lubeck, Rostock, Szczecin and Świnoujście, Gdynia, Gdańsk, Kaliningrad and Klaipeda. Table 7 suggests that Polish and Lithuanian ports are better-performing than Kaliningrad, but less competitive than the German ports of Lubeck and Rostock.<sup>50</sup>

<sup>48</sup> Swedish Maritime Administration, 2004

<sup>49</sup> Baltic Icebreaking Management, 2008

<sup>50</sup> Assessment results for selected competitive factors, including base parameters of seaport infrastructure (port area, pier length, acceptable parameters of serviced ships, and reloading offer), capacity in terms of vessel sizes, characteristics of reloading in 2005, number of vessel entries, reloading specificity, line connections, and connection between port and hinterland.

Table 7. Comparison of operational performance, or “competitiveness.”<sup>51</sup>

<i>Competitive factors of seaports</i>		Lubeck	Rostock	Szczecin-Swinoujście	Gdynia	Gdansk	Kaliningrad	Klaipeda	weight
<i>1 – low competitive position 5 – high competitive position</i>									
Port location	Area	1	4	4	2	4	2	3	0.07
	length of piers	3	1	4	4	3	1	4	0.07
	Acceptable vessel parameters	2	3	3	3	5	2	3	0.11
Increase in share in reloading activity of south Baltic seaports in the years 2001-2006		3	3	1	4	4	5	4	0.05
Development of modern reloading facilities	Containers reloading	2	0	1	5	2	2	3	0.08
	Ferry and ro-ro cargo reloading	5	5	5	4	2	2	5	0.08
	cruise ships service	3	5	1	4	3	1	3	0.05
Port connections to sea and land transport	Line navigation	5	4	2	5	5	4	5	0.10
	Ferry navigation	5	5	4	3	2	2	3	0.10
	Intermodal connections	5	5	2	4	1	2	2	0.10
Port access infrastructure	Road infrastructure	5	4	3	3	3	2	2	0.11
	Inland navigation	3	0	4	0	2	0	0	0.08
Average grade		3.65	3.32	2.92	3.4	3.0	2.07	3.03	Σ= 1

## Conditions and Performance of Intermodal Connections

**Intermodal connection bottlenecks undermine the efficiency of transport corridors.** Port-railway and trans-shipment between standard and wide gauge rail create bottlenecks because most infrastructure is inadequate and operations are inefficient. Although, national SOPTs of the Baltic States and Poland acknowledge and prioritize improvements to these, no significant changes have occurred recently.

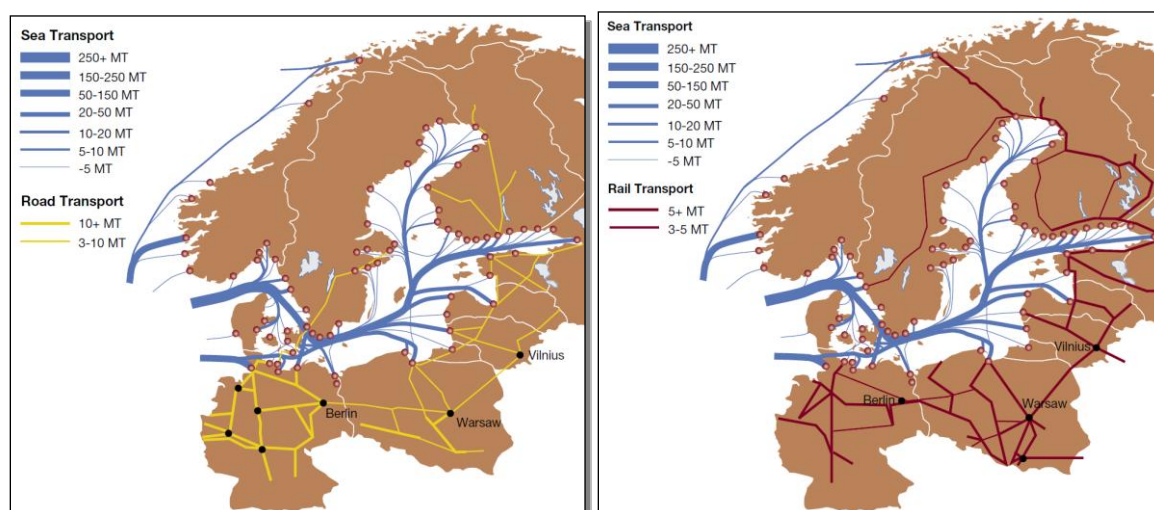


Figure 27. Sea and road, sea and rail routes, all cargoes, 2003<sup>52</sup>

<sup>51</sup> Poland Ministry of Maritime Economy (2007), Poland’s Seaports development strategy until 2015

<sup>52</sup> European Commission, 2006

**Intermodal and maritime connectivity in the Baltic States and Poland are performing worse than in many countries.** Improving intermodal connections has been difficult across these countries because existing administrative structures are mode-specific, and coordinated investment is lacking. The Global Enabling Trade Report by the World Economic Forum compared efficiency of shipment and performance of the logistics industry across 121 economies. Shipping efficiency was assessed based on physical infrastructure availability (“trans-shipment connectivity” index) and commercial service development (“liner-shipping connectivity” index). Overall performance of transport logistics across multiple modes was evaluated for “ease and affordability of shipment” and “competence of logistics industry.” Table 8 shows that the Baltic States and Poland rank low in transshipment and liner connectivity, but better in ease of shipment and competence of logistics industry. This suggests improvements are needed for physical connectivity, infrastructure quality, and geographical challenges, rather than operational efficiency and private sector performance.

Table 8. Comparison of the Enabling Trade Index<sup>53</sup>

	<i>Estonia</i>	<i>Latvia</i>	<i>Lithuania</i>	<i>Poland</i>	<i>Best performer</i>
Transshipment connectivity	59.1 (83 <sup>th</sup> )	58.8 (85 <sup>th</sup> )	59.0 (84 <sup>th</sup> )	63.4 (72 <sup>nd</sup> )	UK, 100.0
Liner shipping connectivity	5.5 (87 <sup>th</sup> )	5.5 (86 <sup>th</sup> )	7.8 (79 <sup>th</sup> )	9.3 (71 <sup>st</sup> )	China, 137.4
Ease and affordability of shipment	2.9 (58 <sup>th</sup> )	3.3 (27 <sup>th</sup> )	3.0 (45 <sup>th</sup> )	2.9 (53 <sup>rd</sup> )	Netherlands, 4.1
Competence of logistics industry	3.0 (39 <sup>th</sup> )	2.9 (47 <sup>th</sup> )	2.7 (62 <sup>nd</sup> )	3.0 (38 <sup>th</sup> )	Netherlands, 4.3

**The major ports of the Baltic States and Poland have some connections to the hinterland and plans for further development, but these plans may need revisions.** Some ports, such as Gdansk, are historical sites with modern port development, which can hamper integration and functional efficiency of hinterland land-use. The Riga Port Authority and a Norwegian enterprise founded a company to implement the 2006-2018 Riga City Development Plan, which includes a multi-functional urban area. In Gdansk and Riga, most hinterland and port-city development plans are prepared and implemented by port authorities, which are sometimes poorly integrated with regional development plans, transport and trade sectoral strategies, and national development programs.

### Efficiency of Border Crossing and Customs Processing

**On the east-west axis, increased truck queuing and long waiting times are common at the eastern border of the EU, between the Baltic countries and Poland on one side, and Russia, Ukraine, and Belarus on the other.** The increased queuing is partially attributed to recent increased trade volumes. Latvian road transport operators reported that 2007 international freight volumes were five times those transported a decade ago. The 2007 trade flows through the Polish-Ukrainian border have increased by 17.6 percent over those of 2006, and through the Polish- Belorussian border, by 12.5 percent. Some efforts have been made to improve the physical capacity of infrastructure.

**Inefficient and cumbersome customs procedures create border-crossing delays.** Since accession, border crossing and customs issues within the EU were successfully tackled in the region. Declaring free zones or special economic zones has been effective—the ports of Riga, Liepaja, and Gdansk have successfully attracted international transit traffic. The EU-level effort to improve customs processing, implemented under the Customs 2007 Programme (2003-07) followed by the Customs 2013 Programme, helped the Baltic States and Poland facilitate efficiency at intra-EU borders and eliminate fraud. But, serious obstacles remain between the Baltic States/Poland and outside EU countries, including the following:

<sup>53</sup> Baltic Icebreaking Management, 2008

- **Border-crossings between EU member states and the CIS countries require complex procedures.** EU regulations require only two procedures—border checks and customs clearance—but the eastern side of these borders requires multiple procedures. This creates long queues at Russian checkpoints, after rapidly passing through Latvian border crossings; the situation is similar between Poland and Belarus/Ukraine. Drivers are often waiting up to 20 hours to enter Ukraine at Dorohusk, 10 hours at Hrebenne, and 14 hours to enter Belarus at Koroszczyn.
- **Freight volumes have increased significantly on the Latvia-Russia border because truckers want to avoid dealing with Belarus.** This phenomenon, combined with limited capacity to admit loaded trucks on the Russian side, causes long lines, despite adequate transfer capacity on the Estonian, Latvian, Lithuanian and Polish sides of the borders. Some 700 to 1000 trucks queued every day; in November-December 2007 up to 1700 trucks queued. The 276 km Latvian-Russian border has only two checkpoints for freight traffic, creating queues that stretch up to 50 km, so that drivers typically spend two or three days in the queue.<sup>54</sup>

**Issues related to trade with non-EU member states remain, in particular, documentation processing and restrictions.** The 2002 “Green Line” program<sup>55</sup> among Finland, Sweden, and Russia aimed to expedite border crossing and customs procedures at destination points in Russia, and to manage customs information electronically. However, the program was limited to a few pilot projects, and much of its success still depends upon political will among stakeholder countries. Lessons learned could be useful for the Baltic States and Poland, in the face of increasing trade with CIS countries such as Belarus and Ukraine. Ground transport connections with non-member states outside the TEN-T corridor are a particular challenge.

**The average EU member country tariff applied on all goods is converging to 3.8 percent; tariffs applied by other countries have been converging to 4.4 percent.** Baltic countries’ trading partners, Belarus and the Russian Federation, impose higher tariffs, an average of 8.0 percent. Tariffs imposed by Ukraine are slightly higher than those in Eastern European countries. The Logistics Performance Indicator score for Russia, and Ukraine is lower than the non-EU member countries that have the weakest customs performance<sup>56</sup>. While the Enabling Trade Index is not available for Belarus, data presented for Russia and Ukraine are sufficient to reveal a poor environment for trade.

**Typically, the public sector sets railway cargo tariffs, which can impede intermodal shipping via railway.**<sup>57</sup> The Polish infrastructure company, PKP PLK, raised track access charges, which were already higher than those of many European countries, including Germany. In the Baltic States, railway tariffs are lower, and in Latvia in particular, the rail sector retains competitiveness against the road sector. In Lithuania, maximum tariffs are regulated by the Ministry of Transport and Communications in coordination with the Transport Transit Committee and Competition Council.

---

<sup>54</sup> NIAS 2008

<sup>55</sup> An important project was launched in 2002, when the customs of Sweden, Finland and Russia started officially to develop a system of electronic customs clearance between the countries. This Green Line was implemented in 2004 for facilitating the border crossing of transport shipments to Russia, as well as for simplifying the customs procedures required. In 2002, the customs bodies of Russia, Finland and Sweden signed a protocol on the so-called ‘green line’.

<sup>56</sup> See World Bank. 2009. Connecting to Compete 2009: Trade Logistics in the Global Economy. The Logistics Performance Index and its Indicators. Washington, DC.

<sup>57</sup> Typically, infrastructure companies set track access charges, which are confirmed by ministries. In Lithuania, the Ministry of Transport and Communication confirms maximum tariffs in coordination with the Transport Transit Committee and Competition Council.

## References

- Arvis, Jean-Francois; Raballand, Gael; Marteau, Jean-Francois. 2007. *The cost of being landlocked: Logistics Costs and Supply Chain Reliability*. World Bank Working Paper Series No 4258.
- Baltic Icebreaking Management. 2008. *Baltic Sea Icebreaking Report 2007-2008*. Copenhagen, Denmark
- Center for Maritime Studies, The. 2006. *Short-sea Shipping on the Baltic Sea-Prospects and Challenges*, Edited by Pekka Sundberg. University of Turku, Finland.
- Commission of the European Communities. 2009. "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the European Union Strategy for the Baltic Sea Region: Action Plan", SEC(2009)702. Brussels.
- Drewry Publication. 2007. *Annual Review of Global Container Terminal Operators 2007*. London, UK
- European Commission. 2006. *Baltic Maritime Outlook 2006 – Goods Flows and Maritime Infrastructure in the Baltic Sea Region*. Prepared by the Institute of Shipping Analysis, BMT Transport Solutions GmbH, and Centre for Maritime Studies.
- Eurostat. 2007. *Panorama of Transport*. Statistical Office of the European Commission. Luxembourg.
- Eutostat. 2009. *EU Energy and Transport in Figures 2009*. European Commission. Available at <http://epp.Eurostat.ec.europa.eu/>
- Flood C. and J. Blas, "Shipping hard hit by collapse in global trade". *Financial Times*, April 7, 2009
- Heiko Paabo and Marje Pihlak. 2008. "Monitoring European Border Crossing Points on the EU Eastern Border: Estonian and Russian Case Studies". University of Tartu EuroCollege. Working Papers Nr. 6, 2008 [http://ec.ut.ee/et/images/stories/toimetised/EC\\_Working\\_Paper\\_Volume\\_6.pdf](http://ec.ut.ee/et/images/stories/toimetised/EC_Working_Paper_Volume_6.pdf).
- International Monetary Fund. 2006. *Republic of Latvia: 2006 Article IV Consultation – Staff Report*. Washington, DC.
- International Monetary Fund. 2007. *Republic of Estonia: 2007 Article IV Consultation – Staff Report*. Washington, DC.
- International Monetary Fund. 2008. *Republic of Lithuania: 2008 Article IV Consultation – Staff Report*. Washington, DC.
- International Monetary Fund. World Economic Outlook Database. Retrieable at <http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx>.
- International Transport Forum. 2008. *Charges for the Use of Rail Infrastructure 2008*. Prepared by Thomson, L.S.
- Jerzy, Wronka. 2006. *Development of the railway transport in Poland*. University of Szczecin. Poland.
- Maczak M. 2009. *Baltic Container Outlook 2009*, Actia Consulting, Gdynia, Poland
- NEA. 2008. *Baltic Transit Freight Flows*. Draft Report. Washington, DC.

Ojala, L., Naula, T., and Hoffmann, T. 2005. "Trade and Transport Facilitation audit of the Baltic States: On a fast track to Economic Development". *World Bank Report No 31121*. Washington, DC.

Ojala, L.; Naula, T.; Queiroz, C. 2004. "Transport Sector Restructuring In t he Baltic States Towards EU Accession". *World Bank Report No 31123*. Washington, DC.

Poland Central Statistical Office. 2008. *Transport – Activity results in 2007*. Warsaw, Poland

Poland Central Statistical Office. <http://www.stat.gov.pl/english/>

Poland Ministry of Maritime Economy. 2007. *Poland's Seaports development strategy until 2015*, Warsaw, Poland

Poland Ministry of Regional Development. 2006. *Operational Programme Infrastructure and Environment (National Strategic Reference Framework for the years 2007-2013)*. Warsaw, Poland.

Poland Statistics on Railways. <http://www.plk-sa.pl/en.html>

Republic of Estonia. 2007. "Operational Programme for the Development of Economic Environment". July. Estonia.

Republic of Estonia. Railways statistics. <http://www.evr.ee/>

Republic of Estonia. Statistics, <http://www.stat.ee/transportation>

Republic of Latvia Ministry of Finance. 2007. *Operational Programme – Infrastructure and Services*. Riga, Latvia.

Republic of Latvia. Railways Statistics. <http://www.ldz.lv/>

Republic of Latvia. Roads Statistics. <http://www.lad.lv/>

Republic of Latvia. Statistics. <http://www.csb.gov.lv/csp/content/?lng=en&cat=355>

Republic of Lithuania. 2007. "Operational programme for Economic Growth for 2007-2013". October. Lithuania.

Republic of Lithuania. Customs Statistics. <http://www.cust.lt/en/rubric?rubricID=204>

Republic of Lithuania. Railways statistics. <http://www.litrail.lt/wps/portal/>

Republic of Lithuania. Statistics, <http://db1.stat.gov.lt/>

Swedish Maritime Administration. 2004. *Ice-Breaking Operations in the Baltic*. Prepared by Ulf Gullne, Norrköping, Sweden

World Bank. 2007. *Connecting to Compete: Trade Logistics in the Global Economy*. Prepared by Arvis, J., Mustra, M.A., Panzer, J., Ojala, L., and Naula, T. Washington, DC.

World Bank. 2009. *Connecting to Compete: Trade Logistics in the Global Economy*. The Logistics Performance Index and Its Indicators. Washington, DC.

World Bank. 2009. *Doing Business 2010*. Washington DC.