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**Global and Regional Roles of the
Russian Transport Infrastructures**

**by
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Zoltán GÁL

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Introduction

Russia's geographical coverage of two continents in more than 10 thousand kilometres on longitudinal axis is a unique historical heritage. Russia is no longer a superpower in military sense and the country's economy was very close to a total collapse in the 1990s. *The recovery of the economy since the end of the 1990s was based on the abundance of mineral and other resources* and mostly on the *massive export* of crude oil at an increasing price. Besides crude oil and natural gas pipelines maritime navigation is the major carrier of bulk commodities exported from Russia. Its efficiency largely depends on the capacity of ports and their railway service routes. The ambitious ongoing transport development programme of Russia is concentrating on investing into the infrastructure elements of the first group operating in severely cold (but relenting with global warming) climate circumstances. The world's largest country in a returning to normal international political environment is practically converting its unique geographical conditions into direct material benefits at an increasing success by playing a land bridge role and building the necessary transport corridors between the Atlantic/Baltic Europe – Easter Asia and also between Northern Europe Caspian Sea region and Persian Gulf area. Making these Trans-Eurasian corridors attractive for international transit and the maximization of profits gained directly (through rendering services) and indirectly (through the allocation of foreign capital in the corridor zones) is a national interest. After all the development of infrastructure enabling the transportation of extra heavy goods and commodities is urged both by the demands of foreign trade and by the *semi-global scale of transit services offered.*

In this paper we are going to give an overview on the efforts of 'continental' Russia for building a sea gateway having made for several centuries to join to world trade and for the safe manoeuvring of its empire-sized military fleet and to find a *modus vivendi* compromise for the geographical constraint situation of our time.

To what extent will Russia be able to *perform the functions of transport connection* between *Europe and Eastern Asia* the two major economic powers of the world besides the emerging new competitor route alternatives is one of the most exciting world economic – having geostrategic implications as well – questions of our age. To answer these questions we would like to outline some even now recognizable aspects.

1 The historical sea gates of Russia

In the Eastern European Slavic region, covering several million km²-s, i.e. half a continent, there are state formations lagging behind Western Europe that went through an early bourgeois and industrial development and has a lively trade activity. For these Eastern European countries, most of which had no other choice than autarchy, the access to warm sea shores allowing their integration into international trade has been a definite effort for half a millennium. *Depending on the (spatial) relationship of the Slavic states to the Northern European and Southeast-European or Asia Minor (lesser Asia) countries, often with regional middle power status for centuries (Sweden, Lithuania and Turkey), the actual use of the different seas and their ports changed.*

The Lithuanian and Swedish empire closed the Baltic Sea from the Russian state for a long time. Russia thus was forced to found the port of Arkhangelsk on the shore of the White Sea in 1584. However, Arkhangelsk was only accessible on the River Drina that could only be used with limitations because of the long ice-cover in winter. Nevertheless the city became the location of several merchant houses as a result of the balanced Russian–English relations (*Johnson, 1984*).

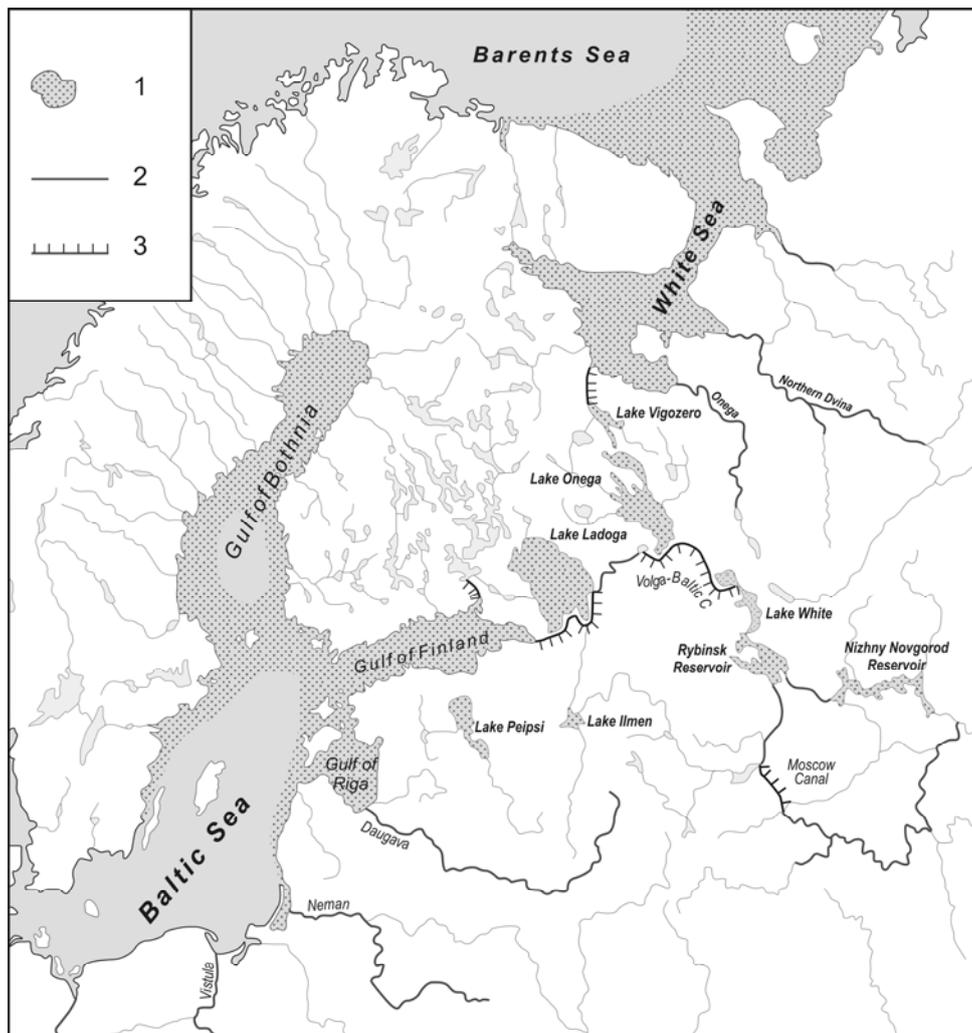
In the Russian history, the real ‘opening of the window’ to the world was done by Peter the Great, by the foundation of *St. Petersburg*. The allocation of the No. 1. port of Russia was the result of a necessity, and at the construction it had to be considered that the Gulf of Finland was not navigable for the fragile wooden ships in 3–4 icy months of the year (*Figure 1*).

The Russian Empire made war against the former regional power, Turkey, for centuries for the possession of the northern shore of the Black Sea and the larger part of the Caspian Sea, and so for the free navigation on these seas (including the access to the Mediterranean Sea through the Bosphorus and the Dardanelles). Although Odessa was founded in 1794, no sooner did it gradually become the most important port than the last third of the 19th century, after the establishment of adequate rail connections and the start of the mass-production of Ukrainian cereals competitive with the American cereals. In the Far East, Vladivostok was founded as early as in 1860, but it was essentially a naval port with a relatively modest commercial port (the surplus cereals produced in West Siberia was marketed partly in Middle Asia and party in Europe, so only a little was exported from the far-away Vladivostok – [*Antal, 1980*]).

The Tsar’s Russian Empire could much more easily keep in touch with Europe and the farther overseas regions after the acquisition of the three Baltic States (Estonia, Latvia and Lithuania) in the late 18th and early 19th century. After the construction of the railway, Riga became one of the most important cereal exporting ports. The ice-free port of Murmansk on the shore of the Barents Sea could only be utilised from 1916, after the railway reaching the port had been

Figure 1

The shaping of sea shore and the prevalence of ice in winter on the Eastern, Barents and White Seas



Legend: 1 – Seas, water reservoirs and navigable lakes freezing regularly in winter; 2 – The navigable parts of rivers flowing into seas 3 – The most important navigable canals.

Source: The author's edition on the basis of World Geographic Atlas.

built. Because of its peripheral location, however, Murmansk mostly served as a base for the naval force. In 1918, the newly gained independence of the Baltic states was hardly more than a political loss for the Soviet government, because the economic importance of the ports was almost negligible, due to the complete isolation of the Soviet Empire. *The Baltic area, re-conquered by the Soviet Union* after 1940 – essentially 1944 –, *was of strategic importance* in the beginning, because of its proximity to Europe, later it became *important in foreign trade*, too.

The *Soviet Union*, extremely isolated in a political and social sense *after World War II*, carried out an *extensive economic development policy*. In order to *compensate for the machinery necessary for the investments* and then the *cereals and other foods necessary for the supply of the population*, the country was forced to *export a very large amount of minerals and other raw materials, also energy carriers, in an amount significant on a global scale*. *Sea shipping became the basic means of transport*, just because of the complexity of the composition of the commodities. Those ports became the most popular where the railways and pipelines of the biggest capacity ran.

The Baltic States, at the intersection of the German and the Russian zone of influence, were able as ‘foreign departments’ of Western Europe to maintain their traditionally higher living standards in the Eastern European environment, not last due to their gateway functions for the current Russian/Soviet Empire. The Baltic Region was able, both at the times of independence and when it was part of the Empire, to profit from the “threshold” and the “gateway” position because of the fact that *Russia, short of own ports free from ice and relatively close to Western Europe, could not avoid for its foreign trade the use of the ice-free Lithuanian and the rarely ice-covered and with icebreakers easily clearable Estonian ports*.

Although in the last decade of the existence of the Soviet Union the sea shores making the pan-federation border from several sides allowed several versions of foreign trade, 80% of the sea shipping of Russia still took part through the three Baltic member states, as their geographical location was the most favourable for reaching the Western markets. The *oil export* of the Soviet Union, after the expansion of oil mining in the West Siberian oil field, reached a volume that made it worth building pipelines to the Baltic ports of Ventspils and Klaipeda, in addition to the pipelines running to the East-Central European countries (and partly from them to Western Europe). Also, millions of tons of crude oil arrived at several Baltic sea ports by train (*Buchofer, 1995*).

2 The problems of the necessity to use foreign ports after the disintegration of the Soviet Union

It is a paradox that it was just Russia, determining the former empirical politics, that became one of the main losers (or the sole main loser) of the disintegration of the Soviet Union. Russia had to face the fact that its geographical position became more peripheral, more northern compared to the centres of the world politics exactly when in the location decisions of the market economy, the quality of the location on the globe was appreciated so much as never before. *In 1991, the state territory of Russia became very similar to that in the times of Peter the Great, as regards the openness to the world, coming from the limited length and location of sea shores suitable for navigation.*

Russia was shocked by great loss from three aspects:

- number and loading capacity of the ports;
- spatial position in relation to the most important partners of foreign trade and
- climatic conditions influencing navigation.

The ports of the Baltic region and the Black Sea, most favourable climatically, also with the best location for reaching the foreign markets and of the biggest capacity, are now outside the borders of the Russian Federation. All that remained in Russian hands in the East (Baltic) Sea is St. Petersburg at the end of the Gulf of Finland, which is covered by ice for months and can only be made navigable by icebreakers at a relatively high cost; and the shores of the isolated, special territory of Kaliningrad, the exclave bordered by Lithuania and Poland (*Figure 2*).

While the political barriers of the integration to the world economy essentially ceased to exist, the transport conditions of the connections and goods exchange became catastrophic. Russia had a limited number of own sea ports, with unfavourable locations, and was *forced to use the facilities of the newly independent neighbouring countries for transit transport*. In the better case it only meant higher transport costs and fees for the use of the ports and re-loading, but it was not exceptional that Russia faced difficulties coming from political “malevolence” in connection with transits from Russia.

The latter included, among other things, the refusal of the free transport between the Kaliningrad region and the motherland by Lithuania, intending to join the European Union. In the early 1990 thus a plan to pass round Lithuania via Poland was considered (*Figure 3*), but Poland, an EU and NATO member, diplomatically denied the implementation (referring to the threat to its nature protection area) (*Buchofer, 1998*). Fortunately this problem was solved after negotiations with Lithuania, although Lithuania still controls the Russian transports.

Figure 2

The major harbours of the Russian Federation and of the independent former states of the Soviet Union

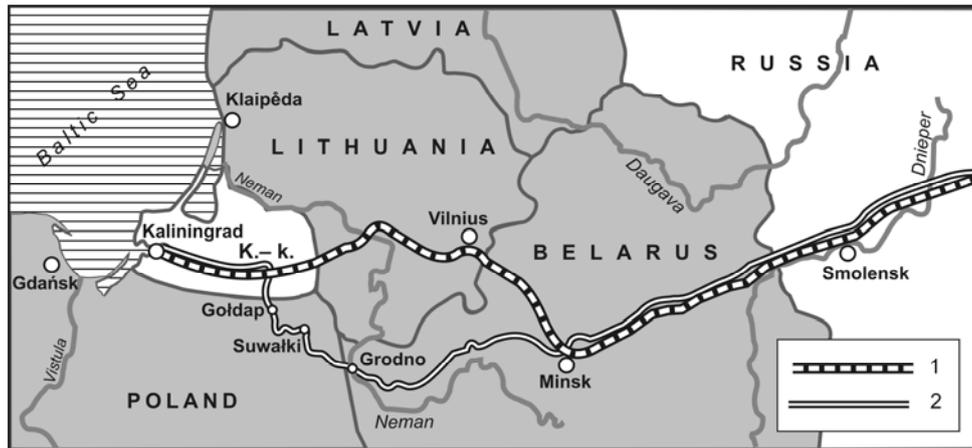


Legend: 1 – Former harbours having been remained on the territory of Russia; 2 – New harbours having been/being built since 1993; 3 – Russian ports having been transformed form military harbours into partially commercial ports; 4 – The most important transit ports for the foreign economy of Russia in the Baltic states, Ukraine and Finland until the present time; 5 – Other ports in the Baltic states, Ukraine and Georgia; 6 – Inter-sea container cargo service delivered by direct trains (between the Baltic and Black Sea and between the Baltic Sea and the Pacific Ocean).

Source: Edited by the author.

Figure 3

The communication linkages between the Russian Exclave Kaliningrad and Russia's main territory



Legend: 1 – The Kaliningrad–Smolensk–Moscow main railway route; 2 – The main road variation requested by the Russians (Kaliningrad–Suwalki–Grodno–Minsk–Smolensk–Moscow) but refused by the Polish government; – K-k.: Kaliningrad zone.

Source: Buchofer, 1998.

From Black Sea ports only the major ones such as Novorossiysk and Tuapse remained under Russian control while it was Ukraine that could directly benefit from the advantages of the highest capacity and the best equipped ports such as Odessa, Iljichevsk and Herzon. Russia could nothing else do than use the ports of the Sea of Azov accessible through Kerch Strait only, and having poor nautical parameters (Taganrog, Rostov). Moreover Ukraine hindered the international traffic of the Russian ports of the Azov Sea by declaring Tuzla Island lying in the very narrow outlet of the Kerch Strait as its own part (to highlight it symbolically the country has been garrisoning Ukrainian military troops there since year 2004) and by regarding the navigational routes near the island also as its own national territory. Thus, Russia could nothing else do than build a shipping canal on its own territory through the western part of Taman Peninsula to give free way to its own fleet (*Figure 4*). As a consequence that the ports of Reni and Ismail are under Ukrainian control the Russian has lost its direct navigational contact with river Danube. This also made the economical use of the Rhine–Main–Danube transcontinental waterway opened in 1993 almost impossible for the Russians. (Since 1991 very few Russian cargo ships have been registered only on river Danube; of the successor states of the Soviet Union the presence of Ukraine is the most dominant – *Erdösi 1995*.)

Figure 4

The location of Kerch Strait and of the disputed Tusla Islands



Source: Edited by the author.

From time to time the land transport of goods between Russia and Central, also Western Europe is made difficult by the Ukraine, more rarely by Belarus by only allowing the operation of the transit oil and gas pipelines with special conditions and high transit fees. They sometimes use different legal and illegal methods to make Russia pay for its road and rail transport, too.

The quicker than the world average development of the naval fleet was a prestige oriented achievement of the Soviet Union during the 1970s and 1980s. (Commercial, fishing and research fleets were the main benefactors of this initiative.) The Soviet fleet (having modern ships in more than one-third of its stock) was the third in rank in the competition of the world's naval fleets carrying 7.5–8.0% of the world's total cargo shipment (measured in tons). The establishment of the Russian Federation brought a drastic shrinking in the size of the commercial fleet (partly due to registering ships under 'cheap' foreign flags and partly due to selling). Although several governmental decrees and development plans were issued on the development of fleet between 1995 and 1998 almost no resources were allocated from state funds for fleet development. The partly privatised shipping companies were capable for delivering shipping orders of moderate size and for the retirement of old ships only. The registration of fleets under foreign flags was a longer process. Of the naval fleet with 25.5 million dwt capacity in year 1991 only a fleet with 6.6 million dwt capacity had remained in Russian hands and of them the ratio of container and RoRo ships is very low (Shipping... 2006; Sovcomflot... 2008).

3 Own port developments and transit corridors as infrastructure development reactions to the challenges of the national and the global economy

The political changes of the 1990s raised a double challenge for Russia when defining the focal points of its transport infrastructure developments:

- should Russia create the adequate sea port capacities in its own territory, eliminate the need to use the neighbouring transit countries and the concomitant national security and foreign trade risks (national aspect); or
- should it play a transit link, using the advantages of its large territory covering areas in two continents, take up a landbridge role establishing transcontinental corridors among the dominant centres of the world economy and other regions. This would also promote Russia's integration into the global economy (aspect of meeting the global challenges).

These two tasks can be implemented in a common system, as some of the ideal terminals of the transit corridors are the new sea ports.

3.1 The necessity of exporting crude oil and raw material stock of strategic importance through domestic ports

The outdated industry of Russia hopelessly collapsed and the country's economic position entirely depends on the profits gained from crude oil export. As it was seen from the world economic trends of the late 1990s Russia is having a gradually increasing role in the global market of crude oil as a producer. *As forecasts say the oil import of the United States from the Middle East would be replaced by Russia.* Oil export is a major sector in the foreign trade of the Russian Federation which is further complemented by the export of carbon, minerals, fertilizers and wood. For this reason increasing oil port capacities partly through the expansion of existing ports partly by building new ports is a priority task of the governmental programmes of own port building and the redirection of foreign trade oriented shipment into Russian ports. Redirecting 95% of the total oil export through its own ports is the final objective of Russia (Deeg, 2004) but this plan has been completed by 1977 in 77% only (DVZ, 10 January 2008).

The following two factors are pressuring Russia for the redirection and 'nationalization' of its oil shipment:

- The strict transit rules set up by the *Baltic states* (and partly Ukraine and Belorussia) such as the arbitrarily levied high *transit and port loading charges/utilization fees* (the ownership and utilization rights of pipeline

sections on the territory of post-Soviet states have been transferred into the competence of the given state.)

- In case of any political/economic conflict (or in ecological vis major case) the Baltic States may turn off the pipelines at any time. Such a case may threaten Russia's national security so its prevention is its own due interest.

The export of oil through foreign ports costs several millions of dollars for Russia annually. To save this amount is a national interest. The financial return of investments into new port development projects within a rational time period will be granted not only by far more favourable shipping and harbouring costs (while in 2002 for pumping one ton of crude oil onto a ship 4.70 USD was charged in Butinga (Lithuania) it cost only 1.94 USD in Primorsk (a port located next to Saint Petersburg) (*Farkas, 2002*) but also by the transit cargo shipment delivered to the countries of Central Asia as well. The Central Asian oil producer countries – especially Kazakhstan maintaining excellent relations with Russia – for keeping their foreign economy in balance are maintaining a diversity in their oil export strategy (by delivering crude oil into the East Mediterranean region, the Persian Gulf, the Pacific Ocean, the Baltic Sea region) so as they could eliminate any crisis situation arising from the 'jamming of any pipelines' by an alternative solution for accessing the global markets.

3.2 “The opening up” – the allocation of new port capacities in some coastal areas of Russia

Although Russia was seriously hit by the hardships of economic crisis in the 1990s *even in 1993 a large-scale port development scheme* was shaping up in a form of a government decree setting up an objective to decrease the annual 280–300 million tons of port traffic generated by Russia in ports abroad to only 5 million tons within ten years. (Against all the forecasts Russia's total port traffic hit the value of 507 million tons in 2005 – *Table 1*). The realisation of the project targeted at a radical increase of port capacities started very slowly. This can be explained not only by the serious economic crisis and the absence of capital but also by the behaviour of Russian entrepreneurs located in the Baltic States and strongly involved in the transit of crude oil. This group was not interested in building Russian ports and they were doing their best for delaying this process (*Farkas, 2002*). An increase in the speed of the realisation of port development projects and spectacular results have been achieved only as a result of heavy state subventions, of the improvement of the general economic situation and of the emergence of domestic investors at the turn of the 1990s and 2000s. As the volume of exported goods has tripled during a ten year period Russia was unable to carry out a significant breakthrough in reducing the amount of oil export through

foreign ports and in year 2007 still nearly 70 million tons of crude oil and oil refinery products (23% of the total amount of exported oil) were shipped through the use of foreign ports (Statistical Yearbook of Federation Russland, 2007).

Until recently Russia was forced to use foreign ports in the highest percentage on the Baltic Sea for foreign trade purposes (including Baltic Sea ports and the sea ports of Finland and Poland) but the percentage figure of foreign port use in the (Ukrainian and Georgian) ports of Black and Azov Sea is not much behind it either (*Table 1*). On the Arctic Ocean Russia uses only domestic ports for foreign trade purposes and on the coasts of the Pacific Ocean the majority of Russian goods are exported through domestic ports (recently some ports of China and South Korea are used to exports goods of Russian origin).

Table 1

The division of Russia's total sea trade by sea in year 2005 on the basis of the total traffic of sea ports

Sea	Own port traffic		Foreign port traffic		Total	
	million t	%	million t	%	million t	%
Baltic Sea	143	69.1	64	30.9	207	100.0
Arctic Ocean	85	100.0	–	–	85	100.0
Pacific Ocean	72	76.6	22	23.4	94	100.0
Black and Azov Sea	77	70.6	32	29.4	109	100.0
Caspian Sea	8	66.6	4	33.4	12	100.0
Total	385	75.9	122	4.1	507	100.0

Source: The author's own calculation on the basis of sea port traffic data.

For increasing the efficiency of foreign trade Russian port development programmes were focusing on the still Russian territories of the Baltic Sea. (For Russian cargo ships the biggest direct foreign destination is Rotterdam). To this hub oil is shipped by tankers of 45–70 thousand dwt from Baltic Sea ports but from there oil is transferred to super-tankers of 250–350 thousand dwt capacity and shipped further to the United States and to East Asian countries – Japan, China, Taiwan, South-Korea etc. New ports are/have been built only on the sea shores of the Gulf of Finland. *On the coasts of Barents, White, Azov and Black Sea and of the Pacific Ocean only the modernisation or the enlargement of the existing ports (e.g. building new terminals) are set forth as a target.*

According to our calculations the spatial breakdown of Russia's extended port capacities (new and enlarged ports) is showing the following pattern:

- In the outer part of St. Petersburg, on the sea shore of the Gulf of Finland between the Finnish and Estonian borders it is cca. 64%
- On the European part of the internal seas of the Arctic Ocean (Barents and White Sea) it is cca. 2%
- In the Kaliningrad Exclave it is 2%
- On the Azov Sea shore on the Russian part of the Caucasian section of Black Sea it is cca. 25%
- On the northern shore of Caspian Sea it is cca. 2%
- On the Russian sea shore of the Pacific Ocean it is cca. 5%.

3.2.1 *The concentration of ports in the Gulf of Finland and the exclave of Kaliningrad*

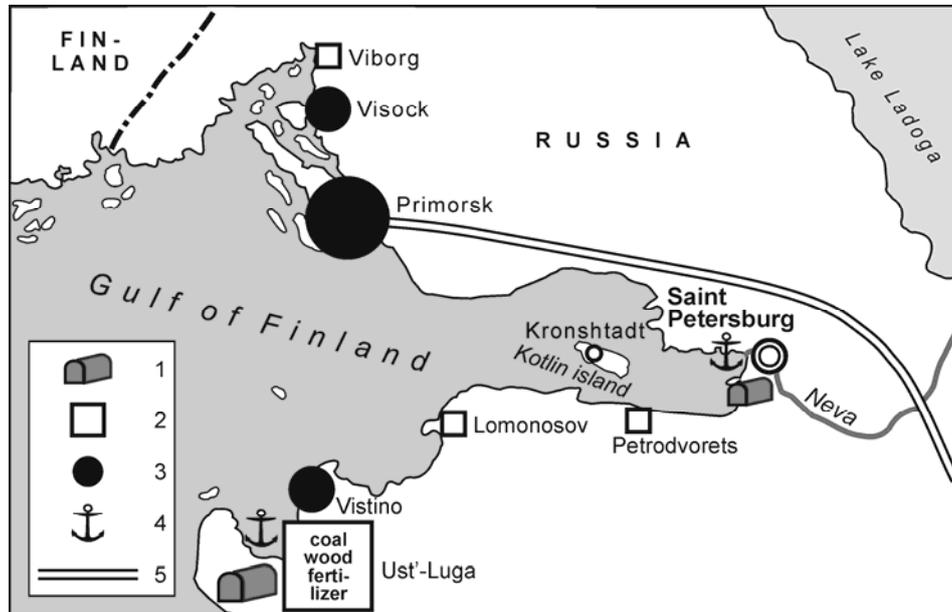
The eastern sea shore of the Gulf of Finland has an outstanding importance from the aspects of Russia's sea navigation (despite of its unfavourable natural and climatic conditions) due to the aspects as follows:

- This area comprises St. Petersburg, Russia's second largest city (having traditionally good relations with West-Europe) with 4–5 million inhabitants including its agglomeration zone;
- The ports of this area are located the nearest to Moscow, the Russian capital and metropolis, to Russia's Central Industrial Zone and these ports offer the best connections to the global markets even for the mines and industrial plants of the Northern Ural region;

St. Petersburg is the historical centre of this newly formed group of ports which was enlarged by several new members during the past few years. St. Petersburg is still Russia's high reputational harbour with direct connection to the city but its peri-urban satellite ports (some of them transformed from military into civilian harbour) (such as Bronha, Gorskaia, Lomonosov, Kronstadt) are further increasing the metropolitan city's navigational potential (*Figure 5*). With a transit cargo traffic of 62 million tons or 1.74 millions of TEU St. Petersburg is the busiest port of Eastern Europe. Although the port's contribution to the export of oil product chemicals, and timber export and to bulk freight transit traffic is very important but its major profile seems to be specialised in piece cargo shipment (resulting from car and machine import) and in container transfer (Sea Port... 2008).

Figure 5

New Russian ports in the Gulf of Finland



Legend: 1 – New and enlarged container terminals; 2 – Port for mixed and bulk freight shipment; 3 – Oil tanker terminal; 4 – Port for international ferries; 5 – Oil carrier pipeline.

Source: Edited by the author.

Although the port complex of St. Petersburg was expanded several times its traffic volume is fairly exceeding its nominal capacity. Due to the lack of free space an increase in the port's capacity can be achieved by technical modernisation only and by improving the port's accessibility by sea and by improving its road/railway connections. For increasing the intensity of the port's use, the port's introductory canal was deepened and widened so as to increase the port's present capacity to accommodate maximum 35–45 thousand dwt or 2500 TEU capacity container ships to 70 thousand or 5000 TEU capacity container ships. Compared to the western parts of the Gulf of Finland here (due to freshwater and drift carried by river Neva) the winter freezing period of the sea takes longer time which incurs higher icebreaking and river-bed sweeping costs. However all these disadvantages resulting from unfavourable physical and natural circumstances are outweighed by the port group's favourable from Russia's aspect geographical position and its strategic value for foreign economy.

St. Petersburg by introducing cargo ferry/RoRo services is trying to establish direct cargo shipment connections (by bypassing the Baltic States and Poland) with West-Europe, especially with Germany (Kiel).

As the ports of St. Petersburg area were unable for servicing all the cargo shipment demands of the Bay of Finland even in the early 1990s *the building of several new ports started at that time.*

In Ust'-Luga, lying 150 kilometres southwest from St. Petersburg on the Estonian border, a mixed profiled megaport project was launched in the 1990s in a form of private enterprise. The construction was interrupted and adjusted to a more limited capacity. By the beginning of our century the loading terminals for chemical fertilizer, timber and (Siberian) coal export had been finished and higher priority was given to investments for building terminals for ferry shipping trains and road vehicles as they offer higher profits, shorter investment return period and a more adequate compliance to the modernizing structure of the economy. As forecasts say the container loading capacity of Russia's St. Petersburg megaport may go as high as 3 million TEU and by 2015 it may even increase to 6 million TEU (Umschlagkomplex... 2007). In domestic relation the direct ferry services between Ust'-Luga and Kaliningrad have special importance as they are guaranteeing the continuous daily supply of the partly isolated Russian exclave. Forecasts are estimating 120.6 million tons of total cargo traffic by year 2015 which will consist of three major types of cargo such as (in order of their quantity) container and piece cargo, oil/oil products and bulk freight. Another segment would consist of wooden/timber products and RoRo ferry traffic (Angerstrebte... 2008). Ust'-Luga thus is a very much diversified port complex, compared to the nearby Vistina (Figure 5), where only one oil loading terminal of an annual capacity of 16 million tons is built (Mehr Öl... 2003).

Later on the northern shore of the Gulf of Finland was also selected as a site for building new oil exporting ports. (Some experts are referring to this phenomenon as a kind of 'Gulf oil fever' which has infected even the investors of the northern shore). In *Primorsko*, located near Viborg, a port complex of high national importance has been operating since 2001 thanks to among others the President of the State's contribution. These complexes planned for a capacity of 12–13 million tons per year are now loading 57 million tons of crude oil to tankers annually. The further expansion of the capacity of Primorsk depends on the 500 kilometre long oil pipeline between Jaroslavl and Primorsk built as a part and side line of the 'Baltic Pipeline System' which encouraged Rosneft to build an oil refinery plant with its partners (Mehr Öl... 2003). The total container cargo traffic of Primorsk together with Janino was over 1 million TEU in year 2007 (*Kulke-Fiedler*, 2008). [However we consider this figure false and unrealistic]

In *Visock*, only 30 kilometres away from Primorsk Lukoil built a 13 million tons per year (maximum 80 thousand dwt) capacity (serviceable by ships) oil

transferring terminal by 2004 – which by now has been extended by a coal terminal (with an annual cargo traffic of 3–4 million tons) (Ölhafen... 2005).

After the completion of a second Baltic Sea oil pipeline (which is now under construction) starting from the northern oil resources of Russia the oil export volume of Russian ports along the Bay of Finland may double (*Radloff*, 2006). *The exported oil will be shipped to recipients by tankers of maximum 50–100 thousand dwt. capacity.* Although technically/nautically it would be possible to navigate ships of this size category to their final destinations on remote continents without any stops but due to economies of scale reasons the majority of *exported oil is shipped to Rotterdam* first where *oil is transferred into giant supertankers* as this kind of delivery method offers cheaper cargo delivery costs on intercontinental routes. In 2114 more than 40 million tons of Russian oil and oil products were transferred in Rotterdam into mega-sized oil tankers taking their way to the ports of the East-Asian continent and of the United States. (An article reported on this phenomenon under a strange title of ‘Rotterdam Bathing in Russian Oil’ – DVZ, 30 October 2004).

The building of Russia’s number one port complex on a sea shore accessible in winter with high costs only should be regarded as a necessity for *making a compromise between rough weather conditions and the most optimal navigational routes serving for foreign trade purposes.*

From this aspect (the access to Europe and through the continent to the western hemisphere), *the ice-free ports of the isolated Kaliningrad exclave* have a much better location, but their construction bears a higher political risk, because of the foreign environment. Nevertheless Russia tries to make use the potentials lying in *Kaliningrad*, by the conversion (for civil use) of the infrastructure of the port areas serving military purposes (in Kaliningrad that is only accessible through a 30-kilometre long sea canal and even more in *Baltiysk*, easily accessible from the sea). However, the capacities are rather narrow compared to those in the St. Petersburg area (*Radloff*, 2008).

In the new political situation *Baltiysk* the ice-free port became a much more valuable port of Russia than ever before as this is the closest one of all the Russian ports to West-Europe the biggest sales and export market of Russian minerals and crude oil. Moreover this port is servicing *not only its closest hinterland in Russia but it is also the most suitable sea gateway for Belorussia.* The project of increasing the sea channel’s depth to 10.5 meters for accommodating medium-sized oil tankers will be finished soon. The port complex of Kaliningrad is planned to be expanded by another deep water port unit on Vostochny Peninsula ready to accommodate over 100 thousand dwt ships (*Weiterer Hafen...* 2007).

The new ferry terminal will connect the Kaliningrad area into the international and domestic ferry service network with a service coverage ranging from St. Petersburg until Saßnitz and Luebeck (*Fähreterminal...* 2003). 85% of the total

freight volume of the three ports of the Kaliningrad area consists of metals, iron, hardware products, chemical fertilizers and food industry products. The major destinations of export are Germany, Belgium, The Netherlands and Spain (Zuwächse... 2004).

In the spirit of the Russian government's complex transport development plan for the Kaliningrad district the Russian Railways (RZD) is doing its best to redirect the flow of goods to rail by introducing a cheaper tariff system. *The economic importance of Kaliningrad as a western final node of the trans-Eurasian corridor* between the Baltic Sea and the Pacific nowadays has further been increased by the emergence of automotive industry demanding an extensive network of sub-contractors.

3.2.2 *A compromise-based development strategy on the southern shores (the development problems of the „remaining ports” of Black Sea and Azov Sea)*

During the past Soviet era the traffic volumes of the *Black Sea and Azov Sea ports* used to supersede the ports of St. Petersburg. Since the collapse of the Soviet Empire the *Black Sea ports* still in Russian hands do not come close to those in the Bay of Finland in terms of traffic, either, because they are located far from the large shipways of world trade (the closest such shipway crosses the Mediterranean Sea from West to East). An amount of maximum 30 million tons of Russian goods for foreign trade flows through the Black Sea ports of Ukraine (Odessa, Ilyichevsk, Nikolayev, Sevastopol and Kerch) annually.

Of all the Black and Azov Sea ports *having remained in Russian hands Novorossiysk has the most favourable geographical location* since Ukraine won its independence. This is because it is accessible from the open sea and its hinterland is highly valuable from economical aspects (the agriculture of Kuban', the crude oil resources of the northern highlands of the Caucasus the area's multifunctional cities surviving pretty well the economic depression period). However, its development is held back the instable political and economic situation in its hinterland, Chechnya, which has a negative influence on the neighbouring regions too. The port having once been famous for its cement export can easily accommodate the modern technologies of transport as recently its container cargo traffic has increased by 30–50%. The plans of increasing cargo traffic from 88.5 thousand TEU to 300 thousand TEU by 2009/2010 can be accomplished by building a new container terminal which is now under construction (DVZ, 12 February 2004). This port will be connected to crude oil fields in the western periphery of the Ural region by an oil carrier pipeline. The port's 50 million tons annual cargo traffic resulting mostly from pumping oil into tankers is slightly lower than of the port of

St. Petersburg but the bulk freight (chemical fertilizers) and package freight cargo traffic is continuously growing thanks to the mega projects having been launched in the region in the early years of our century (Hafen Novorossiysk... 2007).

90% of the cargo traffic of port *Tuapse*, lying south-east from Novorossiysk but more difficult to access due to the nearby high mountains, consists of export goods (oil, oil products, coal, metals, sugar, cereals) (www.ceebed.co.uk/ceebed/tpstport.htm).

The geographic location of the Azov Sea ports (Rostov, Azov, Taganrog)

- on the one hand is advantageous as they are lying the closest to the terrestrial industrial agglomerations of Ukraine and the Volga–Don canal provides good waterway connection to the major cities of river Volga,
- on the other hand is disadvantageous as the use of the shallow watered Kerch Strait is not only a very difficult navigational task but also very expensive. Russia has to pay 150 million euro to Ukraine for using Ukrainian waterways and ports in the Kerch Strait.

For all that Russia considers these ports very important as the benefits coming out of the proximity to the big industrial regions of the Ural and Volga are outweighing the higher than normal costs of shipping.

Taganrog has the best foreign contacts with the countries of the Mediterranean Sea. Marine boat services are connecting it even with ports on the Caspian Sea (www.taganrog.seaport.ru/services.phtml). The building of a port specialized for the forwarding of chemicals has also started (In Taman... 2007).

3.2.3 Barents Sea and White Sea ports in peripheral position

Among the European sea gateways of Russia, the *development of the ports of the Barents and the White Sea (both being parts of the Arctic Ocean) were given much less attention* because of

- their peripheral location, their distance from the major markets of world trade, including Western Europe;
- their distance from the economic centre of Russia, the unfavourable conditions of their access and
- partly the seasonality of their operation, due to the half-year ice cover (in the case of the White Sea).

In this northern macro-region basically there are two larger ports that could be taken into consideration when implementing Russia's port development concept: Murmansk and Arkhangelsk.

Arkhangelsk the biggest timber exporter of the Western Ural region is changing into a mixed freight forwarding port. Its traffic had doubled by the beginning

of our century. In summer seasons technical equipment is shipped by marine boats from Archangelsk to the oil and gas fields of Pechora province and Eastern Siberia. The Rosneft Shipping Company is forwarding the crude oil of Uhta collected in Archangelsk to Murmansk by small tanker ships and there in Murmansk the oil is pumped into giant tankers for shipping further to Rotterdam (Archangelsk... 2007).

If a 1500 kilometre long oil carrier pipeline was built on the 'remote lands of the north' with an annual capacity of 80 million tons – which idea is now strongly opposed by Rosneft – then Murmansk could grow into one of the world's largest – comparable in size with those of the Maracaibo Bay – oil exporting ports (Baudes Murmansker... 2004). But now (2007) the annual 7–8 million tons of coal shipped annually to here from the Spitzbergen and the Pechora River Basin are yet by far a greater volume category than the annual 2 million tons of oil loaded here (Kohle Umschlag... 2007). Of the smaller ports of the Barents and White Sea Drevnianks, Vitino and Kandalah are those that participate on the oil export business of Russia (Hafen Kandalaksha... 2007).

3.2.4 Port developments in the Far Eastern coast of Russia

As radical geopolitical changes raised difficulties for the marine transport of Russia both on the western and southern coasts the accessibility, the maintenance and use of Russian ports on the Pacific coast for foreign trade and international transit purposes became a strategic issue. The Russian section of the Pacific coast as a macro-region has a special dynamism, its foreign trade oriented development has significantly increased the value of Russian ports on Far East. However the utilization of the ports' potentials is only one element of the general development of the Far Eastern marine economy. The capacities of the terrestrial transport routes connecting them with European territories – their hinterland – are equally important economic factors. As the cargo loading and storage capacities of the far-eastern ports of Russia failed to satisfy the demands the Russian government had to face serious traffic jams and significant financial losses in railway transportation.

The vast majority of shipping traffic is concentrated in the ports of the southwestern regions of the Russian part of the Pacific region located very close to China and South Korea (Vladivostok, Nahodka, Vanino, Vostochnyj). The commercial port of Vladivostok, the final station of the Trans-Siberian Railways, once famous for its military port, looks back to a hundred years of history but Vostochnyj, founded only a few decades ago is by far the busiest one of all. Nevertheless, the port complex's total shipping traffic (54 million tons in 2005) is not higher than that of St. Petersburg. 4/5 of the port's traffic is made up of solid and 1/5 of liquid products.

Vladivostok the headquarters of the Pacific fleet was used for some 60 years as a closed military area and it was only the 1990s when it was changed into a 'civilian' port. As the port is lying next to a rather narrow bay the geographical conditions for its expansion are rather unfavourable. Nevertheless, the port has recently been equipped for loading and unloading container ships on a regular basis which is a new service added to the existing bulk freight and package freight transfer services (www.wmtp.ru). In 2006 the port's traffic reached a value of some 150 thousand TEU. The spare parts of the Japanese Toyota Car Manufacturing Co. are transferred through this terminal to West-Russian car companies (www.fesco.ru). Although logistic experts and regional development plans designated *Nahodka*, lying only a few kilometres from Vladivostok, as a future far eastern commercial centre of Russia but today the port's existing capacities are limiting to perform oil exporting functions only. The deep water port of the city of Nahodka surrounded by mountains makes this place an ideal site for accommodating large tankers (DVZ, 7 July 2004).

The port of *Vostochny* was founded in 1974 a few kilometres away north from Nahodka. This is the most famous final station of container delivery service between Europe and the Far East delivered by the Transsib railways. Unlike Nahodka and Vladivostok this port has fairly good possibilities for expansion. The port offers a wide palette of loading services ranging from bulk freight to containers. The majority of shipping traffic here is generated by *exporting Russian coal* to Japan and South-eastern Asia – which proved to be an excellent business – while the volume of oil, natural and aluminium export is lower (www.vics.ru). *The new container terminal of Vostochny is one of the country's most advanced ones* and reached an annual traffic of 340 thousand TEU in year 2007.

On the remote northern parts of the Russian Pacific coast only the port of *Magadon* is worth mentioning. But this port has no railway connection to Russia therefore its services are limited to a very small area only. On the sea coast lying opposite Sakhalin Island (along Tatar Strait) *Sovetskaya Gavan'* is the most outstanding of the tiny (mostly fishing) ports of the area which is connected by a railway sideline to the Amur Valley (and Transsib) railways. In the 1970s high hopes were cherished and big plans were prepared concerning the development of this port in the expectation of the improvement of Soviet-Japanese commercial relations and of the economy of Sakhalin Island. Only very few elements of the development plan of that time have been realized and the port's traffic is lower now than it was in the 180s. Traffic is generated here only by the ferry service connecting the port with Sakhalin Island.

Today *the food and public goods supply of the far eastern part of Russia is delivered from China and South-eastern Asia*. For this reason the ports of Vanino and Magadon have been equipped for transferring cold-storage containers (DVZ, 7 July 2007).

3.2.5 *The losers of Russian port developments in the post-soviet countries*

In the 1980s, the three Baltic States within the Soviet Union played a gateway role for the Slavic region behind them, from which they benefited substantially. The value of the goods transited through these three states amounted to 60% of the national income of the region, and 8–10% of the population was connected to the Russian transit in some way. The largest capacity oil pipelines of the Soviet Union were built here, ending in their own ports. Also, the railways and roads running from Russia to the Baltic ports were among the best ones (Erdősi, 2005). *The ports of the Baltic region thus played the role for the Slavic region that the Northern Sea ARA ports (especially Rotterdam) play for Western Europe/Germany, and even Central Europe.*

Although the foreign trade of the successor states of the Soviet Union declined dramatically after the serious economic crisis in the 1990s, the Baltic ports managed to save their relative importance by letting 76% of the westwards goods traffic of Russia and 5–12% of the similar traffic of Belarus and the Ukraine (a total of approximately 70 million tons of goods) flow through them in 1997. Although the Baltic states, in a fear that the diversion of the transit traffic to the Russian ports would deprive them of a large revenue, started to forecast a crisis in the late 1990s, *a clear decline in traffic did not take places until 2003*. The only port really sensitively hit by a decline was Ventspils, where the amount of coming oil gradually decreased after 2000, due to the rising transit transport costs and port fees, and then in 2003 the pipeline was closed by the Russian Transneft pipeline transport company (Kulke-Fiedler, 2003). In Tallinn and other ports, on the other hand, traffic has stagnated or even slightly increased in the recent times.

A real turn occurred in 2003/2004, when the new Russian ports started to operate at full capacity and were able to absorb a larger proportion of the more and more dynamic goods export. From the summer of 2004, both in the Baltic states and Finland, a clear drop in the volume of the Russian transit could be observed (Erdősi, 2005).

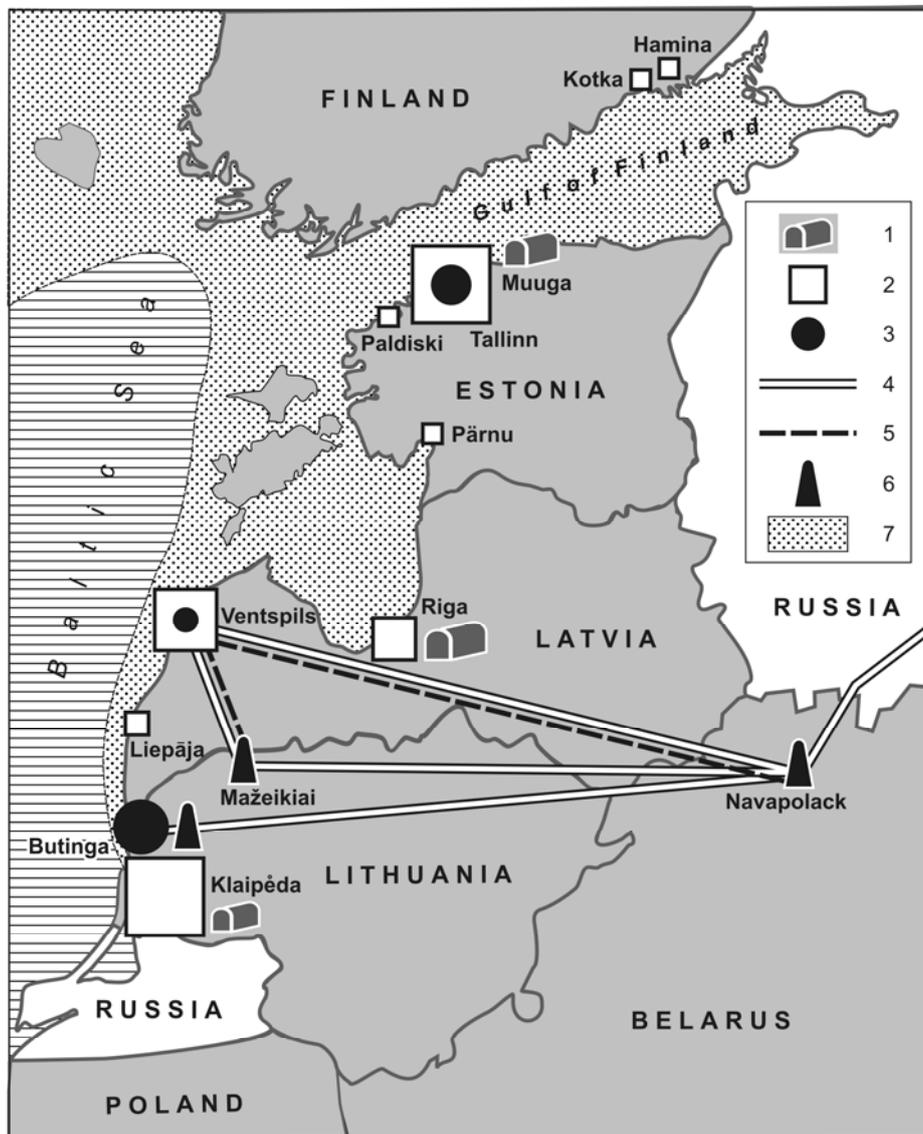
The three Baltic states have not been able yet to create a common platform against the Russian transport policy. In order to avoid or at least alleviate the unfavourable consequences, they have reacted by single measures, motivated by their own interests and possibilities. Of course this is the adequate behaviour in a market economy primarily built on competition. *The losing countries used different ways to slow down this unfavourable process.* The port development plans emerging in 2004 demonstrate that the *Baltic states did not fall into lethargy* when the competition started to become tough. Instead, they *technically further develop their existing ports* in order to able to offer more efficient and higher quality services, they strengthen their positions by expanding the existing ports with more state-of-the-art terminals and logistic centres. In fact, Lithuania is

planning to build a new port, 13 kilometres north of the seaside resort, Palenga. In addition to goods reloading, it will be the R & D centre of environmental technologies in connection with oil reloading (DZV 23. November 2004). Of the Baltic Sea ports *Klaipeda* in the proximity of the “turn” of the East Sea (*Figure 6.*) *has the best chances for an international turntable role.* This port has the longest traditions of sea ferry connections to German ports, and most of the East Sea ports from Sweden to St. Petersburg are easily available from here, as well. Goods flow to this port from the north and the southwest on the land (along the future “Via Baltica”), and this port is also the starting point of the continental “bridge” between the East and the Black Sea, of the container trains and other goods shipping direct trains heading for the ports of Ilyichevsk and Odessa, making it unnecessary to pass round Europe from the west. *Klaipeda* has been able to attract a large part of the traffic of the Belarus and the Latvian ports, so much that now the port can play a “gateway to the world” role for the Belarus (*Hafen Klaipeda* 2003). Moreover, *Klaipeda* made an agreement with the nearby port of Kaliningrad on business cooperation, on launching common Eurasian freight train services and on concerted action on western markets (Zuwäsche... 2004). It is strongly probable that a good cooperation may be established between the Russian ports of the southern coast of the Bay of Finland and the nearby Estonian ports on the basis of mutual interests. A functional restructuring has true reality in this matter which means that the losses of revenues arising from the expected heavily drop of bulk freight traffic can be partly be compensated by increasing the traffic of more profitable, more valuable parcelled freights and container goods and by the introduction of new logistic services for which there is still a demand in Russia.

Ventspils in Latvia is trying to compensate the losses incurred by the missing oil revenues by increasing the dry goods traffic (*Ventspils* is already one of the biggest nitrogen fertiliser exporter and also has an outstanding position in forwarding Brazilian fruit juice concentrates to Russia) and satisfying the transport demands of the Western European, especially German producing companies and hypermarkets locating in the Baltic region, by the opening of new ferry lines (5 RoRo lines per week to Nynasham in Sweden and 2 lines to Lübeck). A lot is expected of the 4 special economic zones realised in the country with EU support. One element in the sectoral restructuring of the port is the creation of a new college providing port logistics and port management training, a maritime academy, i.e. the intellectual infrastructure supporting the basic activity (*Kulke-Fiedler*, 2004).

Figure 6

The harbours of the independent Baltic Countries



Legend: 1 – Container terminals; 2 – Mixed bulk freight load; 3 – Oil and oil products terminals;
4 – Oil pipeline; 5 – Oil product pipeline; 6 – Oil refinery; 7 – Frozen sea the winters.

Source: ANNEP 2001. European Petroleum Year Book, 2001. Hamburg/Wien. Urban Verlag GmbH. Volume 31.

In addition to the Baltic States, *a significant part of the foreign trade traffic of Russia has flowed through the south Finnish ports*. Since Russia has been trying to use its own ports, the transit role of Finland has decreased in the Russian exports (especially since 1999). For example, since the start of the operation of the fertiliser reloading terminal in St. Petersburg, these items have been missing in Finland. Nevertheless in 2002 still 5.6 million tons of Russian export and import goods turned up in the Finnish ports, and approximately 70% of them concentrated in the terminals of Kotka and Hamina (Gegenwind... 2003). With the accession of the Baltic States Finland lost its privilege of being the sole EU member neighbour of Russia, but a more important factor was the transition of the structure of the transit traffic generated by the Russian economy towards less bulk goods. Despite this, still 40% of the total freight ton volume of the Finnish Railways is goods transported from or to Russia (*Kulke-Fiedler, 2004*). On the other hand, a rather modest (6.5%) proportion is made by Russian transit in the traffic of the Finnish ports (*Radloff, 2004*).

Despite the fact that the relationship between Russia and the Ukraine is not free from conflicts, based on the different economic interests, there are no strong efforts for the time being in the Black Sea region to divert the significant part of the annual 38–40 million tons of Russian transit from the Ukrainian to the Russian ports. Recently the Russian governments has realised that the use of the Ukrainian ports with a surplus capacity is more economical on the basis of the transport integration of the two countries than the forced development of the Black and Azovian Sea Russian ports, which offer unfavourable conditions, with the exception of Novorossiysk (*Figure 2*) (*Sjögren, 2004a*). The Ukraine, expecting Russian, Belarus, and even Finnish and Scandinavian transit goods, is planning the construction of container terminals of extremely large capacity compared to the existing ones (*Sjögren 2004b*). The soon to be built rail tunnel beneath the Kerch Strait, connecting the Kuban Region with the Crimean Peninsula and primarily serving bilateral goods and personal movements, would be good for transit too. The pipeline situated in the tunnel would carry the oil of Groznyy to Odessa, making the oil supply of the South Ukrainian refineries cheaper (*Sjögren, 2004c*).

However since the end of 2006 the Russians are using Ukrainian railway services and ports in a decreasing rate as the prices of transit services have significantly increased. At present time it cannot be anticipated whether this is a temporary or long-term regression process. The latter one seems to be verified by setting up new capacities in the Russian ports of Black Sea at an unusual speed.

4 The Trans-Eurasian corridors as infrastructure improving Russia's global and large regional role

Due to its unfavourable climatic endowments, Russia cannot become a real maritime power, despite its extremely long Arctic Ocean coastline. In order to counterbalance this situation, Russia is trying to gain global positions by making use of its continental location, constructing West–East and North–South trans-Eurasian corridors, increasing their role and establishing a global logistic centre/turntable in their interchanges. *These mega-corridors, in addition to their global and large regional functions, can play several national level roles, as well:*

- these corridors serve the co-operation of the huge regions operating on the basis of their own local and regional interests, the actually serve the cohesion within the empire;
- the intensity of the home transport and the export/import transport together does not reach in several sections the level that provides enough revenue to cover at least the costs, thus transit substantially improving the capacity use and increasing revenues, i.e. economy is definitely needed, especially for sustaining the Transsib; also,
- the corridors are irreplaceable regional development and spatial structure shaping forces, not so much because of the direct extra revenues coming from contract transport but because of the capital that they attract.

4.1 The Transsib and its potential competitors in the inter-ocean transport

4.1.1 The Trans-Siberian mega railway's functional changes and its present role in the freight and passenger traffic between Europe and Eastern Asia

By building the world's largest railway line under extremely severe weather circumstances with enormously high costs the Russian Empire planned to enforce its own national interests and intended to use the new mega-infrastructure for domestic transport purposes. This was necessitated *by the difficulties this 19th century empire had to face arising from its over-sized dimensions, from the problems of administrating and defending of this huge Siberian territory (e.g. extremely long borders) and from the several problems of exploiting and using its natural resources.*

Strengthening the Empire's internal cohesion, the administrative governance of Siberia, the presence of military forces and the potential mobilization of troops with several hundred thousands of men and their weapons to the conflict zone in case of war, the conversion of political power into economic space by the coloni-

zation of nomad native inhabitants living in sparsely populated areas and by the exploitation of their agriculture, mining and industry were all among the motives of railway building in Siberia. After all the homogenisation of the spatial diversity of the economy with the above-mentioned reasons were such issues on the agenda which could be solved only by connecting the Empire's capital city with the Empire's military port on the Pacific coast by a giant railway line. For reducing costs only a single line was built on the most optimal from technological and economical aspects pathway and connecting all the provinces' administrative seats was out of the plan's intentions. (From this reason for example, Tomsk, the administrative/cultural centre of West-Siberia was not accessible by rail and it was only later when a railway sideline was built to connect the city with the Trans-Siberian line (Pechterew–Scharapow, 2001).

The eastern section of Transsib at its initial phase reached Vladivostok and Port Arthur military ports through Manchuria and it was only in 1917 when the Transsib's course was changed so as to take its whole route on Russian territories (Fadejev, 2003).

The Transsib's first *positive effects on Siberia's economy* were felt by the first years of the 20th century. Its benefits were first experienced in stock breeding industry. With relocating several hundred thousand poor peasants to Siberia the Russian government could not only eliminate the threat of political tensions arising from wide social classes' living under poor social circumstances in some European provinces of Russia but also could involve vast territories into agricultural production. After a short time the figure of the West-Siberian per capita cattle stock was 4–5 times higher than that of Russia's European side and the value of Siberian butter production was higher than of the total value of the well-famed Siberian gold mining. Rail transport had significant role in exporting Siberian butter to West-Europe. The earlier heavy demand of using waterway transport services was lightened and by year 1914 the ratio of rail transport service in cereal export reached 50%.

The increasing number of Siberian inhabitants from 4.6 million to 7.6 and of the inhabitants of the far-eastern provinces of Russia from 0.9 to 1.6 million between 1897 and 1914 is also to a great extent due to the Siberian railways' role in the booming of Siberian economy. The proximity of railway created favourable conditions for industrial coal mining and processing industries. The rising urbanization process created several dozens of cities and several hundred of small towns.

Although even during the interwar period significant mining and industrial development started along the Trans-Siberian railway but it was in the 1950s when it changed into the real corridor of modern economy which *was also facilitated by the hydro-energy generated by the local big power stations*. Energy and transport demanding industries (such as aluminium and non-ferrous metallurgy, electro

steel manufacturing, heavy chemical industry) created a chain system along the Transsib line but since the 1970s/1980s knowledge and innovative industries further increased the transport corridor's value (such as the academic city in Novosibirsk for example).

The mega railway's *military strategic role* has been manifested several times during its history. It was seen *in the early 1900s* first when even unfinished and with poor capacities *did an extremely valuable service for the Russian Army being in war with Japan* and then at the turn of the 1910/1920s the armies of the civil war were fighting for its proprietorship.

During the Second World War Transsib rendered a special military supply service for the Red Army troops fighting on the Russian and later on the Central European battle-fronts by delivering manpower, military supply fuel and food from Siberia. A part of the United States' military aid provided by train for the Red Army was also transported from Vladivostok through the Transsib line. During the summer of 1945 the direction of this military supply flow reversed as military supply with 22 divisions were sent from the European part of Russia eastwards to the Manchurian battle-fronts for supporting Soviet terrestrial troops in their war against the Japanese. At the time of the Soviet–Chinese conflicts to avoid the threats arising from the proximity of Chinese border and to exploit the available mineral resources of Siberia the *Baikal–Amur Railway* was built in the 1970s in Eastern-Siberia several hundred kilometres north from the Transsib following a parallel route with it (*Priwalow–Paschkowa, 2001*).

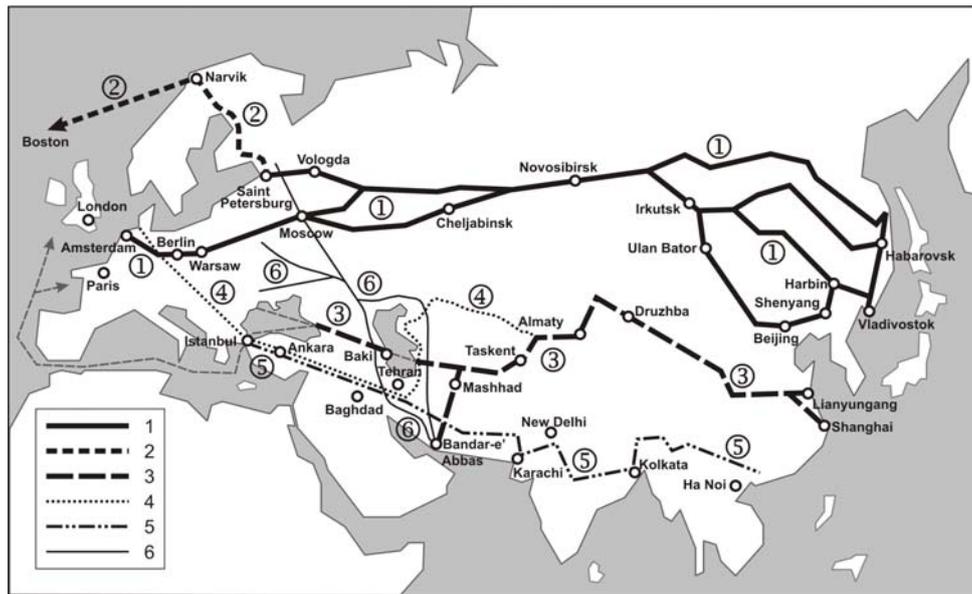
Thanks to continuous improvements since the 1930s *Transsib is now a double-tracked line. By 2003 it had been electrified in its full length and modernised: it is now equipped by a modern telecommunication system, an automated security braking system and by year 2012 the railway line in its full length will be suitable for servicing passenger trains running at a speed of maximum 160 kilometres per hour and fast freight and container freight trains running at a speed of maximum 120 kilometres per hour.* These parameters will comply with the compulsory standards of the main European international railway lines. From the aspects of improving the Siberian railways' technical/traffic performance it seems promising that the reconstruction of loading stations is progressing well and their equipment can accommodate and serve even the biggest (40 feet) containers used in international marine trade.

Transsib has direct (foreign) connection with the Finnish in north-west, with the Baltic in west, with the Belorussian and Ukrainian (through them with West-European) in south-west and with Kazakh (through it with the Central Asian) railways. In the eastern part the Transsib line ends up in the Pacific coast ports of Russia (by using ferry services Sakhalin Island can be accessed by train as well) but through some railway sidelines heading to south-east even Mongolia, China and Korea can be accessed by rail (*Figure 7*). Transsib has no alternative means

of transport in the east-west long-distance railway transport of Russia as several sections of the highways running along the Transsib line are unsuitable for servicing heavy weight freight truck traffic (Transsib-Straße... 2004).

Figure 7

The Transsib with other Trans-Eurasian corridors and the North–South corridor



Legend: 1 – The Trans-Siberian railway (with Chinese and European sidelines); 2 – The Ost-West Corridor 3 – The New Silk Route (TRACECA), 4 – The Trans-Eurasian potential corridor, 5 – The southern Trans-Eurasian corridor (having low chances of realization); 6 – North–South corridor.

Sopurce: Edited by the author by using several documents.

During the Soviet era the late 1940s was the first period when the international civil traffic increased on the Transsib. This was the time when several million tons of cars and technical equipment was exported to the People’s Republic of China and North-Korea within the frame of a giant international aid programme for the modernisation of their industries and armies. However the volume of this bilateral exchange of goods dropped down to a marginal value when the relationship between the two rivalling communist empires turned strained.

Hired transit train haulage services for foreign companies were introduced first at the late 1960s in Russia. At the initial phase (1967) railway container transport services were limited to the routes of Japan–Finland and Japan–Switzerland only but later on the Siberian transit services of the Russian railways of-

fering in some cases even 20% cheaper transit fees than of other international shipping companies were used by an increasing number of western transport operators. For increasing hard currency revenues the Soviet government increased its container shipping capacity to several hundred thousand TEU per year until the end of the 1980s (the real value of the annual shipping traffic was 150–160 thousand TEU) and in the recent years international passenger traffic (as a part of a mixed travel mode to Japan) was introduced in Transsib.

Despite of the cheap air services of that time *Transsib had very important role in long-distance passenger traffic even in the Soviet era*. Some parts of the Transsib line allowed running express trains at a speed of 120–140 kilometres per hour (Dampf und Reise, 1992. 1. p. 39–45.).

After the collapse of the Soviet Union the economic crisis, the increasing of rail transport charges (getting them closer to input prices), the complicated customs procedures, the worsening of transport security and *the decreasing tariffs of marine transport resulted in a heavy drop of international transit traffic as well* (in 1993/1994 the Transsib's total volume of container shipping traffic was no more than 25–35 thousand TEU and of all these the volume of international traffic was 15–25 thousand TEU – Kulke-Fiedler, 2005). Although the Russian government recognized in due time the losses arising directly and indirectly (due to the country's negative international image) from the fall of traffic volume indicators to the lowest level and was doing its best to increase the attractive force of transit services but due to the inconsistency of its measurements traffic volume was only very slowly increasing. *It was only in the early years of our century which brought a real breakthrough by significantly increasing the quality of services*, by the introduction of a tariff policy taking competitors into account, by simplifying administrative procedures and by introducing an armed security service for container trains (Pechterew–Scharapow, 2001).

By the present time *the volume of the container traffic of the Transsib* (345 thousand TEU) *has significantly exceeded the maximum registered in year 1988* but only a half of this figure concerns international traffic. The total volume of traffic is still below the line's nominal capacity which is estimated by different sources to 0.5–1 million TEU. From this one could draw the formal conclusion that the Transsib has large excessive capacities but this is denied by experts saying that congestions in traffic urge for increasing the capacity of railway tracks. We cannot give a definite answer to the question whether this problem is originating from traffic control failures, from the deterrent effects of customs and administrative bureaucracy or from the inadequate condition of infrastructure.

Railway operators are trying to shorten the duration of their service by accelerated ('fast') trains but they can cover a distance of 1100–1300 kilometres daily as a rule. By using a normal train service the average time of delivering container cargos from the nearby ports of Vladivostok to Finland is 21 days and to Swit-

zerland is 32 days. The duration of the newly set up rapid delivery services is 12 days to Finland, 12.5 days to Poland and 13–14 days to Hungary (Rodig, 2007).

In the early years of our century the Korean Republic was the biggest international container freight transporter on the Transsib line (Walter, 2007). The starting of regular railway service between South and North Korea in 2007 (Nord Korea... 2007) the reconstruction of the railway line along the Russian-North-Korean border (between Radzin and Hassan) will increase the number of South-Korean containers to such an extent that for some years South-Korea will surely preserve its first place before China regarding the volume of international container cargo traffic by the Transsib. South-Korea uses the Transsib for delivering car spare parts/semi-finished products to European and Central-Asian car manufacturers (Kulke-Fiedler, 2006). *Japan's share* from the Transsib cargo transport *significantly decreased* from the turn of the 1980/1990s as the modern container ships departing from Japans with strict punctuality offer more favourable terms of delivery. For this reasons it is goods to be delivered to Russian destinations (such as car spare parts to be sent to the St. Petersburg branch of Toyota Manufacturing Company or special equipment for Russian industry) that are preferably forwarded by Transsib (Sjögren, 2007).

In 2006 87% of the Transsib's international transit traffic of containers was generated by South-Korean and Chinese companies. About one-third of the Chinese goods crossing the Russian border (15 million tons) remains in Russia and two-thirds are forwarded to the eastern, central, northern or western parts of Europe. *Four-fifths of the goods coming from Korea and China enter Russia through the Chinese-Russian railway border stations and the ports of Nahodka/Vostochny/Vladivostok* and one-fifth arrive from China through Mongolia. The exit point of trains on the western part of Russia is *Buslovskaya* on the Russian-Finnish border and Brest in the proximity of the Belorussian–Polish border (Transsib erhält... 2004).

Finland in the geographical periphery of the Euro-Asian region now is starting to function as a Europe-oriented international distributional centre of East-Asian manufactured products – having recognised that this business is yielding high profits and revenues for the country.

Only a low percentage of goods forwarded to the Black Sea, to the Mediterranean Sea, to Iran and the Persian Gulf are involved in the container transit traffic of the Transsib (www.dvtg.ru).

A growing number of Chinese border stations involved in container transit traffic is reconstructed now: the sizing of capacities is closely following the increasing demands forecasted for a period of 15–20 years.

Today the volume of the Trans-Siberian passenger traffic is cca. 40% of that one in 1989 as the number of passengers wearing uniform or working on Siberian investment projects is by far less than before and the price of train tickets in com-

parison with local salaries have increased to an unaffordable level for many people.

The social composition of passengers has changed as the ratio of foreigners has increased. Besides a group of wealthy sightseeing West-European, American and Japanese tourists preferring to travel comfortably the majority of Transsib passengers are Chinese and Mongolian small retail traders/pedlars using cheap and low level travel services only (Komarov, 2002).

4.1.2 *The ‘New Silk Route’ Trans-Asian Corridor as a weak potential alternative of Transsib*

After the collapse of the Soviet Union Central-Asian countries outlying of the major seas for relieving their handicapped remote geographic location initiated that high capacity international corridors should be built for them connecting their highways and railway lines with the major centres and seaports of world economy. As a first step of this project the Kazakh railways were connected to the Chinese railways in 1991. The alternatives of Transsib may be the railway lines running southward from the Transsib connecting China with West-Europe (Stau... 2007) (Figure 7). Delivering the vast amount of Chinese export goods by rail is an enormous task needing the simultaneous use of several transport corridors such as

- the traditional Transsib railway;
- the auxiliary north-western bimodal (railway/sea) semi-global corridor connecting Siberia with the eastern coast of the United States (Boston and Halifax) through Narvik. This requires maintaining fair political relations with Russia.
- Any Trans-Eurasian railway lines bypassing Russia will force the Russian railways for the further modernisation of (building a third track for increasing the capacity) of their transit lines and for reducing their service fees.

China, Kazakhstan, Central-Asia and Middle-East are all hoping that the new railway lines connecting the ports of the Yellow Sea with Europe will improve their economic positions (Erdősi, 1999). One line of the two alternatives would connect them with Europe through Iran, Turkey (passing through a tunnel under the Bosphorus) and end up in Hamburg (Figure 8) (Zholy, 2004). But this is an unofficial plan. The other is the so-called ‘New Silk Route’ (Figure 9) which has been formulated on the basis of the common declaration of the directly and indirectly affected countries (1998 Baku Declaration) and it has been supported by the United Nations’ Economic Commission and by the European Union by its TRACECA (Transport Corridor Europe Caucasus Asia) multi-modal (rail-

Figure 8

The Trans-Eurasian semi-global multi-modal transportation route as proposed by Zholy



Source: Zholy, 2004.

Figure 9
The New Silk Route (TRACECA) project, the alternatives
of China – Central-Asia – East-Europe route



Source: Ezugbaia, 2007.

way/road/sea) transport corridor development programme (*Both–Hausmann* 2003). With this West-Europe is trying to plug in the southern post-soviet countries into its economic sphere of interest. This corridor would start from Turkmenistan and would pass through the Caspian Sea and the countries of Caucasus then by crossing the Black Sea would reach the Eastern Balkan. The building of this railway chain *could lighten or even eliminate the heavy dependence from the Russian railways*. Breaking up the monopoly of the Trans-Siberian railways by providing alternative routes could improve the logistic conditions of exporting Chinese/Central-Asian goods to Europe and the Atlantic coast of the United States.

In comparison to railways *building the roads* of the ‘New Silk Route’ *would be much cheaper* therefore more results may be expected in this field in the majority of affected countries. For example in 2008 Kazakhstan started to build a 2390 kilometre transnational highway connecting China with the Caspian Sea and Uzbekistan will have built its more than 2000 kilometre motorway on the route of Andizhan–Taschkent–Nukus–Kungrad by year 2010 (*Erste Autobahn...* 2007).

The building of the logistic infrastructure of an east-west corridor crossing Central-Asia was funded by the EU’s TRACECA fund with 100 million euro and an additional sum of 700 million euro was added to this by international financial institutions for the subsidization of 53 sub-projects.

The two biggest successor states of the Soviet Union (Russia and Ukraine) have different but very important interests tied up with the New Silk Route. Developing an alternative route and operating another railway line competing against the Transsib is to some extent *working against* the interests of Russia (*Russland steht...* 2000). According to the opinions of the Russians the New Silk Route serves West-European interests by enabling their penetration into the Asian/Caucasian markets and oust Russia from them (for this reason Russia was represented by an observer only in the community of TRACECA members – *Eigene Beteiligung...* 2000).

4.1.3 *The Arctic Ocean (Peri-Asian) route*

Russia’s and the Soviet Union’s military leaders have been keeping a close eye on the navigational issues of the North-Eastern Passage since the bad logistic experiences they suffered in the 1905 Russian–Japanese War.

Since the 1960s/70s *the programme of conquering arctic waters* comprised a *plan of a navigational route through the Arctic Pole to the Pacific Ocean (Mur-mansk–Bering Strait) along the sea coast and of another plan of Trans-Arctic navigational route shortening the same way by 1300 kilometres by navigating on the open seas* leaving the coastal zone. This would have not only shortened the

travel time of commercial boats (and saved costs) but the presence of Soviet military troops on the Arctic waters or even pushing out the American navy forces also would have improved the strategic military position of the Soviet Union against the United States. *The navigational route crossing the North Pole (Figure 10)* has a clear *advantage* – compared to coastal navigation – as deep waters allow the traffic of very big (more than 200dwt) ships (Armstrong, 1987).

As the Soviet-American diplomatic relations went back to normal the issues of the Trans-Arctic navigation route were struck off from the agenda and less attention was paid for the coastal navigation route heading eastward from the estuary of river Yenisei (and river Lena), the most unsuitable for navigation used only for transit purposes (Figure 11). Much more considerable efforts were made for improving the navigational security of the western part of the Arctic Ocean for reducing the dependency of navigability from ice conditions so as to facilitate shipping between the European part of the country and Siberia (Armstrong, 1987).

During the 1980s the Arctic Ocean fleet was expanded by special (mostly nuclear engine ice-breaking or heavy structured, strong ‘ice resistant’) ships.

At the beginning of the 21st century the dependency of the Russian economy on the revenues of Siberian exportable resources is higher than ever before. Although the majority of crude oil and natural gas is delivered by pipelines to Europe still a great amount of them is shipped by tankers as well. Shipping goods by the sea has an outstanding role in transporting heavy technical equipment needed for oil, coal and metal mining and also in delivering building materials, food and manufactured articles.

The maintenance of the Northern Navigation Corridor has high priority in the regional development plans of Northern Russia. Today, thanks to high performance ice breaker ships the all the year round navigation in the western parts of the Arctic Ocean is technically possible up to the estuary of river Ob or in better seasons even up to river Yenisei. In the colder eastern parts of the Arctic Ocean the extension of the navigational season to 8–9 months is also possible. However on the Arctic Sea east of the estuary of river Lena *the Northern Navigation Corridor is not used as a transit shipping route on a regular basis. It is rather used for domestic shipping purposes* but it also has role in foreign trade by shipping oil and timber in the majority of cases.

It is not known how global warming will affect navigation and how the northern regions of Russia will be capable to benefit from this situation. The Arctic Ocean (navigable all the year round) navigation route may turn a better alternative for West-European transport operators for accessing the western coasts of Eastern-Asia and even North-America (Figure 10). The traffic of the Arctic Ocean would surely significantly increase if it was navigable all the year round without the assistance of ice breaker ships.

Figure 10

The position of the Arctic Ocean's navigation route against the alternative routes bypassing Asia from the South and crossing through the Panama Canal

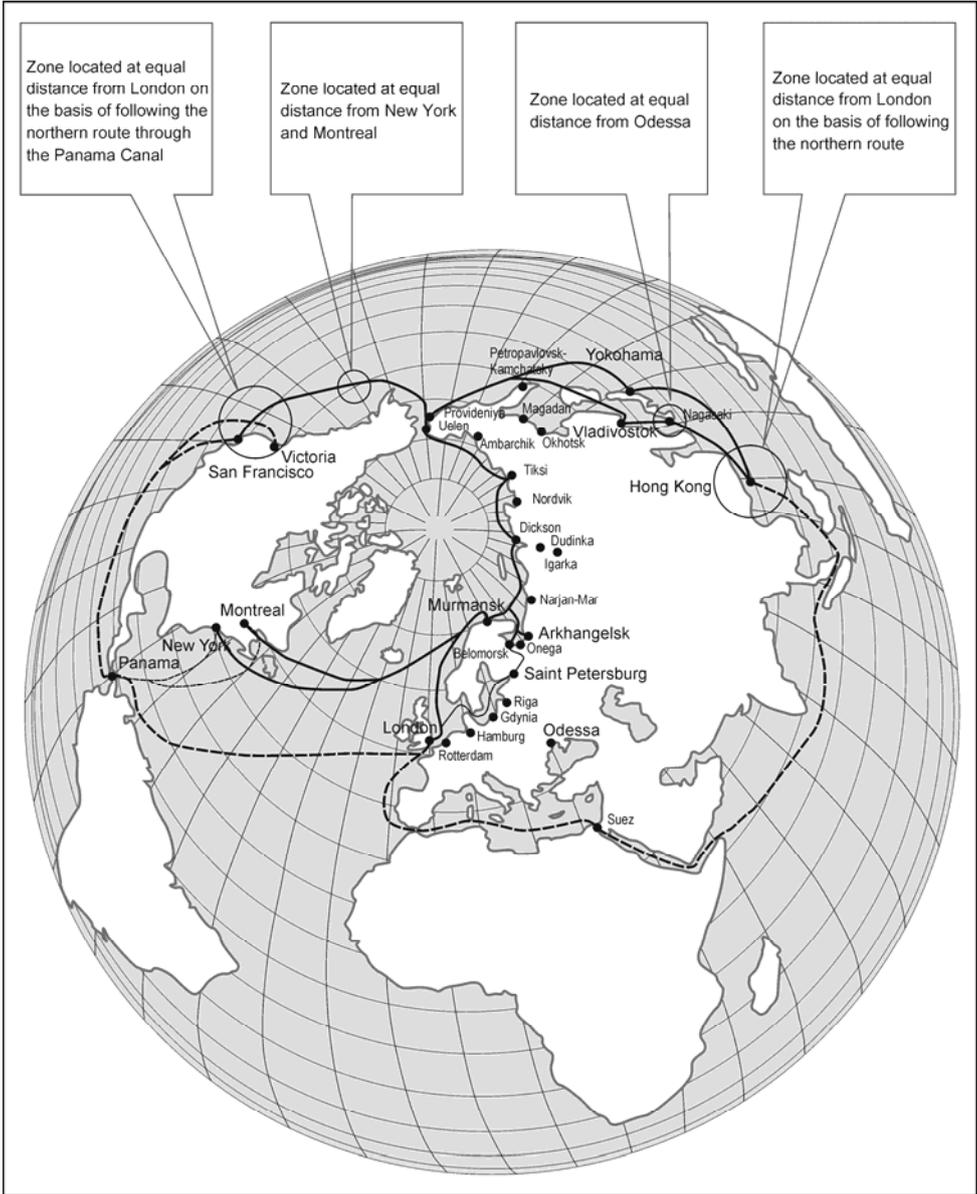
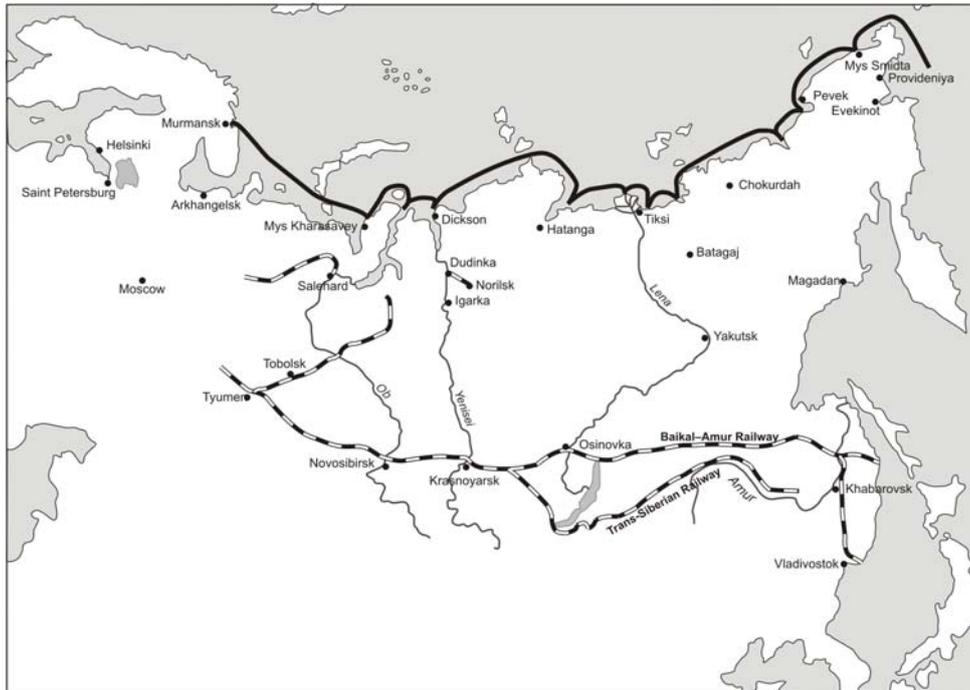


Figure 11

The major ports of the coastal navigation routes of the Arctic Ocean and their connections with Siberian navigable rivers



Source: Armstrong, 1987.

In theory the Arctic Ocean's navigation route might be a competitor of Trans-sib in the transit traffic of Eurasia.

Russia may gain higher benefits from the new situation both in case of domestic (interregional) goods exchange and in case of international trade with Eastern Asia/Pacific and of the West Europe-Pacific transit traffic not mentioning those resulting from shortening travel distance. For example the distance between Hamburg and Singapore is 8377 nautical miles through the Suez Canal. The distance between the same cities through the Arctic Ocean and the Strait of Bering is 9730 nautical miles but no canal fees are charged therefore the conditions are more or less the same on the two navigation routes. Moreover, the distance of East-Asian economic centres (Japan, China, South-Korea and Taiwan) from the West-European mega-ports is shorter by 13–18% through the North-eastern Passage than through Suez not mentioning the savings incurring from eliminating the payment of canal fees (Zachdel, 2007).

4.1.4 *The potential consequences of the extension of Panama Canal for the land bridge role of Russia and on the traffic of the Arctic Sea*

One of the major global sea trade routes is crossing the Panama Canal. For all that the traffic of this Central-American waterway (212 million tons in 2006) is far below of the Suez Canal (1040 million tons in 2006) as due to its narrowness it can accommodate bulk freight or tanker ships of 40–45 thousand dwt maximum capacity or container ships of 4000 TEU maximum capacity only. For increasing the economic efficiency of inter-continental transportation the size of container ships is continuously increasing but they cannot do anything else than taking the much longer route through the Suez Canal. This is the case for example between the ports of the US eastern coast and Eastern Asia. For some of them the north-eastern pass on the Arctic Ocean can be an alternative as a potential navigational route. *The expansion of Panama Canal is expected to be finished by 2012(?) and from that time the Canal can accommodate three times bigger than now container ships with a capacity of 12,000 TEU. This will decrease the prevalence of Suez Canal in marine transport between the three economic power centres of the world and several shippers will ‘change their minds’ by selecting the Panama Canal route (between Canada/the eastern coast of the USA or even West-Europe and Eastern/South-eastern Asia). At the same time the North-western Passage starting from the coasts of Canada and Alaska may provide a competitive alternative route (The Hamburg–Vancouver route is 8741 kilometres through Panama and 6635 kilometres through the North-eastern Passage). Regarding both the travel distance – especially on the route of Southwest-Europe/Canada – Japan-eastern coast/South-Korea/North-eastern-China bypassing North-America from the north seems to be economical by saving the costs of Panama-Canal fees (it is now 54 USD/TEU but it is planned to be increased to 74 USD/TEU by year 2009 and in 2014 another price increase can be expected). Thus, it can be assumed that the redirection and changes in the traffic and importance of east-west commercial maritime navigation routes may slow down or even halt the now increasing international transit traffic of Russia’s northern navigation route. It may occur theoretically that the navigation of the arctic seas will be restricted by environmental/nature conservational considerations (bearing in mind the eco-system’s high sensitivity to changes) – as it has been pointed out by Zachdel (2007) but practically this aspect plays no significant role in the decisions of the affected countries. Comparative costs and the ever changing macro-/global economic policy are much more influential factors of the performance and percentage indicators of inter-continental and intra-Eurasian scaled shipping traffic.*

There might also be such a scenario that serious political conflicts, local fights or terrorism make conventional navigation routes temporarily inaccessible. In such a vis maior case inter-continental navigation routes could be relocated to

arctic routes which would spectacularly increase the importance of Russian sea routes for a certain time.

4.2 The North-South Corridor and the Caspian Sea

Among the foreign political aspirations of Russia, the access to the Persian Gulf has always had a high priority, as has the presence in the Middle East, a traditional British influence zone. This effort is manifested in the dominant role of the Russian government in the planning and the implementation of the *North-South Corridor*, connecting Finland through Russia and Iran to the Gulf and the Indian sub-continent (*Figure 7*). The Russian proposal was approved of at the 2nd International Eurasian Transport Conference in 2000, and the international agreement was signed (supported by both Iran and India), followed by the signing of several interested countries at the 3rd Conference, or by countries expecting an indirect benefit from the realisation of the project (from Bulgaria, Belarus and Tajikistan to Azerbaijan, Syria and Oman). Some countries made a declaration of contribution, some far-away countries (Latvia, Malaysia, Thailand and South Korea) are evaluating the possibility of their participation (*Slobodyanyuk, 2004*).

The North-South Corridor connecting Europe (mostly the economic ‘core’ zone of North-West Europe) with Asia with its adjoining corridor from west (through Belorussia and Ukraine) *can be a competitor of the Suez Canal* in the container transportation of valuable goods. The shipping costs of a 40[feet] container from Frankfurt (Germany) to Iran are 5670 USD while on the new North-South Corridor – by eliminating channel fees – would cost 3600 USD only – *Kooperation... 2004*).

On the Russian section of the North-South corridor a multimodal transportation of goods by river/rail, in Iran goods would be forwarded by rail and between Bandar Abbuz (Strait of Hormuz) and India by sea. In the wide area of the Caspian Sea *several schemes* of cargo transport have been elaborated. One alternative is a railway line following the western coast of the Caspian Sea which through a sideline of 340 kilometres having been built in 2008 departing from Astara in Azerbaijan passing through Rashton in Northern-Iran and arriving in the city of Quarvin would link the Russian railways with the Iranian one and through this line a rail connection would be granted to the Gulf of Oman. The other alternative – by using the Caspian waterway would connect the Russian ports of the north-western coast with the ports of Northern-Iran (Enseli, Bandar-e-Anzali) (*Container international 27 August 2005*).

In Turkmenia the Uzen-Gizilgaya-Bereket-Etrek-Gargan railways which now is under construction will also be a part of this corridor and from 2011 it will

shorten the railway route distance from Russia and Kazakhstan to Iran by 600 kilometres (DVZ, 12 December 2007).

The Russians are planning to build the North-South Corridor so that it would serve for their own interests in such a way that the cargo transfer node would operate on their country's territory instead of Azerbaijan. In that spirit the Russian government's programme titled 'The Modernisation of Transport Complex by Year 2010' is focusing on the port of Olya on the north-western coast of the Caspian so that it would serve as a cargo transfer port for goods targeted at Iran (Radloff, 2005). The loading capacity of bulk and liquid cargo transfer terminal built next to the container terminal of Olya, which is gradually increasing its capacity to 400 thousand TEU is planned to be increased to 4 million TEU by 2005 and to 10 million by 2010. The completion of the railway sideline adjoining to the main railway route in 2006 is significantly contributing to the feasibility of this plan (Containerterminal... 2006).

4.3 Trans-Eurasian terrestrial or Peri-Asian sea route? Passing through or bypassing Russia? (The perspectives of the freight transport route competition between Europe and Eastern Asia)

This paper has shortly presented the transportation routes connecting the two power centres of global economy and embodying different values and capacities for global trade. From the point of the economic development of *the whole bi-continent (Eurasia) and North-Africa it is a key issue what kind of relationship will be shaped out between these route alternatives i.e.*

- will there be a tough rivalry between them for *winning at the expense of the competitor*? Will any of these routes enjoy a hegemony being capable of functioning as an alternative against the others
- *or in the spirit of co-operation* transportation will be regarded as a coordinated division of tasks by taking the different features of routes into account? In this latter case some routes (by still preserving their indispensability) will function as auxiliary having no dominance over the others.

Theoretically both extremes may come true but it only for a while. It is much more likely that *a mixture of the above two scenarios will be realized* as an outcome of the following influencing factors:

- transitions and changes in the influential power and functions of the power centres of global economy;
- the restructuring of the export and import allocations of (and between) the countries of Eurasia;

- the political relations between the regions/countries of transit transport and the degree of their readiness for compromise;
- the outcomes of the potential rivalry of superpowers (Russia and China or other countries) on international (transit) transport (a potential administrative discrimination against one party and preference for the other party);
- the development of transport technology and
- last but not least changes in the global climate.

These cardinal factors some times have simultaneous impacts by strengthening each other's forces alike but in the majority of cases the given situation comprises a few of these elements only.

The evaluation of commercial transportation routes should be based on transportation capacities which should be regarded as a technical parameter). During the past few years 98.3% of the total goods flowing between East-Asia and Europe were shipped by the sea. Apart from ships passing round South-Africa and those servicing on northern sea routes including the North-eastern Passage the greater majority of cargo shipments are following the Indian Ocean – Suez Canal – peri-Asian route (*Figure 12*). The ratio of air cargo transportation is 0.10–0.17% and of rail cargo delivery is 1.3–1.4%. Of all the rail cargo transportations the service coverage rate of Transsib (together with Manchurian and Mongolian railways as they are integrated into one) is 92%. The 2.0–2.3% penetration rate of railway from total container traffic is slightly higher than of the percentage of total rail cargo delivery. The breakdown of this latter figure is as follows: Transsib's percentage is 1.8–2.0% and the remaining ratio of cargo is hauled by the (non inter-operable) railway service between China and Kazakhstan/Central-Asia having no extension towards Europe yet (on the New Silk Route Corridor).

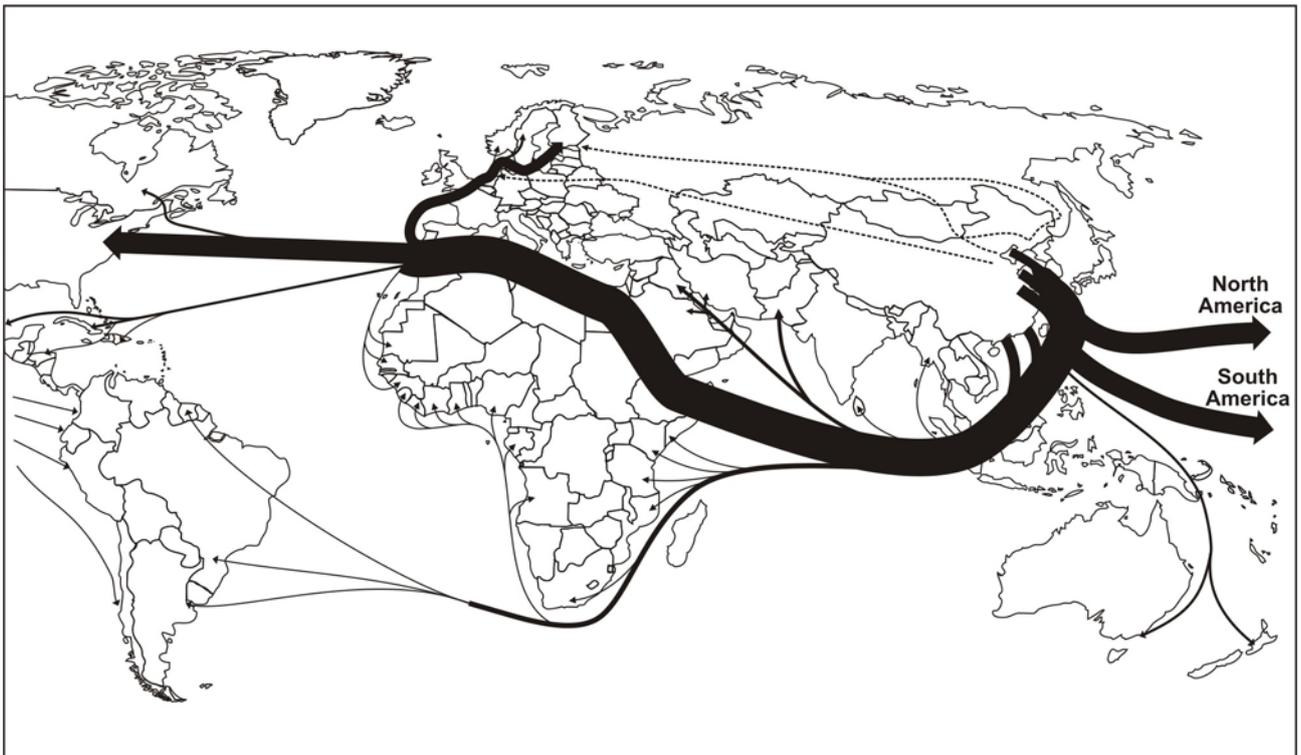
Regarding both the development trends of transportation technologies and the changes in the structure/assortment of goods *no significant changes can be expected in the breakdown of cargo shipping capacities between sea and terrestrial routes*. Recent trends show that the growth rate of sea cargo shipping (namely container shipping) on the southern peri-Asian route – as a partial consequence of giant port buildings in China/Southeast-Asia of marine fleet developments and of the expansion the Suez Canal is higher than of the Trans-Eurasian railways.

India with its steady economic growth has a significant on cargo traffic growth in the sea routes between Europe and South-Asia.

The development of transport technology will hardly change significantly this situation. Theoretically a high performance and high speed train service (e.g. MAGLEV – magnetic levitation) might be built in the internal part of Eurasia to forward valuable/express delivery goods losing their value within a short period of time in 1–3 days to the destination country lying at a distance of 5–13 thousand kilometres (It might occur that a macro-region is in need of purchasing fresh food

Figure 12

The major routes of China's Sea trade transport



Source: Edited by the author.

products – green grocery/fruits, dairy products, meat etc. – on daily basis from a remote country. But turning back now to the reality of the present: the technical modernisation of rail infrastructure serving as a basis for the Transsib's capacities has been finished by now so a further modernisation of the traffic control system would increase the intensity of traffic maximum by 15–20% only. A positive breakthrough in increasing cargo delivery capacities could be achieved only by building a third track but because of the very high costs this alternative has been excluded even from long-term delivery capacities could be achieved only by building a third track but because of the very high costs this alternative has been excluded even from long-term development plans. An urgent improvement of the existing capacities by 50–70% would certainly be taken into consideration in case of a rapid growth in cargo transportation demands. But now it seems that *China* for the reasons of satisfying its transportation demands – originating partially from its needs for securing the necessary capacities and partially from political/national security considerations – *intends to diversify its transportation routes and use them actively*. For this reason there are no signs that China would avoid using the cargo transport services of Transsib in its foreign trade. On the contrary, China is an active member of the business organisation integrating the railway line crossing Russia in east-west direction into a bi-modal (railway and sea) corridor connecting China with the eastern coast of the United States (Boston and Halifax) through Narvik (*Figure 7*).

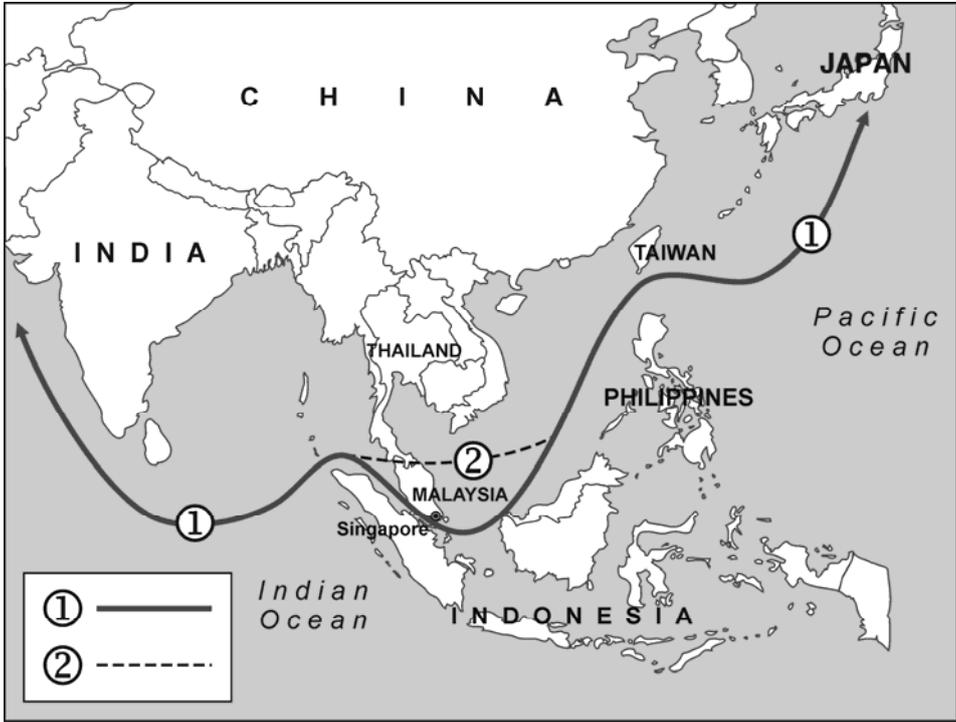
However it is also a fact that *China is highly interested in building a Trans-Eurasian corridor through Central-Asia as well* – together with the countries involved. But this corridor heading towards Western and Eastern-Europe *can compete with other routes only in case it runs at full of its length on terrestrial routes* (eliminating in this way the loading and unloading of goods in the ports of the Caspian and Black Sea) and its railway track is inter-operable regarding at least the compliance of railway gauges between the Russian and Chinese railways. Today the chances of meeting these criteria seem to be weak and only some partial issues can be expected to be solved within a reasonable future period. Although Kazakhstan will invest heavy sums into building a normal gauge railway line between the border of China and the Caspian Sea but the inter-operability of this line will be terminated at the latter destination. This problem can be tackled only by building it further by bypassing the Caspian Sea from the northern side on Russian territories and by extending the route through Ukraine heading towards the countries of East-Central-Europe and towards Romania. Ukraine has big plans for participating in this project so as to extend its RoLa services and to increase the importance of port Odessa (*Kulke-Fiedler, 2006c*).

It can almost be taken granted that the competitiveness of sea navigation routes can be improved only by increasing the capacity of transportation routes and ships and increasing the speed of transport is out of question. Increasing the

speed of commercial marine boats would incur an exponential growth of energy and fuel consumption, would put navigation/steering on a new basis but at the same time the speed of goods transport could not be increased significantly both on Suez and Panama Canals and neither in the extremely heavily loaded and busy natural straits (e.g. Malakka Strait). Although crossing on a channel through the Malaysian Peninsula would save some hundred miles (Figure 13) (Rappik, 2006) but this advantage by far could be superseded by the benefits of the all the year round availability of the Arctic Ocean coast for navigation.

Figure 13

The longer route to be shortened by the Kra Channel crossing the Malakka Strait



Legend: 1 – Malakka Strait; 2 – Kra Channel.
Source: Rappik, 2006.

The continuing global warming provides fairly good chances for that. This route would significantly shorten the distance for shippers navigating between Northern-Europe and Japan or North-east-China. We estimate that even 10–20% of the traffic of the Peri-Asian southern sea traffic could be redirected to this new today and very seldom used sea navigation route (*Zachdel*, 2007). As this route would pass through Russian territories mostly, Russia's importance would further increase in (terrestrial/sea/air) international transit traffic and this could even raise another source of conflicts. However we are rather on the opinion that this situation would rather create a peaceful co-existence between the countries of Central and East-Asia and would further increase the openness of Russia on the basis of the recognition of mutual interests.

5 An Overview

The topic of this paper deals with one of the most exciting issues of our future, namely what role Russia can play in world economy and to what extent the countries of Europe and partly of (East) Asia may economically depend of Russia. The dependency from this bi-continental empire can the most obviously and in some cases the most abruptly be manifested by the crude oil and natural gas supply of East-European (and some West-European) countries but the dependency of the economy of China and India from the Russian resources is also getting higher and higher.

One of the hardly exaggerated transport geographical conditions of the two-continent size (bi-continental) empire is that it is located between the two super-powers of world economy namely (Western) Europe and East-Asia. The question here is how this geographical position can be exploited in the inter-continental exchange of goods. The Arctic Ocean as a navigational route can have a practical importance only in case when climate change will reduce the necessity of using ice breaker ships for the mid-winter period only. The Trans-Siberian railway line is electrified in its full length.

The container transport capacity of the Trans-Siberian railways, double tracked and electrified in full length, was 600–700 thousand TEU in year 2008 and even if it was extended by an additional third track it would not exceed the annual figure of 1 million TEU. And this is only a small portion of the total goods shipped by sea (through the Suez Canal). But nowadays the rising level of piracy (at the Straits of Malakka and Hormuz) is such a threat for ocean liners which may increase the importance of the Trans-Siberian line and the Trans-Asian terrestrial transport corridors (connecting China with Europe through Central-Asia and the Caucasus).

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