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Administrative arrangements (Work plan)

Financing Transport Infrastructure

Transport links between Europe and Asia, new challenges

Note by the secretariat

The present document was prepared by the secretariat for the joint workshop (Working Party on Transport Trends and Economics; Trans-European Motorways; Trans-European Railway and Euro-Asian Transport Linkages) on “Financing Transport Infrastructure”. The main purpose of this note is to provide information and analysis in the current situation in freight transport links between Europe and Asia in terms of time and cost in order to provide alternative approaches to transportation.

TRANSPORT LINKS BETWEEN EUROPE AND ASIA, NEW CHALLENGES

1. INTRODUCTION

One of the oldest trade links in the world, the land route between Europe and Asia is not used to its full potential for a large-scale inter-continental trade. Maritime transport nowadays dominates inter-continental trade; international maritime companies have significantly expanded their capacities in order to meet the increasing demand from industries for the number of containers leaving Asia. While most of the transport is by sea, the development of efficient and coordinated inland routes may provide a credible and efficient alternative for transport solutions between Asia and Europe.

Today, a number of transnational companies operating in China have established their factories there in search of low-cost labour and expanded market. Sometimes those factories are situated thousands of kilometres from the coast. With Europe being one of the largest markets for Chinese goods, shipping high-value goods by airplane from Chongqing or other inland cities to Europe is as expensive as using the maritime transport, which in its turn takes a much longer time (up to 40 days). An example is the Hewlett-Packard (HP) factory established in Chongqing that produces notebook computers. Chongqing is one of the world's largest and fastest-growing metropolises, while goods produced there are still exported primarily by ocean routes. It takes about 3 days just to transport containers from Chongqing to a Chinese seaport.[1] There is an alternative international freight-train network, successfully used by HP, linking China to Europe. Since 2011, HP has transported 2 566 containers, 5 million HP products along the 11,179 kilometre rail route. It starts in Chongqing and crosses Kazakhstan, Russia, Belarus and Poland before reaching Duisburg in Germany.[2] HP plannes to shift more shipments from sea freight, and especially from airfreight, to rail, according to the confirmation by HP.[3]

[1] Weiler, B. (2012). *Via Containerzug auf alternativer Transportroute zwishen China une Europa*, Pressemitteilung DB Schenker.

[2] Roberts, D., Meyer, H. and Tschampa, D. (2012). *The Silk Railroad of China-Europe Trade*. Bloomberg Businessweek, Global Economics.

[3] http://www.bloomberg.com/video/a-look-at-hp-s-modern-day-silk-road-gbnpU_u2RmStkYkzvGBIZg.html

HP TransEurAsia Railway, July 2013
Media Relations, www.hp.com/go/newsroom

The first pilot overland transport was launched in March 2011, and after 10 test runs and process optimization exercises, the rail operating model was completed March 2012. The train begins in Chongqing, China, travels through Kazakhstan, Russia and Belarus and ends in Western Europe. This southern route, pioneered by HP, decreases the transit time needed to reach Europe by 30 percent, in comparison to ocean transit, which takes 32 days from the coastal cities.

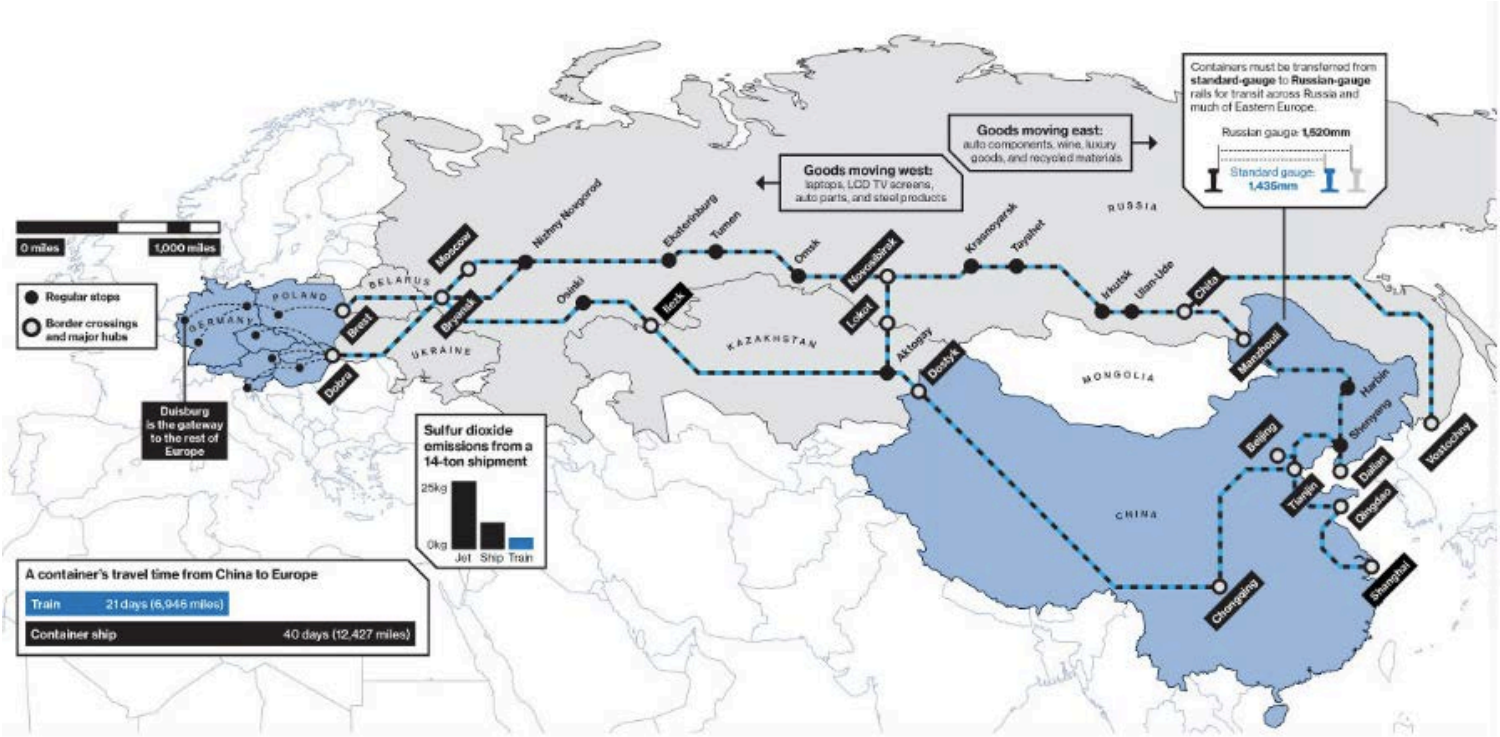
The railway has a competitive advantage for HP, as it is much quicker than sea transport and less expensive than air transport. However, there were several challenges with the TransEurAsia railway. First, there is a need to protect the products during the winter and to extend the time of use of rail transport. Nowadays, the train is running 9 months of the year, but HP is working on a "winterization" strategy that will enable trains to operate year-round. Once that is completed, targeted for the end of 2013, some shipments would move from sea and air to rail. Another challenge is coordinating a railway that spanned multiple countries, as national railways are run by national governments, each with their individual regulations and priorities. To help solve this, there is a need to work closely with partners in logistics and with many government entities.

Railways freight costs are higher than ocean's freight prices, but rail's primary advantage is its transport time.[4] Railway transport from terminal to terminal is roughly twice as fast as shipping by ocean-going vessel. Overland railway transport also pays off for bulk products that need to be transported quickly but at a lower cost than that of air freight (Annex 1). Two routes are used for the exchange of goods depending on the destination: a northern route along the Trans-Siberian Railway and via northern Mongolia or a southern route via Kazakhstan (Figure 1.1). The 10,000 to 12,000 kilometre journey takes 20 to 23 days. The additional cost and time is due to various kinds of gauges in different countries. Each train must hereby undergo at least two changes of gauge during the journey. China uses the same gauge as Europe (1,485 mm), while Belarus, Russia, Mongolia and Kazakhstan use broad gauge (1,520 mm). Successful development of an alternative transport

[4] Euro-Asian Transport Linkages, Phase II, Expert Group Report (2012). Available from: http://www.unece.org/fileadmin/DAM/trans/main/eatl/docs/EATL_Report_Phase_II.pdf. (Accessed on 10/07/2013).

route depends on intergovernmental cooperation, as well as on physical and non-physical obstacles to efficient transit and transparent border crossing operations.[5]

Figure 1.1 – Alternative to Trans-Siberian Railway, from Chongqing, China to Duisburg, Germany



Source: http://www.businessweek.com/articles/2012-12-20/the-new-silk-road (Accessed on 10/07/2013).

The document proceeds as follows. Section 2 describes the state of freight transport links between Europe and Asia with a particular focus on landlocked countries. Section 3 attempts to identify an alternative approach to freight transportation by land. Finally, Section 4 draws conclusions on implications for regional cooperation.

2. FROM LANDLOCKED TO "LAND-LINKED" CENTRAL ASIAN COUNTRIES

The countries of Central Asia have always been a land bridge along the major commercial routes between Europe and Asia. Euro-Asian trade has been the economic backbone of Central Asia for centuries. The Silk Road trade brought wealth and prosperity to the region. The disruption of transport along the ancient trade routes brought stagnation

[5] Lampe, K. And Stölzle, W. (2012). *Voies de transport pour les échanges Asie-Europe: sommes-nous armés pour l'avenir ?* La vie économique. Revue de politique économique 9-2012., pp. 31-35.

and reduced opportunities for economic development to the region with a long-lasting negative impact. Over time, a number of commercial cities faded away with the loss of their prominence they once held along the Silk Road.

Nowadays, 80% of world's trade is carried out through some 30 increasingly saturated and polluted ports. Physical isolation from main maritime trade flows has blocked the economic development of landlocked countries.[6] As no continental country is locked to road transport, recreating ancient Silk Roads for international trade seems to be a viable alternative for trade between Asia and Europe (Annex 1). Success of Central Asia hub strategy largely depends on the ability of the countries in the region to attract some of the Euro-Asian continental container trade by creating alternative and competitive intermodal transportation and logistics networks across Eurasia.[7]

Following the global credit crunch (2008-2009), world trade has bounced back. The highest surge in the volume of exports ever was recorded in developing economies and the Commonwealth of Independent States (CIS) (Table 2.1).[8]

[6] International Road Transport Union Report (2012). Available from: http://www.iru.org/cms-filesystem-action?file=mix-publications/E-0308%20AR-2013%20ru.pdf. (Accessed on 10/07/2013).

[7] Ziyadov, T. (2011). *Strategic Assessment of Euro-Asian Trade and Transportation. Azerbaijan as a Regional Hub in Central Eurasia.* Available from: https://www.wikileaks.org/gifiles/attach/37/37202_Azerbaijan%20as%20a%20Regional%20Hub%20in%20Central%20Eurasia_TZiyadov_new.pdf. (Accessed on 10/07/2013).

[8] WTO, International Trade Statistics (2012). Available from: http://www.wto.org/english/res_e/statis_e/its2012_e/its12_world_trade_dev_e.pdf. (Accessed on 10/07/2013).

Table 2.1 – Intra- and inter-regional merchandise trade, 2011

(Billion dollars and percentage)							
	Destination						
Origin	North America	Europe	CIS	Africa	Middle East	Asia	World
Value							
World	**2923**	**6881**	**530**	**538**	**672**	**5133**	**17816**
Europe	480	4667	234	199	194	639	6612
Commonwealth of Independent States (CIS)	43	409	154	12	24	117	789
Asia	906	922	110	152	242	2926	5538
Share of regional trade flows in each region's total merchandise exports							
World	**16.4**	**38.6**	**3.0**	**3.0**	**3.8**	**28.8**	**100.0**
Europe	7.3	70.6	3.5	3.0	2.9	9.7	100.0
Commonwealth of Independent States (CIS)	5.5	51.8	19.5	1.6	3.0	14.8	100.0
Asia	16.4	16.7	2.0	2.8	4.4	52.8	100.0
Share of each region's exports in world merchandise exports to the region							
World	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Europe	16.4	67.8	44.2	37.1	28.9	12.4	37.1
Commonwealth of Independent States (CIS)	1.5	5.9	29.1	2.3	3.5	2.3	4.4
Asia	31.0	13.4	20.8	28.3	36.0	57.0	31.1
Share of regional trade flows in world merchandise exports							
World	**16.4**	**38.6**	**3.0**	**3.0**	**3.8**	**28.8**	**100.0**
Europe	2.7	26.2	1.3	1.1	1.1	3.6	37.1
Commonwealth of Independent States (CIS)	0.2	2.3	0.9	0.1	0.1	0.7	4.4
Asia	5.1	5.2	0.6	0.9	1.4	16.4	31.1

Source: WTO, International Trade Statistics, 2012. Available from: http://www.wto.org/english/res_e/statis_e/its2012_e/its2012_e.pdf. (Accessed on 10/07/2013).

In the recent years, one can observe an increase of purchasing power of the growing middle class in Asia. The demand has highly increased in particular for the textile, luxury items and vehicles. It explains why the trade imbalance between Asia and Europe has decreased. Trade between Europe and Asia, in particular China, has bounced back after 2008 and several slack years following global financial crisis. (Example of China: Figure 2.1 and 2.2).

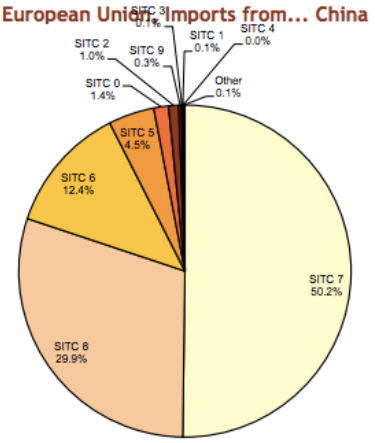
EU-China trade has increased mostly in recent years. China is by far the EU's biggest source of imports, and it has also become one of the EU's fastest growing export market. China's accession to the WTO in 2001 was an important driver in this direction. It required China to take important reforms and liberalize part of its economy. While China has made a noted progress in implementing its WTO commitments, there are still many outstanding issues, in particular discrimination against foreign companies, a strong degree of government intervention and unequal access to subsidies.[9]

[9] EU Ambassador Pangratis' statement of 12 June 2012 at China's WTO TPRM. Available from: http://trade.ec.europa.eu/doclib/docs/2012/june/tradoc_149542.pdf (Accessed on 23/07/2013).

Figure 2.1 – Goods traded between Europe and China, 2012

European Union, Imports from... China

SITC Codes	SITC Sections	Value (Millions of euro)	Share of Total (%)	Share of total EU Imports
	TOTAL	289,915	100.0%	16.2%
SITC 7	Machinery and transport equipment	145,561	50.2%	32.2%
SITC 8	Miscellaneous manufactured articles	86,715	29.9%	39.6%
SITC 6	Manufactured goods classified chiefly by material	35,976	12.4%	21.4%
SITC 5	Chemicals and related prod, n.e.s.	12,931	4.5%	8.0%
SITC 0	Food and live animals	4,166	1.4%	4.9%
SITC 2	Crude materials, inedible, except fuels	2,832	1.0%	4.0%
SITC 9	Commodities and transactions n.c.e.	760	0.3%	1.0%
SITC 3	Mineral fuels, lubricants and related materials	315	0.1%	0.1%
SITC 1	Beverages and tobacco	158	0.1%	2.1%
SITC 4	Animal and vegetable oils, fats and waxes	74	0.0%	0.8%

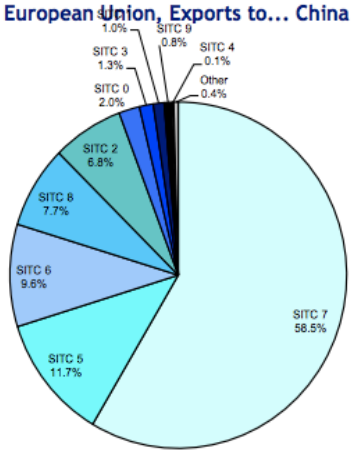


Source: Based on Eurostat data. Available from: http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113366.pdf. (Accessed on 10/07/2013).

Figure 2.2 – Goods traded between Europe and China, 2012

European Union, Exports to... China

SITC Codes	SITC Sections	Value (millions of euro)	Share of Total (%)	Share of total EU Exports
	TOTAL	143,874	100.0%	8.5%
SITC 7	Machinery and transport equipment	84,150	58.5%	11.9%
SITC 5	Chemicals and related prod, n.e.s.	16,840	11.7%	6.1%
SITC 6	Manufactured goods classified chiefly by material	13,754	9.6%	6.7%
SITC 8	Miscellaneous manufactured articles	11,089	7.7%	6.3%
SITC 2	Crude materials, inedible, except fuels	9,830	6.8%	22.9%
SITC 0	Food and live animals	2,871	2.0%	4.1%
SITC 3	Mineral fuels, lubricants and related materials	1,917	1.3%	1.5%
SITC 1	Beverages and tobacco	1,488	1.0%	5.1%
SITC 9	Commodities and transactions n.c.e.	1,135	0.8%	2.3%
SITC 4	Animal and vegetable oils, fats and waxes	182	0.1%	3.9%



Source: Based on Eurostat data. Available from: http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113366.pdf. (Accessed on 10/07/2013).

Table 2.2 – Distribution of EU-China Trade by Mode of Transport in 2012 (in € and %)

	TOTAL	Percentage
EU-27	€ 434,5 billion	100%
by Sea	€ 268 billion	62%
by Air	€ 99,8 billion	23%
by Rail	€ 1,7 billion	0,4%
by Road	€ 31 billion	7%
*Other**	€ 34 billion	7,6%

Other (Unknown, Post, Fixed Mechanism, Inland Waterway, and Self Propulsion)*

Source: Based on Eurostat data.
Available from: http://epp.eurostat.ec.europa.eu/newxtweb/mainxtnet.do. (Accessed on 10/07/2013).

Over the past years, EU-China trade has tripled in value, increasing from €101 billion in 2000 to €297 billion in 2009 and exceeding €434,5 billion in 2012, according to the recent data from Eurostat (Table 2.2). In terms of volume, in 2012, a total of 90,6 million tons of goods were exchanged between EU and China (Table 2.3). The major part of export and import was transported by sea. In terms of value, the total EU-China maritime trade represented 62% of the total trade volume, or €268 billion out of €434,5 billion in 2012.

Table 2.3 – EU-China Trade by Volume and Mode of Transport (in tons)

Exports to China	2006	2007	2008	2009	2010	2011	2012
EU-27	21 441,020	23 274,661	26 165,257	33 074,129	32 763,233	39 613,680	40 798,054
by Sea	19 111,954	20 728,822	24 619,995	31 248,911	30 964,818	37 950,799	39 356,811
by Air	288,120	318,785	340,441	341,111	569,419	608,815	530,548
by Rail	209,788	191,385	133,802	261,741	194,569	122,269	83,205
by Road	1 328,491	1 632,918	984,050	1 068,382	981,353	873,584	706,580
*Other**	502,667	402,751	86,969	153,984	53,074	58,213	120,910
Imports from China	2006	2007	2008	2009	2010	2011	2012
EU-27	59 785,557	77 151,711	67 184,012	45 118,355	53 586,490	57 031,662	49 835,647
by Sea	50 805,154	68 217,326	59 297,255	39 191,688	47 669,628	50 039,458	43 394,055
by Air	879,138	1 098,632	900,961	810,505	1 087,719	1 016,595	914,957
by Rail	378,733	519,226	452,855	275,426	347,114	331,099	248,403
by Road	3 172,514	3 408,525	3 119,978	2 229,522	3 138,398	3 182,665	2 524,283
*Other**	4 550,018	3 908,002	3 412,963	2 611,214	1 343,631	2 461,845	2 753,949
TOTAL	81 226,577	100 426,372	93 349,269	78 192,484	86 349,723	96 645,342	90 633,701

Other (Unknown, Post, Fixed Mechanism, Inland Waterway, and Self Propulsion)*

Source: Based on Eurostat data
Available from: http://epp.eurostat.ec.europa.eu/newxtweb/mainxtnet.do. (Accessed on 10/07/2013).

Despite of the advantageous costs of maritime transport, the rail freight rates are becoming competitive and lower than the sea-air freight rates. While direct air transportation remains the fastest mode of cargo shipment between China and Europe, it is also the most expensive. The ship-air combination is 50% cheaper than the direct air option, and delivery time is about 10-12 days.[10] The sea shipping costs are almost 50% lower than railways, transport takes longer time, but deliveries are more reliable. However, a recent comparative study carried out on nine routes, both sea and rail, has made many countries realise that rail still had significant potential to optimize costs and travel time (Table 2.4).[11]

Table 2.4 – Shipping time (in days) and cost (in euros) for a container carried on nine routes, sea and rail, across Eurasia

Routes	Rail		Sea	
	Cost	*Time*	*Cost*	*Time*
Krasnodar (Russia) - Kaliningrad (Russia)	**1 153**	**2,9**	3 652	9,4
Khabarovsk (Russia) - Potsdam (Germany)	5 037	**14,2**	**4 723**	24,5
Ussurlysk (Russia) - Kiev (Ukraine)	**4 235**	**12**	4 548	19,3
Shanghai (China) - Warsaw (Poland)	6 461	**18,6**	**4 564**	23,7
Hangzhou (China) - Kaluga (Russia)	**3 408**	**11,5**	4 906	26
Morvarld (Iran) - Pushkin (Russia)	4 621	**10,6**	**2 394**	15,6
Almaty (Kazakhstan) - Istanbul (Turkey)	4 252	**10,4**	**3 594**	28
Tashkent (Uzbekistan) - Varna (Bulgaria)	**4 299**	**6,9**	5 459	22
Vesoul (France) - Kaluga (Russia)	**1 523**	**4,2**	4 556	6,8

Source: Based on SNCF data

SNCF Connections No 5 October - November 2011, p. 34. Available from: http://www.connections.sncf.com/images/stories/Mag/05/eMagazineSNCF_fr_05.swf (Accessed on 14/07/2013).

[10] Bauer, K. (2008). *Is there a Market for a Container Train China-Western Europe?* Railway Market – CEE Review N 1.

[11] SNCF Connections No 5 October - November 2011, p. 34. Available from: http://www.connections.sncf.com/images/stories/Mag/05/eMagazineSNCF_fr_05.swf (Accessed on 14/07/2013).

In five of the nine scenarios analysed, rail transport performed better than maritime transport, both in terms of costs and time. However, in all nine scenarios, rail transport performed better than maritime transport as concerns time. The comparison study of euro-asian inland transport with existing maritime routes showed that Euro-Asian rail transport and its combination with maritime and road transport is a competitive transport option. The establishment of an efficient corridor management, governments' cooperation and rail companies' effective responses to market needs are prerequisites to guaranteeing regular and efficient rail services along the EATL routes.

Transportation costs are a barrier that may reduce trade. The costlier the transportation the more it prohibits and 'taxes' trade in a similar way that tariffs do. Transport costs and connectivity are crucially important for the trade competitiveness. High transport costs constrain the ability of landlocked countries to compete effectively in global market. The result is that they trade less and become marginalized in the world economy.[12]

The rail transport from China and the Asia-Pacific region has the potential to offer a promising alternative to the sea-air option, if it can lower prices and offer a reliable and efficient service. Reliability and delivery times are common issues in rail transport since it often involves crossing a number of countries with different legal regimes and gauge standards.

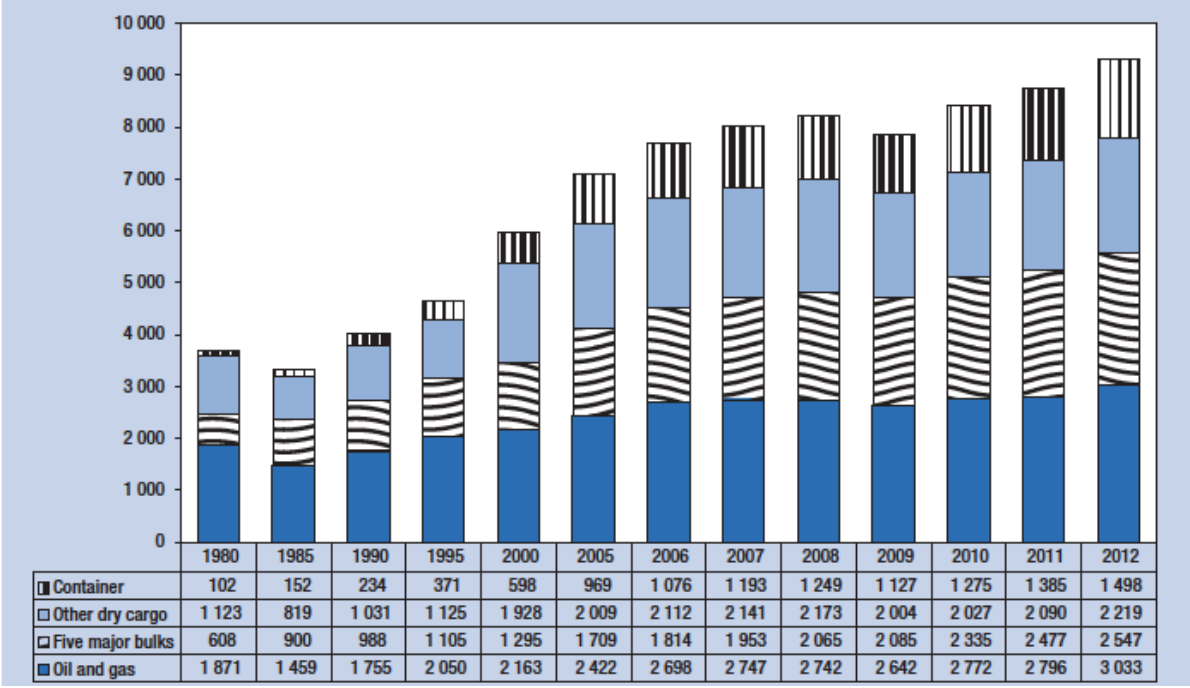
3. PRINCIPAL EUROPEAN SEA ROUTES AND EMERGING OF TRANSCONTINENTAL RAIL ROUTES

The world seaborne trade held steady in 2011 and grew by 4% compared to 2010, with total volumes reaching a record 8,7 billion tons (Figure 3.1). This expansion was driven by rapid growth in dry cargo volumes. Geographically, Asia maintained its lead position as an exporter and continued to fuel world seaborne trade with its share of goods loaded amounting to 39% and that of goods unloaded reaching 56% (Figure 3.2).[13] The share of unloaded goods is higher because of the fact that an important part of trade in Asia is related to the re-export business.

[12] The way to the Ocean. Transit corridors servicing the trade of landlocked developing countries. Transport and Trade Facilitation, Series N 4. UNCTAD.

[13] United Nations Conference on Trade and Development (2012). Review of Maritime Transport. Available from: http://unctad.org/en/PublicationsLibrary/rmt2012_en.pdf. (Accessed on 10/07/2013).

Figure 3.1 – International seaborne trade, by cargo type, selected years (Millions of tons loaded)



	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Container	102	152	234	371	598	969	1 076	1 193	1 249	1 127	1 275	1 385	1 498
Other dry cargo	1 123	819	1 031	1 125	1 928	2 009	2 112	2 141	2 173	2 004	2 027	2 090	2 219
Five major bulks	608	900	988	1 105	1 295	1 709	1 814	1 953	2 065	2 085	2 335	2 477	2 547
Oil and gas	1 871	1 459	1 755	2 050	2 163	2 422	2 698	2 747	2 742	2 642	2 772	2 796	3 033

Source: UNCTAD *Review of Maritime Transport*. For 2006-2012, the breakdown by type of dry cargo is based on Clarkson Research Services' *Shipping review and Outlook*, various issues. Data for 2012 are based on a forecast by Clarkson Research Services in *Shipping Review and Outlook*, spring 2012. Available from: http://unctad.org/en/PublicationsLibrary/rmt2012_en.pdf. (Accessed on 10/07/2013).

The growth in maritime transport became increasingly concentrated in both Europe and Asia in just a few major maritime hubs, partly because of the increase in vessel size.[14] However, there is a growing concern over congestion and saturation problems because of the land access to seaports. In this situation, further diversification and the opening of new routes for transport between Europe and Asia seems to be warranted.[15]

[14] http://www.joc.com/sites/default/files/u48783/pdf/Top50-container-2012.pdf. (Accessed on 10/07/2013).

[15] Transport Links between Europe and Asia. European Conference of Ministers of Transport (2006).

Table 3.1 – Top 20 Ports, ranked by increase ratio, 2002 and 2011 (1000 twenty-foot equivalent units, TEU)

Rank	Port	Country	2002	2011	10 Y Growth Rate (2002/2011)
1	Ningbo	China	1,860	15,220	818%
2	Guangzhou	China	2,180	14,250	654%
3	Tianjin	China	2,410	11,500	477%
4	Dalian	China	1,352	6,351	470%
5	Qingdao	China	3,410	13,020	382%
6	Xiamen	China	1,750	6,461	369%
7	Shanghai	China	8,610	31,700	368%
8	Dubai	UAE	4,194	13,000	310%
9	Shenzhen	China	7,614	22,570	296%
10	Tanjung Pelepas	Malaysia	2,660	7,500	282%
11	Port Klang	Malaysia	4,533	9,603	212%
12	Rotterdam	Netherlands	6,506	11,876	183%
13	Antwerp	Belgium	4,777	8,664	181%
14	Singapore	Singapore	16,800	29,937	178%
15	Busan	Korea	9,453	16,140	171%
16	Hamburg	Germany	5,374	9,040	168%
17	Long Beach	USA	4,526	6,100	135%
18	Los Angeles	USA	6,106	7,940	130%
19	Hong Kong	China (SAR, HK)	19,144	24,400	127%
20	Kaohsiung	Taiwan, Province of China	8,493	9,636	113%
S. Total			121,752	274,908	226%
Share among Total (%)			40%	51,6%	
World Total			276,553	532,736	193%

1) Source: "Containerisation International Yearbook 2012", "2012-Container Management"
2) Highlighted ports are ones achieved more than 200% increase in 10 years
3) World Total 2011 was estimated from UNCTAD data "Review of Maritime Transport 2012"

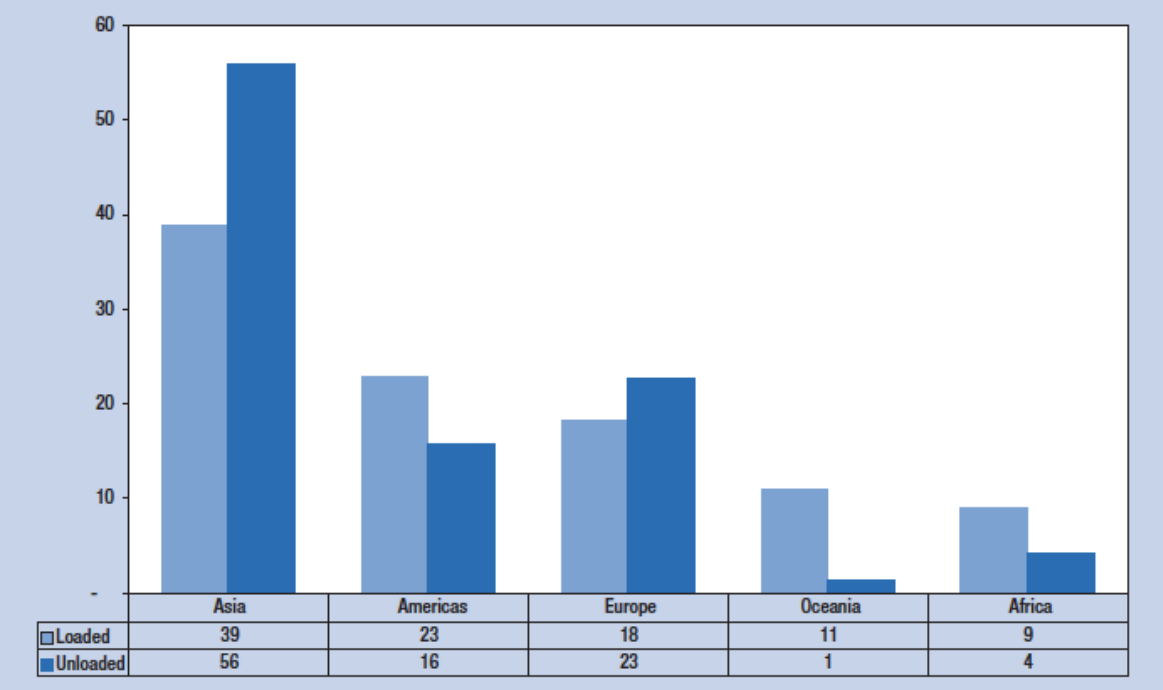
Source: http://www.iaphworldports.org/LinkClick.aspx?fileticket=ZsGh4Ku0SSE%3D&tabid=4879 (Accessed on 10/07/2013).

Europe's traditional ports, such as Rotterdam, Hamburg, Antwerp, Bremen, Valencia, are keys in the efficient transport of bulky goods between Europe and the other continents. Over two thirds of Europe's external trade by value passes through its ports (Table 3.1). European container port system cannot be considered as a homogenous set of ports. It features established large ports, as well as different kind of medium-sized and small ports each with specificities in terms of transshipment incidence and the hinterland markets characteristics.[16] Yearly increase in the trade of goods needs specific port infrastructure developments or an alternative way of transport. Rail routes currently play a limited role,

[16] Notteboom, T. (2013). *Recent traffic dynamics in the European container port system*. Port Technology international, Issue 58, 2013. Available from: http://www.porteconomics.eu/component/docman/doc_download/544-pti-2013-issue-58-european-container-port-system-notteboom.html. (Accessed on 10/07/2013).

and are hampered by a lack of investment, variable track infrastructure among countries and different legal systems.

Figure 3.2 – World seaborne trade, by region, 2011 (percentage share in world tonnage)



	Asia	Americas	Europe	Oceania	Africa
Loaded	39	23	18	11	9
Unloaded	56	16	23	1	4

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries, and data obtained from the relevant government, port industry and other specialist websites and sources. Available from: http://unctad.org/en/PublicationsLibrary/rmt2012_en.pdf. (Accessed on 10/07/2013).

With a total maritime container throughput of an estimated 95,2 million TEU in 2012, the European container port system ranks among the busiest in the world. Growth has been particularly important in the period from 2005 to 2007 with an average annual growth rate of 10.5%. However the economic crisis, started in 2008, halted this strong growth. Total container throughput increased from 90.7 million TEU in 2008 to 95.2 million TEU in 2012, or an average annual growth of 1.26%. About 68% of total container throughput in the European port system passes through the top 15 ports (Table 3.2). Nearly one third of all containers are handled by the top 3 ports: Rotterdam, Hamburg and Antwerp.

Table 3.2 – Top 15 of the largest container ports in the European Union (in 1000 TEU)

2000	2005	2008	2009	2010	2011	2012	R
6275 Rotterdam	9287 Rotterdam	10784 Rotterdam	9743 Rotterdam	11147 Rotterdam	11877 Rotterdam	11900	1
4248 Hamburg	8088 Hamburg	9737 Antwerp	7310 Antwerp	8468 Hamburg	9014 Hamburg	8864	2
4082 Antwerp	6488 Antwerp	8664 Hamburg	7008 Hamburg	7896 Antwerp	8664 Antwerp	8635	3
2793 Bremen	3736 Bremen	5448 Bremen	4565 Bremen	4888 Bremen	5915 Bremen	6115	4
2752 Gioia Tauro	3161 Valencia	3597 Valencia	3654 Valencia	4207 Valencia	4327 Valencia	4470	5
2653 Algeciras	2937 Gioia Tauro	3468 Algeciras	3043 Felixstowe	3415 Algeciras	3603 Algeciras	4071	6
2009 Felixstowe	2700 Algeciras	3324 Felixstowe (*)	3021 Gioia Tauro	2851 Felixstowe	3249 Felixstowe (*)	*3200*	7
1501 Le Havre	2287 Felixstowe (*)	3200 Gioia Tauro	2857 Algeciras	2807 Marsaxlokk	2360 Piraeus	2734	8
1465 Valencia	2100 Barcelona	2569 Marsaxlokk	2330 Zeebrugge	2499 Gioia Tauro	2338 Gioia Tauro	2721	9
1388 Barcelona	2096 Le Havre	2502 Zeebrugge	2328 Marsaxlokk	2370 Le Havre	2215 Marsaxlokk	2540	10
1310 Genoa	1625 Marsaxlokk	2337 Le Havre	2234 Le Havre	2358 Zeebrugge	2207 Le Havre	2304	11
1161 Piraeus	1450 Zeebrugge	2210 Barcelona	1801 Barcelona	1931 Barcelona	2014 Genoa	2065	12
1064 Marsaxlokk	1408 Genoa	1767 Southampton (*)	1600 Genoa	1759 Genoa	1847 Zeebrugge	1953	13
1033 Southampton	1395 Southampton (*)	1710 Genoa	1534 Southampton	1566 Piraeus	1680 Barcelona	1750	14
965 Zeebrugge	1309 Constanza	1380 La spezia	1046 La spezia	1285 Southamption	1588 Southamption (*)	*1600*	15
34698 TOP 15	50067 TOP 15	62697 TOP 15	54072 TOP 15	59447 TOP 15	62898 TOP 15	64922	
51000 TOTAL Europe	73729 TOTAL Europe	90710 TOTAL Europe	78011 TOTAL Europe	86485 TOTAL Europe	92677 TOTAL Europe (est.)	95220	
12.3% Share R'dam	*12.6% Share R'dam*	*11.9% Share R'dam*	*12.5% Share R'dam*	*12.9% Share R'dam*	*12.8% Share R'dam*	*12.5%*	
28.6% Share top 3	*32.4% Share top 3*	*32.2% Share top 3*	*30.8% Share top 3*	*31.8% Share top 3*	*31.9% Share top 3*	*30.9%*	
57.2% Share top 10	*58.2% Share top 10*	*58.8% Share top 10*	*58.8% Share top 10*	*58.4% Share top 10*	*57.8% Share top 10*	*58.0%*	
68.0% Share top 15	*67.9% Share top 15*	*69.1% Share top 15*	*69.3% Share top 15*	*68.7% Share top 15*	*67.9% Share top 15*	*68.2%*	

Source: Based on statistics induvidual port authorities. Available from: http://www.porteconomics.eu/component/docman/doc_download/544-pti-2013-issue-58-european-container-port-system-notteboom.html. (Accessed on 10/07/2013).

The prominence of noth European ports is a result of centuries of historic trading between Europe and Asia. The North Sea became the preferred entry and exit point for goods. This led to growth in manufacturing and production with a high concentration of population and GDP in Europe centred around Benelux, France, Germany and the United Kingdom. In contrast, ports in Eastern Europe and Mediterranean are smaller and focus on trade that covers smaller geographical area.

The geographic and geo-economic location of Eurasian countries gives them significant strategic potential for overland freight transit. Analysts estimate that the region's total potential transit capacity is about 220 million tonnes and it is expected to increase to 400 million tonnes by 2020.

There are three main East-West corridors connecting Asia to Europe via Central Asia: the Central Corridor (TRACECA) via the South Caucasus; the Northern Corridors (Trans-Eurasian Express (TEE), Trans-Siberian Railway (TSR) and Trans-Kazakhstan Route) across Russia and Central Asia; and the Southern Corridor that runs through Iran. Projects to construct or modernise transport infrastructure are exceptionally capital-intensive. Trade barriers emerging at border crossings made the countries dependent on their neigbours for international trade and transportation. Therefore, the region's countries must identify the priorities for their concerted action in order to maximise transit potential and support integration. The transport capacity of Trans-Asian railway is not fully utilised (Table 3.3).

Table 3.3 – Agregate transit potential of EurAsEC member countries (million tonnes)

	2006	Used in 2006	2020
Belarus	100	50 (50%)	150
Kazakhstan	36	10 (28%)	100
Kyrgystan	3.8	1.9 (50%)	6.5
Russia	80	54 (68%)	150
Tajikistan	0.2	0.18 (90%)	0.5
Aggregate potential of EurAsEC	220	115.8 (51%)	470

Source: EurAsEC Integration Committee estimates.

Vinokurov, E., Jadraliyev, M. and Shcherbanin, Y. (2009). *The EurAsEC Transport Corridors. Sector Report.* Almaty: Eurasian Development Bank.

The EurAsEC Integration Committee's estimate shows that EurAsEC countries do not utlise their transit capacity to the full. Since total potential capacity in 2006 is expected to double in 2020, the most urgent question is whether or not EurAsEC will be able to exploit this opportunity properly. Therefore, country governments have adopted numerous national transport development programmes aimed at addressing the most urgent problems facing the transport sector. Specefic interests include constructing new and rehabilitating existing national roads and railways, improving technical facilities and establishing intermodal logistics centers.

Any country aiming to realise its transit potential must have a comprehensive and developed investment policy which adresses all the elements required to ensure the effective functionning of its transport corridors (Table 3.4).

The "National Railway company "Kazakhstan Temir Joly" ("NC "KTZh") confirmed the project to build extra tracks to help handle the traffic. Kazakhstan forecasts that rail freight will grow to 7,5 million 40-foot containers by 2020, from just 2,5 transported from China to Europe. The construction of the railway line "Zhetygen-Korgas" is one of the largest projects of transport industry in Kazakhstan. The railway has a strategic importance, since its introduction opens second railway crossing between Kazakhstan and China. New railway "Zhetygen-Korgas" is an important step in the formation of the shortest rail lines from the border of China to the southern regions of Kazakhstan, Central Asia and the port of Aktau; it provides the solution to the following strategic objectives:

- Increase in the export potential of the country;

- Creation of a second transit by land towards Europe-Asia on the territory of the Republic of Kazakhstan;
- Significant reduction in the distance transportation of export and import cargoes.

Table 3.4 – Participation of EurAsEC countries in transport infrastructure projects until 2020

EurAsEC countries	Number of investment projects	Approximate project cost (in $ billion)
Belarus	4	1.5
Kazakhstan	5	8.7
Kyrgyzstan	2	0.42
Russia	56	40.52
Tajikistan	2	0.62
TOTAL:	69	51.76

Source: EurAsEC Integration Committee estimates.

Vinokurov, E., Jadraliyev, M. and Shcherbanin, Y. (2009). *The EurAsEC Transport Corridors. Sector Report.* Almaty: Eurasian Development Bank.

4. CONCLUSIONS

Despite the dominance of sea routes, long distance rail transport services could be considered as viable alternatives. However, the capacity, quality and timeliness of such services are hindered by current limits of rail infrastructure, border crossing procedures and different railway legal systems, and these remain the most important bottlenecks for competitive rail freight services between Europe and Asia. This hampers the efficiency of rail services through Russia, other CIS countries and some Baltic States. Infrastructure limitations (different track gauges), together with other non-physical obstacles, impose losses of time and increase in costs. For this reason, there is a need for cooperation on governmental level to harmonize standards and legislation.

Non-physical and physical barriers also reduce efficiency of the Euro-Asian road transport links. There are several technical and operational measures available to improve the efficiency of road transport, but many of these measures are currently not universally implemented such as:

- Protracted customs procedures at border crossing points;
- Random inspections requiring sealed transport containers to be opened;
- Non-harmonised transit tariffs across the CIS;

- Different visa regulations applicable to drivers.

Establishing efficient inland links between Europe and Asia is facing a number of issues. They can only be overcome by taking the appropriate policy decisions regarding the development of adequate transport infrastructure, removal of physical and non-physical barriers, and through intergovernmental cooperation that could foster the more rapid development of efficient transport services. Among many outstanding issues that require closer intergovernmental cooperation on road and rail transport services between Europe and Asia, due attention should be given to:

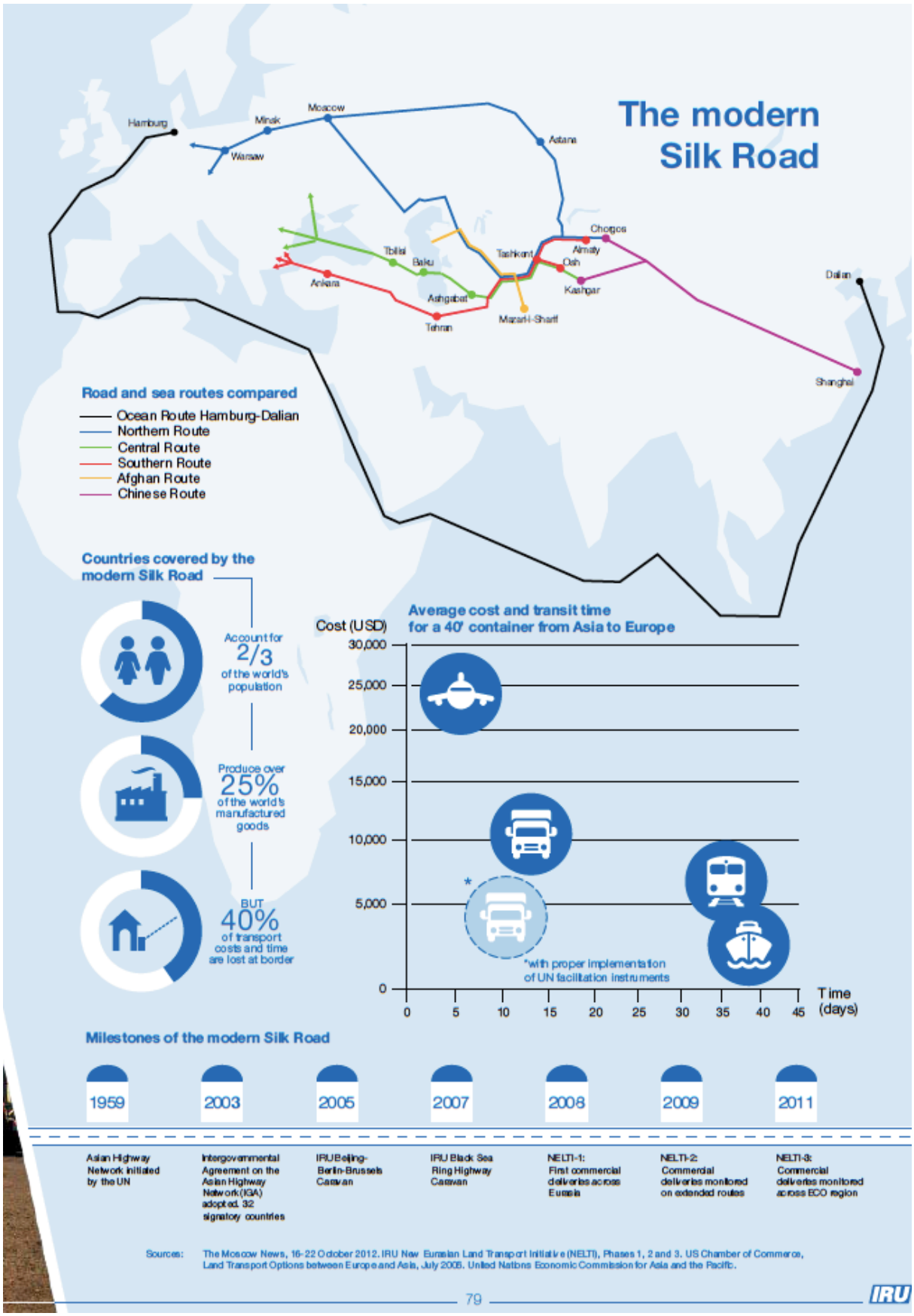
- Obsolete rolling stock and shortage of rail cars, containers and locomotives;
- Non-compliance of existing infrastructure and technology with international quality standards;
- Inefficient processing capacity at border crossing points;
- Poorly developed logistic and communications networks and road services facilities;
- Insufficient capacity for cargo handling and
- Different rail gauges.

There are numerous physical impediments in a long-distance rail transport from Asia to Europe. None the less, rail transport offers a viable alternative to maritime routes as demonstrated in the EATL Phase II Report (2012).[17] Economic analysis shows that in a number of cases land links can offer a viable alternative to sea transport, substantially improve the accessibility of the countries they pass through and absorb a substantial portion of the strong growth in traffic, particularly of containers, that have been forecasted.

Rail transport on Euro-Asian routes has the potential to be more competitive (time and cost). To meet the demand, operators have to improve their delivery time and service quality, while governments and investors need to modernize transport infrastructure and harmonise the legal environment. In the future, there will be a stronger competition between different transport modes. A decision of choosing railway freight transport between Europe and Asia will depend on travel time, costs, legal system, cargo types and environmental considerations.

[17] Euro-Asian Transport Linkages, Phase II, Expert Group Report (2012). Available from: http://www.unece.org/fileadmin/DAM/trans/main/eatl/docs/EATL_Report_Phase_II.pdf. (Accessed on 10/07/2013), *op. cit.*

Annex 1 – The modern Silk Road



Source: International Road Transport Union Report, 2012. Available from: http://www.iru.org/cms-filesystem-action?file=mix-publications/E-0308%20AR-2013%20en.pdf. (Accessed on 10/07/2013).