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**Identification of cargo flows on the Euro-Asian transport links**

### **Identification of cargo flows on the Euro-Asian transport links**

**Transmitted by the Organization for Security and Co-operation in Europe (OSCE)**

# **Euro Asian Transport Links**

## **Transport flows and non-physical barriers**

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Disclaimer: This paper uses the shorter country names Russia, China, Kyrgyzstan and Moldova instead of the official country names the Russian Federation, People's Republic of China, Kyrgyz Republic and Republic of Moldova for ease of reading. The contents of this document, the views, opinions, findings, interpretations and conclusions expressed herein are those of the author and contributors.

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ADB	Asian Development Bank
CA	Central Asia
CAREC	Central Asia Region Economic Cooperation (CAREC)
CIM	Uniform Rules concerning the Contract of International Carriage of Goods by Rail (CIM) - Appendix B to COTIF
CIS	Commonwealth of Independent States
COTIF	Convention concerning International Carriage by Rail
CCPMM	Corridor Performance Measurement and Monitoring
EATL	Europe-Asia Transport Links
ECU	Eurasian Customs Union
EEU	Eurasian Economic Union
GDP	Gross Domestic Product
IMF	International Monetary Fund
LPI	Logistics Performance Index
NDN	Northern Distribution Network
OIT	Intergovernmental Organisation for International Carriage by rail
OJSD	Organisation for Cooperation of international Railways
OSCE	Organization for Security and Co-operation in Europe
RZD	Russian Railways
SMGS	Agreement on international Goods Transport by Rail
TAB	Trading Across Borders
TAH	Trans Asia Highways
TAR	Trans Asia Railways
TCD	Time-Cost-Distance
TER	Trans Europe Railways
TER	Trans-European Railway (TER)
TEU	Twenty Foot Equivalent Unit (corresponds to 20 Foot Container)
CCTT	The Coordinating Council on Trans-Siberian Transportation
TIR	Transport International Routier
TRACECA	Transport Corridor Europe Caucasus Asia
TSR	Trans-Siberian Railway
TTC	Trade Transaction Costs
UNECE	United Nations Economic Commission for Europe
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNESCAP	United Nations Economic and Social Commission for Asia and Pacific
WB	World Bank
WTO	World Trade Organisation



## Introduction

There is a growing interest in trans-Eurasia transport links to accommodate rising freight traffic between Asia and Europe, to better connect the landlocked countries of Central Asia and Caucasus, and support their economic development. The *Almaty Programme of Action*<sup>1</sup> and the *Vienna Action Plan for landlocked developing countries (LDC)* call for addressing the special needs of LDCs in areas such as transit policy, trade facilitation and transport infrastructure as high transport trade transaction limit the possibilities of LDC to achieve their trade potential. The average time to export/import for LDC is still almost twice the time taken by transit countries with 47 days and 42 days respectively<sup>2</sup>. Increasingly so, cross-border rail and route networks are designed to increase and unlock the potential of overland transport as an alternative to maritime transport for the Euro-Asia freight transportation.

The Euro-Asia Transport Links (EATL) is a project implemented by UNECE that aims at promoting development of transport infrastructure links and removing physical and non-physical barriers on these links to better connecting the landlocked countries of Central Asia and the Caucasus, and to develop and offer alternative transport choices to the maritime transport between Asia and Europe.

Currently, maritime transport is the main mode of transportation for commodities from Asia, namely China, to European markets. The landlocked countries in Central Asia, the Caucasus and Eastern Europe rely mainly on road transportation for small intra-regional as well as long distance freight transport. Rail freight transport increasingly emerges as an alternative choice of transport mode. The term “New Silk Road” is commonly used to reflect the growing dynamic around the overland transport links between Europe and Asia.

Various studies and demonstration runs of container block-trains have been undertaken to assess the potential of the rail freight transport links. Rail freight transport can be a competitive transport alternative to maritime transport because it substantially reduces travel times on long distance routes. Its attractiveness is however impacted by persistent non-physical barriers, such as long border crossing delays, break of gauge, and the existence of two legal regimes applying to freight rail transport on the EATL routes.

Many different factors can influence the future transport demand on EATL routes and it is important to understand the characteristics and determinants of the transport flow on these routes. A quantitative analysis to assess future transport demand and the potential of shifting freight from road and sea to rail requires a major data collection effort for which national and international trade and transport data need to be combined. Such a quantitative analysis of the EATL is still outstanding.

This paper presents qualitative information based on a review of existing studies that summarises the characteristics of the current EATL cargo transport flows, its major determinant factors such as costs and time and availability of transport services, and non-physical barriers encountered by rail and road transport on these routes. It provides a general overview and discusses data availability and possible scope of a quantitative analysis of transport flows.

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<sup>1</sup> <http://unohrlls.org/about-lldcs/programme-of-action/>

<sup>2</sup> Numbers cited in United Nations General Assembly *Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024*, 3 November 2014 (A/CONF.225/L.1). Available at <http://www.lldc2conference.org/custom-content/uploads/2014/11/Vienna-Programme-of-Action1.pdf>



# 1 Quantitative analysis of logistics and transport networks

Cargo transport flows are generated by trade flows between economies or more specifically companies and markets. The choice of the transport mode and route to carry the goods between the different locations and partners depend on factors such as physical infrastructure, transport service availability, quality and security, travel times and costs, and is different for group of commodities and logistics network. There are different analytical approaches to assess transport demand in a given transport network. These approaches can look at aggregated trade and transport flows at national level, specific transport routes or corridor levels, or the company level.

## 1.1 Different analytical perspectives

### Macro-trade perspectives

The macroeconomic perspective looks at forecasting trade flows based on the analysis of current and historical trade. Gravity equation models are a tool used to analyse the importance of various factors, such as distance and preferential trade agreements and transport costs for the trade flows and to simulate how a change in any of these factors would impact the overall volume of future trade flows. In recent years there is a growing academic literature discussing how much transport costs, the actual real transport costs, impact trade flows and which other factors can explain trade flows in addition to the distance factor, which is often used as a proxy for many other factors that are thought to have an effect.

### Corridor or route attractiveness perspective

There are also various corridor or transport route studies that look at assessing costs, efficiency, reliability and security of a particular transport route or corridor. Such models are often used to compare different routes. Commonly used methodologies are the TRAX methodology developed for TRACECA<sup>3</sup>, or the Time-Cost-Distance (TCD) model developed by UNESCAP<sup>4</sup>. They measure directly observable elements such as cost and time and may use trade data on an aggregate national level. Such corridor studies do not aim at assessing future transport demand on particular routes, but to measure the attractiveness of routes in taking into consideration multiple factors that impact transport performance.

### Transport network perspective

From the perspective of transport planning and investments, the important question is to understand how the demand for transportation will evolve in future and to develop forecast of future transportation flows their volume, structure and direction with the view to study infrastructure capacity needs and gaps, as well as socio-economic and environmental impact of the transport flows. Such transport models have been adjusted for freight transportation and used for cross border trade, combining various data including general socioeconomic data, infrastructure capacity and use, and freight demand.<sup>5</sup> Modal choice is one of the many factors that are looked at in such transport models to be able to determine current and future demand and utilisation levels for freight transportation and specific modes. For the

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<sup>3</sup> Transport Corridor Europe Caucasus and Asia. TRACECA route comprises the transport system of the 13 member-states of the "Basic Multilateral Agreement on International Transport for Development of the Europe-the Caucasus-Asia Corridor" (MLA TRACECA): Azerbaijan, Armenia, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Tajikistan, Turkey, Ukraine and Uzbekistan

<sup>4</sup> Studies that use the TCD are: UNECE, *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport*, (New York and Geneva, 2012) and UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries*. Landlocked Developing Countries Series No1 (New York 2003)

<sup>5</sup> A recognised and used model is the NEAC modal-split model, that was developed under the EU TRANS-TOOLS project and is used by the EU Commission in many researches regarding the transport market

modal choice estimations, data on existing transport flows is segmented into separate transport markets in accordance with specific factors such as availability of modes by distance and weight, and other physical factors. These modal choice models can be used at an aggregate national level and will generate a potential freight transport demand.

### Logistics network models

At the company level, logistics network models support supply chain decisions. Supply chains and logistics networks are designed to take into account many factors that are relevant to the company's business model and requirements, such as costs and customer service efficiency. When designing a logistics network, companies decide between different options on how to best structure the network. Transportation is an important factor in the logistics network as it accounts for a substantial share of the logistics costs<sup>6</sup> and can influence the performance of the entire network. Factors such as time, flexibility, reliability, security and costs impact decisions on transport carrier, modes and routes. Companies use different techniques and models to support the decision making process. These models either look at optimizing the total logistics chain or testing changes of different indicators and their impact on the chain. Models and the analysis are specific to each logistics chain and companies as they take into account the specifics of each supply chain.

#### 1.1.1 Data requirements

All models described above require substantive data collection from different sources. Trade, transport and infrastructure data needs to be combined. Examples of such data collection efforts at regional level by an UN organisation, is the "International transport database - Base de datos de Transporte Internacional" (BTI) database of UNECLAC that is been collected since more than 10 years<sup>7</sup>. Here is an overview of what data would be required, independent of any model.

- Basic economic country data that reflects the economic capacity and basic determinants of this capacity for the future. Such data includes data on economic size (GDP), population size, as well as indicators such as common language, common border, tariffs and tariff preferences and transport costs and distances. Transport costs and distances should ideally be based on real travel distances and not geographical calculated distances. Whilst those geographical distances can be used in maritime and air mode trade analysis, they are not sufficiently exact for overland transport where physical factors influence substantially the distances travelled. If available, the costs should be differentiated by mode on an aggregated level with variations for product types. Effects of non-physical barriers are also frequently converted into time or costs effects (see chapter 1.1.2 below) as delays at border crossings effectively amount to increasing the distance and costs of trading<sup>8</sup>.
- Bilateral trade data on a disaggregated level (min 6 digits), to allow for segmentation of trade flows by type of products. A historic dataset needs to be available if a forecast of future trade flows should be made.
- Transport flow and modal split data that consists of trade data by mode of transport and distance moved (tones per kilometer and value per kilometer). This data is needed to

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<sup>6</sup> The value and costs of transportation vary for different logistics networks in relation with the products and type of industry.

<sup>7</sup> [http://www.cepal.org/cgi-bin/getProd.asp?xml=/Transporte/noticias/bolfall/9/6019/P6019.xml&base=/publicaciones/top\\_publicaciones-i.xslt](http://www.cepal.org/cgi-bin/getProd.asp?xml=/Transporte/noticias/bolfall/9/6019/P6019.xml&base=/publicaciones/top_publicaciones-i.xslt) and [http://www.cepal.org/Transporte/noticias/bolfall/3/51853/FAL\\_325.pdf](http://www.cepal.org/Transporte/noticias/bolfall/3/51853/FAL_325.pdf) for a recent analysis of modal split in Latin America using BTI data.

<sup>8</sup> Hummels calculates that the addition of one day to shipping time between two countries reduces the probability that firms will produce for export by 1.0 per cent across all categories of goods and by 1.5 per cent for manufactures. David L. Hummels, "Toward a Geography of Trade Costs", 2001. Available at <http://krannert.purdue.edu/faculty/hummelsd/research/toward/TGTC.pdf>

understand the characteristics of existing transport flows—which products are moved over which distance by which mode (commodity, distance band, mode)—and to forecast future trade flows based on this data.

Transport flows need to be disaggregated on the commodity level as the route and mode is strongly correlated with the commodity characteristic such as volume, value and time sensitivity (see chapter 3.3. below). Ideally the transport flow data provides further details on change of transport mode en route, as well as exact loading and unloading locations.

- Specific data reflecting mode availability, infrastructure capacity and services. This dataset regroups qualitative information such as border closures, freight services interruptions or unavailability, or lack of physical connections by road, rail or water. All of these factors limit the availability of a specific mode on a specific route. They therefore need to be considered in a transport network analysis to test for changes if a mode or route would become available in future. It can also be integrated with trade models to reflect physical barriers to trade others than distance.

### 1.1.2 [Reflecting non-physical barriers in quantitative analysis](#)

Although many studies suggest that non-physical barriers have a significant impact on trade flows, it is challenging to use such factors in quantitative analysis<sup>9</sup>. Many of the non-physical barriers have a direct or indirect impact on the costs of a transaction, or the real travel times and therewith also the de facto distances. Some analytical distances therefore include a trade transaction costs (TTC) indicator to reflect the monetary equivalent effect of these non-physical barriers. But there are underlying difficulties to convert non-physical barriers and to collect and obtain cross-country data.

Non-physical barriers are usually measured directly through observations or surveys and need to be converted into quantitative data. This is usually done by using the costs and time quantitative equivalent in tariff rates or goods price<sup>10</sup>. While this is relatively easy for barriers that are directly measurable in terms of waiting times or monetary amounts paid, it is more difficult for other types of barriers such as transparency, availability of information, consultation, simplified procedures, and access to legal review. Another difficulty lies with the scope and definition of costs, as there are direct and indirect costs. Border crossing waiting times have primary costs of waiting—i.e. driver and fuel costs—but also secondary costs, such as inventory and depreciation costs and lower reliability through volatility in waiting times. There are also direct and indirect costs of formalities and procedures: the fees and charges levied for government formalities, as well as un-official payments are direct costs; preparation costs of staff salaries for running the formalities are indirect costs. And transport costs also can consist of various different costs factors (see chapter 2.4).

The final difficulty in measuring and analysing non-physical barriers stems from lack of available data that is truly comparable across countries. Two cross-country indexes are the Trading across borders (TAB) indicator of the Doing Business Studies of the World Bank (WB) and the Logistics Performance Index (LPI) also of the WB. But both are deemed to be too generic and are rather, if at all, used as general framework indicator then as proxy for non-physical barriers. The CAREC Corridor Performance Measurement and Monitoring (CCPMM)

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<sup>9</sup> For an overview of the different studies and discussion of the challenges see OECD *Overcoming Border Bottlenecks. The cost and benefits of TF*. Paris, 2009)

<sup>10</sup> Crossing the border, documentation and customs compliance requirements, lengthy administrative procedures and other delays can increase transaction costs an estimated 2 to 24% of the value of traded goods.

of the Asian Development Bank (ADB) for Central Asia Region Economic Cooperation (CAREC) corridors is one of the few systematic data collections on non-physical barriers.

The required data for a detailed quantitative analysis for EATL countries is at this stage not available. While all countries report their trade statistics, obtaining information on the transport mode, distance travelled etc. is not easily available and truly comparable. Given this limitation what follows is qualitative summary of available information and data that provide an overall picture of the characteristics and determinants of transport flow on the EATL routes.

## 2 Basic facts about EATL routes and EATL countries

The geographical space covered by the EATL routes stretches from the North and Baltic Sea in the North to the Mediterranean and the Indian Ocean in the South, Western Europe in the west and the coast of the Pacific Ocean in the east. Of the countries that currently participate in the EATL project, 11 belong to Commonwealth of Independent States (CIS). These countries are the three Eastern European states - Belarus, Moldova, and Ukraine, the five Central Asian states - Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan and Kazakhstan, two Caucasus republics - Armenia and Azerbaijan, and Russia. The EATL routes also cross four countries that do not belong to the CIS, China, Georgia, Iran, and Turkey, and connect those CIS and non-CIS countries to EU-28 countries, Afghanistan, Pakistan and Mongolia.

This paper does not cover all EATL project member countries<sup>11</sup>. Only those countries, which an EATL route crosses, have been identified, including all CIS countries, China, Georgia, Iran and Turkey.

### 2.1 Economic determinants

The economies of these 15 countries differ in size and industry composition. Most of the CIS countries have gone through transition from centrally planned to market economies, but the transformation processes are uneven, and Turkmenistan and Uzbekistan are only slowly opening up their markets. With Tajikistan's accession to the WTO in March 2013 eight CIS countries are now WTO members and five are observer members<sup>12</sup> (see table 1). Belarus, Kazakhstan and Russia form a Customs Union that is the central pillar of the single economic space of the Eurasian Economic Union (EEU or EAEU), and Kyrgyzstan and Armenia have signed accession agreements to this Customs Union. CIS countries have also signed multiple bilateral and multilateral trade agreements, such as the CIS Free Trade Agreement (CISFTA), with each other granting preferential treatment to their goods (see table 1).

With the exception of Turkey and China, the industry sector of the EATL countries is still heavily dependent on mining, processing of national resources and the production of related machinery and equipment. Several of the 12 EATL CIS countries are "oil exporters", meaning that energy commodities, such as oil or natural gas, account for a large share of their total exports<sup>13</sup>. China, Russia and Turkey are the biggest economies in the EATL network. In 2013, their combined GDP of 12'157'254 million US\$ represents 92% of the total economic activity of EATL countries.

CIS countries have seen a continued growth of their economic output in the past years. The Kyrgyz economy has grown by 10.5 per cent from 2010 to 2014, Turkmenistan by 10.2 per

<sup>11</sup> To see the list of current EATL project member countries, consult <http://www.unece.org/trans/main/eatl.html>

<sup>12</sup> Azerbaijan, Belarus, Kazakhstan, Iran and Uzbekistan are WTO observer members in accession

<sup>13</sup> These countries are; Russia (65,6% export shares are fuel and mining commodities), Kazakhstan (69,9%), Azerbaijan (94,1%), Iran (74,2%), Uzbekistan (55,2%) Armenia (43.7%), and Belarus (35,6) (WTO Trade Profiles 2013). No identical data is available for Turkmenistan, but it is an important exporter of natural gas, crude oil and oil products to Russia and 71,9% of its exports with EU of petroleum or petroleum products type.

cent and Uzbekistan by 8 per cent during the same period. Forecast for 2015 remain positive despite the expected negative impact of the low oil and gas prices and the recession of the Russian economy. The Caucasus and Central Asian (CCA) countries that are not “oil-exporters” are expected to have the strongest growth. The International Monetary Fund (IMF) projected a 4.9 per cent GDP growth rate for 2014 and 5.7 per cent for 2015 for CIS countries. Growth projections for Asia are also expected to be strong with China to grow by 7.5 per cent in 2014 and 7.3 per cent in 2015<sup>14</sup>.

As can be seen from table 2, Russia is not only the biggest economy of the CIS in terms of GDP but also in terms of merchandise trade. Russia’s exports accounted for 523’294 million US\$ in 2013, while Tajikistan only exported goods with a value of 1,163 million US\$. Armenia and Tajikistan have the lowest export and import volume, and are at the bottom of the export (117 and 123 rank respectively) and import ranking (106 and 108 rank respectively) established by the WTO.

**Table 1: List of bilateral or multilateral trade agreements (goods) 2014**

Countries	WTO	EEU <sup>15</sup>	CISFTA	EAEC <sup>16</sup>	Bilateral trade Agreements with EATL countries
Armenia (AM)	2003		Yes		KZ, MD, RU, TK, UK, GE, KZ
Azerbaijan (AZ)	Observer				RU, GE; UK
Belarus (BY)	Observer	Yes	Yes	Yes	UK, RU
China (CH)	2001				
Georgia (GE)	2000				AM, AZ, KZ, TR, TM, RU, UZ
Iran (IR)	Observer				
Kazakhstan (KZ)	Observer	Yes	Yes	Yes	AM, GE, UK, RU, KZ,
Kyrgyzstan (KY)	1998		Yes	Yes	AM, KZ, MD, RU, UZ, UK
Moldova (MD)	2001		Yes		KY, AM, UK, RU
Russia (RU)	2012	Yes	Yes	Yes	AM, GE, BY, AZ, KZ, MD, TJ, TK, UK, UZ,
Tajikistan (TJ)	2013		Yes	Yes	RU, UK
Turkey (TR)	1995				GE
Turkmenistan (TK)	No				AM, GE, UK, RU
Ukraine (UK)	2008				AM, GE, KY, AZ, BY, KZ, MD, RU, TJ, KZ, TK, TR, UZ
Uzbekistan (UZ)	Observer		Yes		KY, RU, UK

Source: Author compiled from several different sources on the internet, including WTO website notified trade agreements WTO membership.

<sup>14</sup> IMF, *World Economic Outlook 2014 Recovery Strengthens, remains uneven* (Washington D.C. 2014). Available at <http://www.imf.org/external/pubs/ft/weo/2014/01/pdf/text.pdf>. Accessed January 2015

<sup>15</sup> The Eurasian Economic Union came into being on 1.1.2015. It is the successor of the Eurasian Customs union (ECU) and the Eurasian Economic Community (EAEC).

<sup>16</sup> The Eurasian Economic Community was formed in 1996 by Belarus, Kazakhstan and Russia on 29 March 1996. Other countries joined later. A Common Economic Space for the community was launched on 1 January 2010. The EAEC is now dissolved and integrated into the EEU.

**Table 2: Main economic facts about the EATL countries, 2014**

Unit	Population	GDP	Trade to GDP ratio	Growth rate 2010-2014	Export (FOB) value	Import (CIF) value)	Exports Ranking (excl. Intra EU Trade)	Imports Ranking (excl. Intra EU Trade)
	Thousand	US\$ (million)	US\$ (million)		US\$ (million)	US\$ (million)		
<b>China</b>	1357380	9240270	51.9	7.7%	2209007	1949992	2	3
<b>Russian Federation</b>	143500	2096777	51.5	1.3%	523294	342980	7	11
<b>Iran</b>	77447	368904	44.5	-5.8%	82000	49000	31	36
<b>Turkey</b>	74933	820207	57.3	4.1%	151787	251650	22	13
<b>Ukraine</b>	45490	177431	108.9	1.9%	63312	76962	37	26
<b>Uzbekistan</b>	30241	56796	49.5	8.0%	12643	12998	60	64
<b>Kazakhstan</b>	17038	224415	72	6.0%	82512	48873	30	37
<b>Belarus</b>	9466	7170	147.7	0.9%	37232	42999	44	41
<b>Azerbaijan</b>	9417	73560	78	5.8%	31776	11156	45	76
<b>Tajikistan</b>	8208	8508	85.5	7.4%	1163	4139	123	108
<b>Kyrgyzstan</b>	5720	7226	140.6	10.5%	1791	6070	113	95
<b>Turkmenistan</b>	5240	41851	n.a.	10.2%	18000	10000	52	78
<b>Georgia</b>	4477	16127	95.9	3.3%	2909	7874	96	84
<b>Moldova</b>	3559	7935	126.8	8.9%	2399	5493	103	100
<b>Armenia</b>	2977	10432	74.9	3.5%	1480	4477	117	106

Source: Author's compilation from WTO, *Trade Profiles 2013* (2013, Geneva). Available from [http://www.wto.org/english/res\\_e/booksp\\_e/trade\\_profiles13\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/trade_profiles13_e.pdf). Accessed December 2015; except for GDP growth rate, collected from WB <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>

## 2.2 EATL routes network

The EATL project has identified rail, inland water and road transport linkages that are of central importance in connecting Europe to Asia. The nine rail and nine road routes constitute the core infrastructure network for the transport links between Europe and Asia across Central Asia and the Caucasus. The routes stretch over more than 10 000 kilometres (km) in the East-West direction, and cross over 15 countries. The EATL transport network brings together major maritime seaports with more than 2,529 million tonnes of annual cargo throughput (see table 6) and encompasses 17 inland waterways and more than 50 inland river ports<sup>17</sup>.

The objectives of the EATL are to better connect the landlocked countries of Central Asia and the Caucasus and to develop alternative transport options to the maritime transport between Asia and Europe. The EATL routes therefore not only aim at improving connectivity amongst EATL countries, but also to connect the EATL with other existing transport networks in Europe and Asia, such as the Trans-European Transport network (TEN-T network) in EU-28, the Pan-European Transport Corridors (PECT)<sup>18</sup>, the TRACECA<sup>19</sup> and the rail and road networks in Asia. Specifically, the EATL rail routes extend the Trans-European Railway (TER) network eastward and connect it with the Trans-Asian Railway Network (TAR). The EATL road routes connect the Trans-Asian Highways (TAH) with the TEN-T routes. Many of the EATL routes also coincide, either fully or partially, with other road networks and corridors, such as the TRACEA, PECT, the six Central Asia Region Economic Cooperation Program (CAREC) corridors, and the Organisation for Organisation for Cooperation of international Railways (OJSD) rail corridors.

As the quality of physical infrastructure of the EATL routes is uneven and gaps in the network exist, the EATL project identified and prioritised infrastructure investment needs to close existing gaps, upgrade and modernise infrastructure, equipment and facilities along the routes (i.e. electrification of railways, building and upgrading container depots or intermodal freight stations).

Unlocking the landlocked countries of Central Asia (CA) and the Caucasus is one of major objectives of the Europe-Asia transport links as 9 of the 15 EATL countries are landlocked<sup>20</sup>. They face high transport costs because they now mainly rely on long-distance truck transport to and from maritime seaports. The travel distances to a seaport for a landlocked country, such as Uzbekistan or Kazakhstan, can be as long as 5,370km from Almaty to Shanghai, or 6,320km from Tashkent to Shanghai (See Table 3). Choice of an alternative transport route is often limited by geography, lack of physical connections and infrastructure capacity limitations and/or high non-physical barriers on the routes that make the transport non-competitive.

**Table 3: Distances of railway routes between Central Asia and major seaports**

From	Routing	Distance (km)
Almaty	– Drushba-Shanghai (Pacific)	5,370
	– Vladivostok (Pacific)	7,850
	– Novorossiysk (Black Sea)	4,630

<sup>17</sup> See UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012), pp 171 for description and maps of the links.

<sup>18</sup> PECT are 10 transport rail, road, waterway corridors defined in 1994 stretching from EU-28 to Central and Eastern Europe and the States of former Yugoslavia.

<sup>19</sup> TRACECA route comprises the transport system of the 13 member-states of the “Basic Multilateral Agreement on International Transport for Development of the Europe-the Caucasus-Asia Corridor” (MLA TRACECA): Azerbaijan, Armenia, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Tajikistan, Turkey, Ukraine and Uzbekistan

<sup>20</sup> The landlocked EATL countries are Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, Uzbekistan

	– Aktau-Baku-Poti (Black Sea)	4,600*
	– Riga (Baltic Sea)	5,350
	– Bandar Abbas (Persian Gulf)	4,800 [3770**]
	– Mersin (Mediterranean Sea)	5,421
<b>Tashkent</b>	– Drushba-Shanghai (Pacific)	6,320
...	– Vladivostok (Pacific)	8,800
	– Novorossiysk (Black Sea)	3,950
	– Aktau-Baku-Poti (Black Sea)	3,900*
	– Riga (Baltic Sea)	5,500
	– Bandar Abbas (Persian Gulf)	3,800 [2770**]
	– Mersin (Mediterranean Sea)	4,421

Notes: \* Include distance across Caspian Sea (450 km); \*\* After commissioning of Mashad-Bafq section in Islamic Republic of Iran.

Source: Table from UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1*, (New York 2003)

Out of the nine EATL rail routes, six are in the East—West Direction, and three in the North—South direction. The rail routes 1 and 2 are already frequently used by regular or ad-hoc freight trains connecting Asia, East Russia and Europe. The quality and capacity of the EATL routes remain uneven. Not all of the railways are fully electrified, for example. Differences in track gauges<sup>21</sup> between EATL countries and Western European railways also require break of gauge operations such as trans-loading of the wagons or loading units at some border crossings. A ferry crossing of the Black or Caspian Sea is also part of some of the routes. The tables 4 and 5 summarise the key characteristics of the rail and road routes.

**Table 4: EATL Rail Routes Details**

<b>1</b>	<b>“Trans-Siberian Railway, Northern Road”</b>
	West (N and E EU (Finland, Latvia, Lithuania, Poland, Hungary)) to East (Russia Pacific)
	Countries crossed <sup>22</sup> : Russia, Belarus or Ukraine
	Number of gauge changes: 0
<b>2</b>	<b>“Trans-Siberian Railway, Southern Route”</b>
	West (N and E EU (Finland, Lithuania, Poland, Hungary)) to East (China)
	Countries crossed: Ukraine, or Belarus, Russia, Kazakhstan, China
	Number of gauge changes: 1 (Kazakhstan/China)
<b>3</b>	West (SE EU (Hungary, Romania, Bulgaria) through Caucasus and Central Asia to East (China)
	Countries crossed: Moldova, Turkey, Georgia, Azerbaijan, Armenia, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan, China
	Number of gauge changes: 1 (Kazakhstan/China)
	Number of ferry crossings: 2 (Caspian and Black Sea)
<b>4</b>	<b>“Southern Silk Road” or “Trans Europe-Asia Route”</b>
	West (SE EU (Bulgaria) through Iran and Central Asia to East (China)
	Countries crossed: Turkey, Iran, Turkmenistan, Uzbekistan, Kazakhstan, China
	Number of gauge changes: 2 (Iran/ Turkmenistan, Kazakhstan/China)
<b>5</b>	North (N EU (Finland)) through Caucasus and Central Asia to South (Iran)
	Countries crossed: Russia, Azerbaijan, Iran, Turkmenistan, Kazakhstan, Uzbekistan
	Number of gauge changes: 1 (Kazakhstan/China)
	Number of ferry crossings: 1 (Black Sea)
<b>6</b>	West (E EU (Hungary, Poland)) to through Central Asia to East (Russia Pacific Coast) <sup>23</sup>
	Countries crossed: Ukraine, Moldova, Russia, Kazakhstan
	Number of gauge changes: 0

<sup>21</sup> Track gauge is the inner distance between the rail tracks and is normally measured in millimetres. In the EATL network China, Iran, Turkey have 1,435mm track gauges, that are also common on European railways, whilst the other CIS EATL countries have the wider 1,520mm tracks.

<sup>22</sup> Some of the routes have branches that can cross through additional or other countries.

<sup>23</sup> This table reflects only the O-D from where they connect to EU-28, States of former Yugoslavia, and Afghanistan, Pakistan, or Mongolia, that are not covered in this paper.



7	West (E EU (Hungary and Poland)) through Central Asia to East (China) Countries crossed: Ukraine, Kazakhstan, Uzbekistan, China Number of gauge changes: 1 (Kazakhstan/China)
8	North (N and E EU (Latvia, Poland and Lithuania)) through Caucasus to South (Azerbaijan, Iran) Countries crossed: Ukraine, Russia, Georgia, Azerbaijan, Iran Number of gauge changes: 1 (Azerbaijan/Iran)
9	North (N EU Finland) and Baltic Russia) through Central Asia to South (Central Asia) Countries crossed: Russia, Kazakhstan, Uzbekistan, Tajikistan Number of gauge changes: 0

**Table 5: EATL Road Routes Details**

1	West (N and E EU (Finland, Latvia, Lithuania, Poland, Hungary)) to East (Russia Pacific and connects to China and Mongolia – Parallel to Trans-Siberian-Railways Countries crossed: Russia, Belarus or Ukraine
2	West (N and E EU (Finland, Lithuania, Poland, Hungary)) to East (China) Parallel to Trans-Siberian-Railways with branches to Kazakhstan and Kyrgyzstan Countries crossed: Ukraine, or Belarus, Russia, Kazakhstan, China
3	West (E EU (Poland, Hungary) to East (China) Countries crossed: Ukraine, Russia, Kazakhstan, Kyrgyzstan, China
4	West (SE EU (Bulgaria) to East (China) Countries crossed: Georgia, Azerbaijan, Kazakhstan, Uzbekistan, Kyrgyzstan, China Number of ferry crossings: 2 Ro-Ro ferry crossings
5	West (SE EU (Bulgaria and Slovakia) to South (Iran) and East (China) Countries crossed: Turkey, Iran, Afghanistan, Kyrgyzstan, Tajikistan, Uzbekistan
6	North (N EU (Finland)) to South (Iran) Countries crossed: Russia, Azerbaijan, Iran Kyrgyzstan, Turkmenistan Number of ferry crossings: 1 Ro-Ro ferry crossings /Caspian Sea
7	North (N Russia) to South (Ukraine) Countries crossed: Russia, Belarus and Ukraine
8	North (NW (Russia)) to South (China) Countries crossed: Russia, and China
9	North (Central Russia) to South (China) Countries crossed: Russia and China

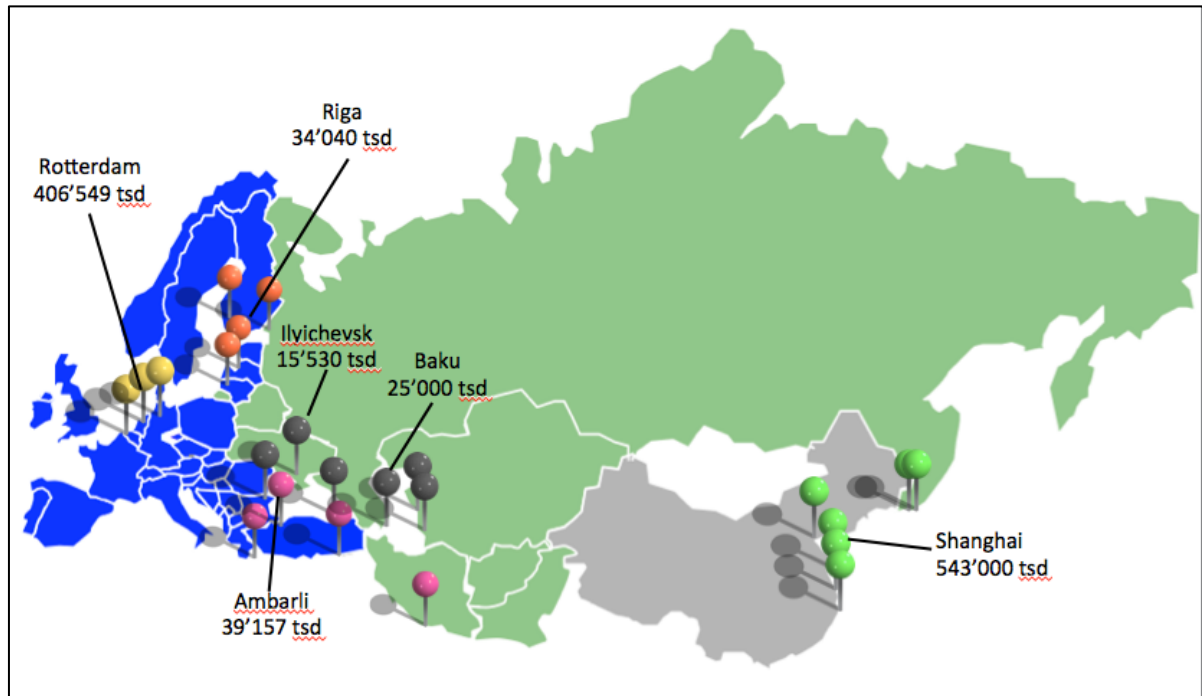
## 2.3 The role of the seaports

Maritime shipping is the main mode of transport in international trade and seaports remain the crucial nodes of international transport and trade. They are the hubs in a global shipping network and point of convergence of inland transport from neighbouring region and countries.

With the strong economic growth of Asia, namely of China, cargo throughput in Asian seaports has also steadily grown in the past 10 years. The port of Ningbo-Zhoushan, for example, has seen an increase in cargo tonnage by 565 per cent from 2003 to 2012. The major European ports Rotterdam, Antwerp, and Hamburg, have only grown by 167 per cent, 159 per cent and 144 per cent respectively in the same period of time. In 2014, the ports of Ningbo-Zhoushan, Shanghai, Singapore, Tianjin have become the biggest seaports by tonnage in TEU, and world's biggest container ports.

The EATL route network is connected to many of these major seaports. The 20 important seaports of the routes are located in the Baltic and North Sea, in the Mediterranean, on the Pacific coast, and on the Gulf in the Arabian Sea (See Figure 1).

Figure 1: Major Seaports in the EATL network, annual cargo throughput in metric tonnes



Source: Author, based on data from table 6. No comparable data for Bandar Abbas available

The biggest seaport on the Baltic Sea is Riga (Latvia) with an annual cargo throughput of 34,040,000 tonnes (2013). In the Mediterranean the biggest port by throughput is Piraeus (Greece) with 40,192,000 tonnes (2013), while on the Pacific coast Shanghai is the biggest port with an annual throughput of 543,000,000 tonnes (2013). Other important ports that are not direct end points of EATL routes but are in close proximity are the major European ports in the North Sea, such as the port of Rotterdam (Netherlands)- (annual throughput of 406,549,000 tonnes (2013), as well as the ports of Bandar Abbas (Iran) and Karachi (Pakistan)-41,350,000 tonnes (2013-2014) in the Arabian Sea

In addition to maritime seaports the EATL network encompasses also major ports in the Caspian Sea, where the ports of Baku (Azerbaijan) and Aktau (Kazakhstan) had an annual cargo throughput of 25,000,000 tonnes and 12,000,000 tonnes respectively (2011), and in the Black Sea, with the port of Ilyichevsk (Ukraine) and the port of Varna (Bulgaria) with annual cargo throughput of 15,530,000 tonnes and 12,950,000 tonnes respectively.

The seaports on the Pacific side, Shanghai (China), Lianyungan (China), Vladivostok (Russia) and Nakhodka/Vostochny (Russia) play an important role for the EATL as they connect Eurasia with the Republic of Korea, Japan and Taiwan Province of China. Car manufacturers such as Daewoo Motors, Kia Motors and Hyundai have been using these ports as entry gates to the Russian and Chinese markets, and use the Trans-Siberian Railways for container freight trains of automotive parts and cars from and to their production sites inside Russia and Uzbekistan (see chapter 3.4.1 for the Mitsui Ltd freight trains).

The Baltic Sea ports of Ventsplis, Riga and Klapaida actively position themselves as regional hubs in the East-West transport link between Europe and Russia<sup>24</sup> and the North—South

<sup>24</sup> See there active participation in the EWCT project

transport link to the Black Sea and the Caucasus. Many container freight services connecting these ports are a witness of this positioning (see chapter 3.4.1 for the Saulé, Zubr and Viking train services). The Iranian ports of Bandar Abbas and Chabahar are also looking towards building a landbridge to Afghanistan, Central Asia and China through Central Asia with the Iran Railways currently building a railway connection from Sangan, in the South East of the country close to both ports, to Herat in Afghanistan<sup>25</sup>.

**Table 6: Freight throughput of major seaports in the EATL network, 2013 (in 000 metric tons)**

			<b>TOTAL</b>	<b>Inbound</b>	<b>Outbound</b>
<b>Baltic</b>	Latvia	Riga	34'040	4'563	29'477
<b>Baltic</b>	Lithuania	Klaipėda Port	30'790	7'169	23'621
<b>Baltic</b>	Latvia	Ventspils	26'427	1840	25087
<b>Baltic</b>	Russia	St Petersburg*	7'764	n.a.	n.a.
<b>Baltic</b>	Finland	Hanko/Turku	3'556	1686	1870
<b>Black Sea</b>	Ukraine	Ilyichevsk	15'530	n.a.	n.a.
<b>Black Sea</b>	Bulgaria	Varna	12'950	3494	9496
<b>Black Sea</b>	Turkey	Samsun	9'103	7241	1862
<b>Black Sea</b>	Georgia	Poti*	7'292	n.a.	n.a.
<b>Black Sea</b>	Georgia	Batumi*	1'701	n.a.	n.a.
<b>Caspian</b>	Turkmenistan	Turkmenbashi	n.a.	n.a.	n.a.
<b>Caspian</b>	Azerbaijan	Baku**	25'000	n.a.	n.a.
<b>Caspian</b>	Kazakhstan	Aktau**	12'000	n.a.	n.a.
<b>Arabian Sea</b>	Iran	Bandar Abbas	n.a.	n.a.	n.a.
<b>Arabian Sea</b>	Pakistan	Karachi***	41'350	n.a.	n.a.
<b>Med</b>	Greece	Piraeus	40'192	20892	19300
<b>Med</b>	Turkey	Ambarly	39'157	23'482	15'676
<b>Med</b>	Turkey	Mersin	31'512	19502	12010
<b>Med</b>	Turkey	Izmir	10'431	4985	5445
<b>North Sea</b>	Netherlands	Rotterdam	406'549	291029	115520
<b>North Sea</b>	Belgium	Antwerp	171'984	88'967	83'017
<b>North Sea</b>	Germany	Hamburg	99'529	60197.0	39332.0
<b>North Sea</b>	Germany	Bremerhaven	31'575	14'817.00	16'940.00
<b>Pacific</b>	China	Shanghai	543'000	n.a.	n.a.
<b>Pacific</b>	China	Tianjin	500'000	n.a.	n.a.
<b>Pacific</b>	China	Ningbo*	330'000	n.a.	n.a.
<b>Pacific</b>	China	Lianyungang	202'000	n.a.	n.a.
<b>Pacific</b>	Russia	Nkhodka*	14'980	n.a.	n.a.
<b>Pacific</b>	Russia	Vladivostok*	5'800	n.a.	n.a.
<b>TOTAL</b>			<b>2'612'862</b>		

\*Data is for 2014; \*\* Data is for 2011, \*\*\* Statistics for financial year July 2013-July 2014.

Source: Author's own compilation based on different data sources. Data for EU-28 and ports in Turkey are from European Commission Eurostat database. Available at <http://ec.europa.eu/eurostat/web/transport/data/database>. Other figures are from the port's website or related publication. It was not possible to find data for 2013 for all ports.

<sup>25</sup> <http://www.railjournal.com/index.php/middle-east/iran-invests-in-cross-border-connections.html>

## 2.4 Time and Costs

Cost of transport is an important component of the logistics and transport planning and, according to some empirical studies, can account for up to 44 per cent of the logistics costs<sup>26</sup>, and 2-15 per cent of the value of traded goods<sup>27</sup>. Transport costs have various cost components including direct and indirect costs. Direct costs encompass handling and loading charges, freight charges and other transport equipment related charges, as well as costs for documentation and formalities, such as clearance fee, customs escorts fee etc., truck permits, transit fees, service costs for a customs agent or freight forwarder, or unofficial payments to speed up processing. Indirect costs include inventory costs, insurance and depreciation cost. High value goods are very sensitive to these costs and, as a consequence, time is a central factor in the transport choice.

### 2.4.1 Road and rail tariffs

Road freight rates or rail transport tariffs are one of the many transport cost components. These rates are fixed in framework agreements between governments or companies, but are in practice negotiated between the shipper, operator and shipping lines. The actual costs are therefore often below the published rates and tariffs.

There are sets of regulations, rules and procedures that govern tariffs for international rail traffic. The rail tariffs in CIS countries and the Baltic States are bound to comply with the ETT, Uniform Transit Tariff, and the MTT, International Railway Transit Tariff<sup>28</sup> of the OJSD. The railways apply these uniform tariffs as maximum rates and can offer discounted rates below them. According to one UNESCAP study, this uniform tariff is out-dated and does not serve the requirements of a container based through tariff and tariffs are too high, de facto cross-subsidizing domestic rail transport<sup>29</sup>. Discounts on tariffs are therefore a common means to attract regular customers to a railway service. Iran, Turkmenistan and Uzbekistan, for example, signed a rail cooperation agreement that entails a maximum 30 per cent discount on the cargo of cotton transited by train<sup>30</sup>. The operators of the Viking train also cut their tariffs by 15 per cent in 2009 to attract traffic.

According to a UNECE study, international road transport costs are quite similar across EATL countries (see table 7 below), with an average tariff of 1.4 US\$ per km for long distances<sup>31</sup>.

**Table 7: Road transport tariffs**

Origin-Destination	Road tariff
West Europe to Istanbul	0,82 to 0.92 Euro per km
Istanbul to West Europe	0.9 to 1 Euro per km
Almaty to Istanbul	0.8 -1 US\$ per km
Istanbul to Almaty	1-1.4 US\$ per km

Source: UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012), p. 97

Other transport cost factors that add to the total transport costs are empty back haulage of the truck and containers, container leasing costs, and so-called transit fees.

<sup>26</sup> A survey by the National Council of Physical Distribution Management (NCPDM) from 1982, cited in Chang, H. (1998) *Logistical Management*. Hwa-Tai Bookstore Ltd., Taiwan Province of China, estimates that the cost of transportation, on average, accounted for 6.5% of market revenue and 44% of logistics costs.

<sup>27</sup> Figure based on OECD *Overcoming border bottlenecks* (Paris, 2009).

<sup>28</sup> Transit tariff combines tariff and transit time. Fixed by OJSD members once per year

<sup>29</sup> UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1* (New York 2003), p. 31

<sup>30</sup> Tasnim News Agency, "Iran, Uzbekistan, Turkmenistan Ink Railroad Agreement, 28 April 2014, Available at <http://www.tasnimnews.com/English/Home/Single/353091>. Accessed December 2014.

<sup>31</sup> UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012), p. 97

Empty return trips may be a result of unbalanced trade flows making it difficult for the operator to identify suitable freight for the return trip. Empty returns may also be the result of legal restrictions on the transport services in foreign territory.

Container leasing costs can be particularly high for landlocked countries. The majority of containers are owned by shipping lines or container leasing companies, and have to be leased from them. The costs, so called demurrage, are calculated daily or weekly and include a maximum number of free demurrage days. Usually shippers from landlocked countries negotiate longer free demurrage time, or opt for so-called shipper-owned containers, which are owned by an individual rather than a shipping or leasing line. Using their own containers they cancel demurrage costs and give themselves more time flexibility for loading/unloading, but costs are still incurred for the empty return of the containers, unless they are not sold at destination. It may also occur that some shipping lines refuse to load shipper-owned containers making re-loading for the maritime leg a requirement. The ADB Corridor Performance Management and Monitoring report (CCPMM) 2013, points out that railway carriers in Central Asia often revert to the practice of carrying containers in empty open top wagons, so that the wagons can be used for bulk commodity hauls on the return trip, although this could damage containers and possibly also the goods<sup>32</sup>.

The term “transit fee” is not well defined and can encompass road charges or truck permit charges as well as specific fees for a transit transport operation on the national road network. Kazakh legislation, for example, stipulates that if a foreign transport operator enters the national territory without a permit under the national quota system, a fee of 160 US\$ needs to be paid to enter. Operators commonly refer to this fee as transit fee.

#### 2.4.2 Average travel speed

Road and railways conditions as well as geography vary across EATL routes leading to different travel speeds on the routes. Non-physical barriers, such as waiting times at border crossings, or stopovers en route, also significantly affect the travel times on EATL routes. There are two ways to account for the travel times and speed—one entails measuring the travel as a function of distance and average travel speed. The other aims at reflecting actual travel times including waiting times at border crossings and time at stopovers en route.

UNECE measured actual travel times during field trips and used the observed times to calculate the average travel speed per km. The results produced average travels speeds of 26 km/h in Europe, 21km/h in Asia, and 34 km/h for Central Asia for freight railway<sup>33</sup>. UNESCAP, using the same approach, reported an average speed of about 50km/h for transit through Belarus, Kazakhstan, Poland and Russian Federation, and average speed of about 70km/h for transit through Austria, France, Germany, Italy and Spain<sup>34</sup>.

The CCPMM Report 2013 concludes that the travel time measured as speed without delays (SWOD) has continuously worsened across all CAREC corridors since 2011. The average SWOD for all corridors in 2013 was 34.2km/h down by 3.8km/h from 2011. The road average SWOD was 37.8 km/h down 1.8km/h from 2011, and the rail average speed was 28.4km/h compared to 30.1km/h in 2011. The speed with delays (SWD), including waiting times and stop over times, measured by the CCPMM have also worsened since 2011, clearly indicating that delays at borders and other waiting times on the corridors have not improved. The

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<sup>32</sup> CAREC CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013, p 19

<sup>33</sup> UNECE Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport (New York and Geneva, 2012), p. 100

<sup>34</sup> UNESCAP Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1 (New York 2003), p. 38

delays measured by CCPMM in 2013 reduced the average travel time by 16.2km/h (from 36.1km/h to 19.9km/h) for all transport modes, and severely affected rail traffic, where the average SWOD speed was reduced to 12.8 km/h from 30.8 km/h. Road traffic SWOD speed was reduced to 22.3km/h from 37.8 km/h<sup>35</sup>.

Although overland transport routes are in absolute terms shorter than maritime transport, not all overland transport routes constitute an economically viable alternative, mainly because of the average high costs involved in overland transport. The UNECE comparison of maritime/rail travel scenario undertaken during the EATL project phase II (see table 8 below) concluded that while all overland scenario had a time advantage, only some had costs advantage.

**Table 8: Summary of UNECE EATL route maritime-rail scenario comparison**

	Distances in km	Cost advantage rail (US\$)	Time advantage rail (hrs)
1 Khabarovsk to Potsdam	22439 /11208	(-434)	248
2 Hangzhou-Kaluga	22571 / 6955.51	2071	347
3 Tashkent to Varna	20006 / 4400.97	1604	364
4 Almaty to Istanbul	9604/6065	(-911)	422
5 Mrovarid to Pushkin	na/6519	(-3080.5)	118
6 Ussuriysk – Kiev	17501.25/ 9804	433	174
7 Shanghai-Warsaw	21238/10800	2637	123
8 Krasnodat-Kalingrad	835572305	3455	155.2

Source: UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012)

Time is the most important advantages of rail overland transportation over maritime transportation on EATL routes. According to Schenker Rail, one of the operators of a freight train on the Trans-Siberian Railway (TSR), the key selling point of rail freight transportation over maritime from East to West and West to East is speed, rather than costs. It takes about 40 days to deliver a container by sea, by land it can be delivered within 20–25 days<sup>36</sup>. Hewlett Packard (HP) also sends 2/3 of its products produced in Chongqing to Europe via rail with a time factor advantage of half of the time compared to maritime—despite costs higher by 20-25 per cent<sup>37</sup>.

Costs advantages of overland transport routes can easily melt down at the border crossing points (BCP) because of excessive waiting times and delays observed in the EATL network (see chapter 4). Hence the more BCP need to be passed the more unreliable and more costly the transportation becomes. The control and reduction of the travel times is the key challenge for the transport operators on the EATL routes. For rail freight transport they revert to the use of block trains that do not stop en route, and corridor approaches of close organisational and commercial collaboration of different logistics partners along the corridor (see chapter 3.4) to control the time and improve reliability of the transport choice.

### 3 Trade and transport flows on EATL routes

Transport flows in the EATL network are generated by merchandise trade between EATL countries, trade between EATL countries and region/countries connected to the EATL network—mainly the EU-28 and South East and South Asia—as well as transit trade across

<sup>35</sup> CAREC CARECCPMM *Corridor Performance Measurement and Monitoring Annual Report*, 2013

<sup>36</sup> The Eurasian corridor: yesterday, today, tomorrow. Interview with Hans Georg Werner, Member of the Management Board for Region East of DB Schenker Rail, Available at [http://www.rail.dbschenker.ru/rail-russijaservices-en/News\\_Media/news/7832774/interview\\_georg\\_werner.html](http://www.rail.dbschenker.ru/rail-russijaservices-en/News_Media/news/7832774/interview_georg_werner.html). Accessed December 2015.

<sup>37</sup> Shawn Donnan, “Geopolitics risks derailing new Silk Road”, *Financial Times*, 17 October 2014.

Eurasia from countries such as Japan, the Republic of Korea and Taiwan Province of China to Europe. Although it is difficult to estimate real transport flows purely on the basis of existing trade flows, the characteristics of the trade flows give general indicators of possible transport flows and directions.

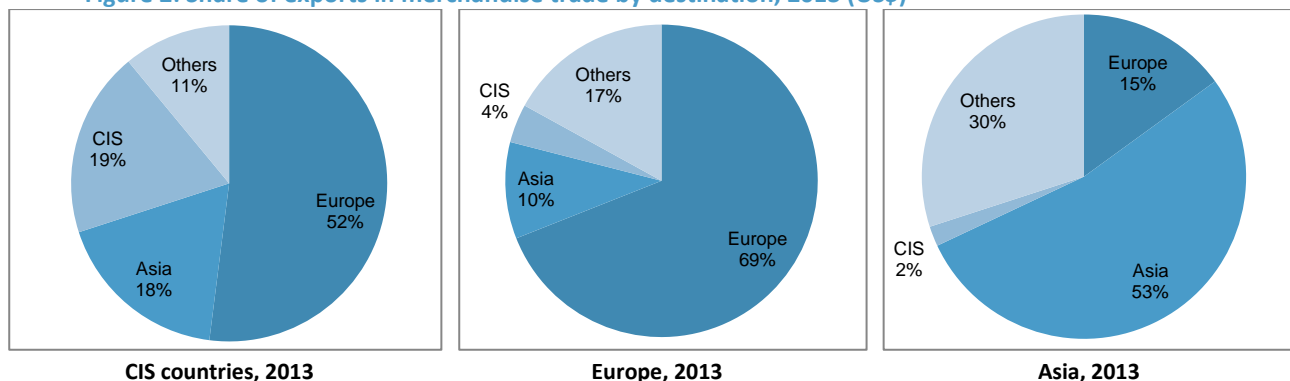
### 3.1 Development of World Merchandise Trade

Against the background of a continued economic slowdown in the US, Japan and Europe the world economic output grew at only 2.0 per cent in 2013<sup>38</sup>. Growth in merchandise trade has also slowed down since the crisis and world merchandise exports grew only by 2.2 per cent in 2013 totalling 18,300,640 billion US\$ in 2013<sup>39</sup>. Asia's growth prospects continue to be strong, whilst CIS countries growth will be subdued in 2015, because of the plunge in oil and gas prices, and Russia's recession, but will remain strong for CCA (see chapter 1).

In 2013, Asia recorded the fastest regional GDP growth and its export volume grew faster than that of any other region. Europe<sup>40</sup> remained the largest exporter of merchandise trade in value (36 per cent of world's exports originated in Europe). Asia's share in world exports grew to 30 per cent, and 38.5 per cent of all manufactured goods originated 2013 in Asia. China became the world's biggest merchandise trader in value, with imports and exports totalling 4,159 billion US\$. CIS countries share of world exports accounted for only 3 per cent of world merchandise trade in 2013 with 68 per cent of the export goods being fuels and mining products. The share of manufactured good exports from CIS is 22.1 per cent, and 8.2 per cent of the exports of CIS countries are agriculture goods<sup>41</sup>.

### 3.2 Regional trade and transport flows

Figure 2: Share of exports in merchandise trade by destination, 2013 (US\$)



Source: WTO, *World Trade Report 2014*. Available at [http://www.wto.org/english/res\\_e/booksp\\_e/world\\_trade\\_report14\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/world_trade_report14_e.pdf). Accessed December 2015

As can be seen in figures 2 and 3 respectively, Europe is the main export destination for CIS countries with 52 per cent of the total exports by value going to Europe while only 4 per cent of the total exports of Europe go to CIS countries. 18 per cent of the CIS exports go to Asia but only 2 per cent of total Asia exports go to CIS countries. Intra-regional trade amongst CIS countries is very low. The share of intra-CIS trade is 19 per cent, compared to 52 per cent in Europe and 53 per cent in Asia.

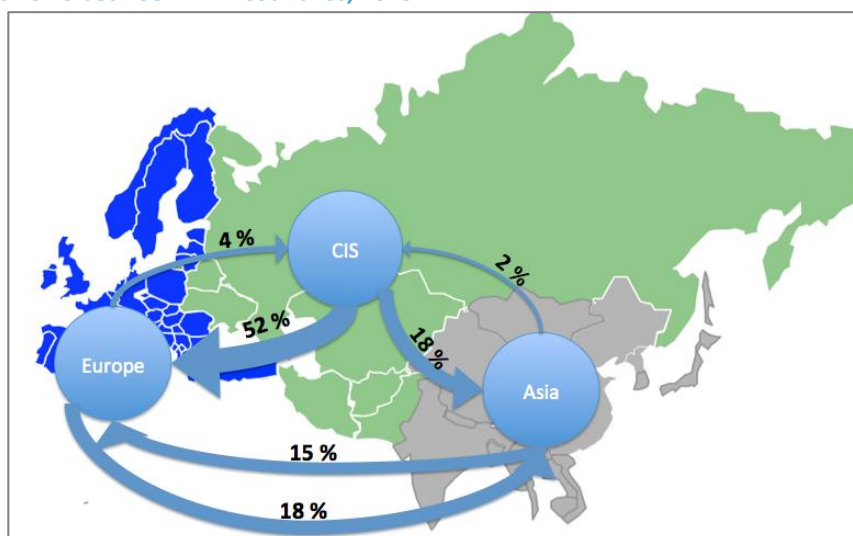
<sup>38</sup> IMF, *World Economic Outlook 2014 Recovery Strengthens, remains uneven*, (Washington D.C. 2014). Available at <http://www.imf.org/external/pubs/ft/weo/2014/01/pdf/text.pdf>. Accessed January 2015

<sup>39</sup> WTO, *World Trade Report 2014*. Available at [http://www.wto.org/english/res\\_e/booksp\\_e/world\\_trade\\_report14\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/world_trade_report14_e.pdf) Accessed December 2015. World merchandise exports were expected to grow stronger in 2014 but aggregate data is not yet published to confirm the forecast and assess the magnitude of the growth in 2014.

<sup>40</sup> Europe includes EU-28, Norway, Switzerland and Turkey and states of the former Yugoslavia.

<sup>41</sup> WTO, *World Trade Report 2014*. Available at [http://www.wto.org/english/res\\_e/booksp\\_e/world\\_trade\\_report14\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/world_trade_report14_e.pdf) Accessed December 2015

Figure 3: Export flows between EATL countries, 2013



Source: Author, compiled on the basis of Comtrade data for 2013.

### 3.2.1 CIS Trade

Russia is the main exporter and importer of intra-CIS goods. In 2013 Russia exported goods worth of 63,831 million US\$ to CIS countries (see table 9). 82 per cent of Russia's exports to CIS countries go to three countries - Kazakhstan (17,686 mil. US\$), Belarus (16,870 mil. US\$), and Ukraine (15,215 million US\$). Belarus, Kazakhstan and Russia formed the Eurasian Customs Union (ECU) in 2010, which reduced and/or eliminated internal Customs duties<sup>42</sup>. 90 per cent of Russia's imports from CIS countries also originate from these three countries.

In 2013 Russia imported more goods in value from China than from all CIS countries together. The biggest flow of goods to and from Russia is the result of its trade with EU-28. 45.8 per cent of Russia's exports in value went to EU-28 in 2013, and the import share of goods from EU-28 was 42.6 per cent<sup>43</sup>. Russia exports to EU-28 is worth four times the value of its total exports to CIS countries, and more than six times the value of exports to China. (See table 9). Turkey is also an important export destination for Russia. Among CIS countries, Tajikistan, Georgia and Moldova had the lowest volume of merchandise trade with Russia (imports and exports combined).

### 3.2.2 EU-28 trade

The CIS—EU-28 trade is strongly concentrated on four countries; Russia, Ukraine, Kazakhstan and Belarus (See table 10). Over 90 per cent of EU-28 CIS exports and imports are with these four countries. The EU-28 is also an important trade partner for the non-oil exporting Caucasus republics Armenia and Georgia as well as for Moldova and Ukraine. This also explains the crucial role of the ports at the Black Sea for the better integration of the Caucasus republics.

Table 9: Russia Federation, Merchandise trade with EATL and connected countries in 2013 (in mil US\$)

Partner	Export	Import	Trade balance
Kazakhstan	17'686	5'807	11'879
Belarus	16'870	13'959	2'911
Ukraine	15'215	15'791	-576

<sup>42</sup> From 1.1.2015 on the ECU has become part of the EEU, the Eurasian Economic Union that was created by an international treaty on 29 May 2014 amongst Belarus, Kazakhstan, and the Russian Federation. Armenia later joined the EEU, and Kyrgyzstan will possibly join in May 2015.

<sup>43</sup> WTO Trade Profiles 2013 (2013, Geneva). Available from <http://www.wto.org>. Accessed December 2014



Azerbaijan	4'950	1'079	3'871
Uzbekistan	2'804	1'255	1'549
Kyrgyzstan	2'029	110	1'919
Turkmenistan	1'430	139	1'290
Armenia	1'115	332	783
Tajikistan	724	38	687
Georgia	589	190	399
Moldova	418	417	0
<b>CIS TOTAL</b>	<b>63'831</b>	<b>39'118</b>	
Turkey	25'064	6'965	18'099
EU-28	252'645	158'207	94'438
Iran	1'169	433	736
Afghanistan	631	14	617
China	39'668	49'591	-9'923

Source: Author, compiled on the basis of Comtrade data for 2013

**Table 10: EU-28 Merchandise Trade with EATL countries in 2013 (in mil US\$)**

Partner	Export	Import	Trade balance
Russian Federation	158'207	252'645	-94'438
Ukraine	31'375	17'607	13'768
Belarus	11'384	4'442	6'942
Kazakhstan	9'898	30'844	-20'946
Azerbaijan	4'950	18'852	-13'902
Moldova	3'026	1'275	1'750
Georgia	2'668	879	1'789
Uzbekistan	1'849	328	1'521
Turkmenistan	1'434	1'150	284
Armenia	944	289	655
Kyrgyzstan	529	103	426
Tajikistan	260	111	149
<b>CIS TOTAL</b>	<b>226'522</b>	<b>328'524</b>	
China	195'817	371'286	-175'469
Turkey	102'452	66'779	35'674
Iran	7'174	1'027	6'147
Afghanistan	755	74	681

Source: Author, compiled on the basis of Comtrade data for 2013

### 3.2.3 China trade

Of all bilateral trade flows studied here, the EU-28 and China have the strongest trade relation. China's exports to EU-28 account for 37,1286 million US\$ and the Chinese exports to EU-28 are 4.5 times bigger than China's exports to CIS countries. As China imports from the EU-28 is lower than its exports (195,817 million US\$ in 2013), the EU-28 run a big trade deficit with China in 2013.

The Kyrgyz Republic has become a major destination for China's exports to Central Asia. China exports to Kyrgyzstan in 2013 were worth 5,075 million US\$. These goods are transported into Kyrgyzstan by road from Kashi. Road improvements inside Kyrgyzstan from Kashi to Bishkek and the construction of the railway from Kashi to Urumqi support this trade flow. Chinese goods are sold on markets in Bishkek, used in manufacturing, or transported into Kazakhstan. Kyrgyzstan has the lowest tariffs in the region and there is a well-

established informal trade of Chinese goods across the border with Kazakhstan and the ECU. This trade is undertaken in small packages of less than 50kg<sup>44</sup> so that no Customs duties and taxes have to be paid.

**Table 11: China, Merchandise Trade with EATL Countries in 2013 (in millions of US\$)**

Partner	Export	Import	Trade balance
Russian Federation	49'591	39'668	9'923
Kazakhstan	12'545	16'051	-3'506
Ukraine	7'849	3'273	4'576
Kyrgyzstan	5'075	62	5'013
Uzbekistan	2'613	1'938	675
Tajikistan	1'869	89	1'781
Turkmenistan	1'138	8'893	-7'756
Belarus	872	581	292
Azerbaijan	869	234	635
Georgia	862	54	808
Armenia	120	73	47
Moldova	113	19	94
<b>CIS TOTAL</b>	<b>83'517</b>	<b>70'934</b>	<b>12'582</b>
<b>EU-28</b>	<b>371'286</b>	<b>195'817</b>	<b>175'469</b>
<b>Turkey</b>	<b>17'747</b>	<b>4'486</b>	<b>13'261</b>
<b>Iran</b>	<b>14'037</b>	<b>25'390</b>	<b>-11'353</b>
<b>Afghanistan</b>	<b>328</b>	<b>10</b>	<b>319</b>

Source: Source: Author, compiled on the basis of Comtrade data for 2013

### 3.2.4 Trade composition

When looking at the commodity composition of the bilateral trade flows between EATL countries, it clearly emerges that fuels and mining products are the dominant exports of CIS countries (66 per cent of total export share), followed by 22 per cent of manufactured goods and 9 per cent agricultural goods. Fuel and mining products account for 40.4 per cent of the exports from CIS to Europe, 10.7 per cent of the exports from CIS to Asia and 4.5 per cent of the intra-CIS trade<sup>45</sup>. Figures 4 and 5 show the trade composition - the share of agricultural products, fuel and mining and manufactured products in imports and exports at the country level for the EATL countries<sup>46</sup> in 2013. Figure 4 and 5 show the share of agriculture products, fuel and mining products and manufactured products for imports and exports at the country level.

Two different patterns can be observed. Fuel and mining products account for more than 50 per cent of the total exports by value for four countries, "oil exporters". 94 per cent of Azerbaijan exports are in this segment. Armenia's and Uzbekistan's share of fuel and mining exports is approximately 50 per cent<sup>47</sup>, and agricultural products, mainly fruits and vegetables to Russia, and, notably in the case of Uzbekistan, manufactured goods are also important export product. On the import side, these oil-exporting countries import a big quantity of manufactured goods, in particular consumer goods such as electronics. The trade composition is very different for the non-oil exporting EATL countries, for which manufactured products account for a larger share of exports; 94 per cent of the total exports

<sup>44</sup> According to EEU or ECU Customs law packages of less than 50kg are not subject to payment of Customs duties and taxes.

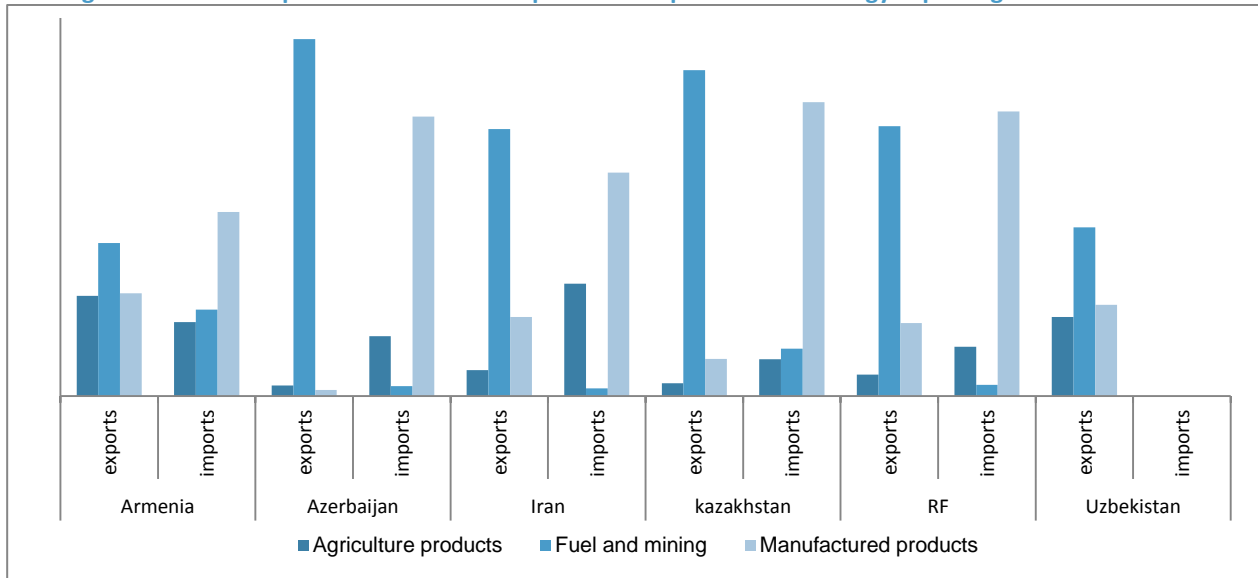
<sup>45</sup> WTO *Trade Profiles 2013* (2013, Geneva). Available from <http://www.wto.org>. Accessed December 2014.

<sup>46</sup> No data was available for Tajikistan and Turkmenistan.

<sup>47</sup> Armenia 43,7% and Uzbekistan 55,2%, WTO *Trade Profiles 2013* (2013, Geneva). Available from <http://www.wto.org>. Accessed December 2014.

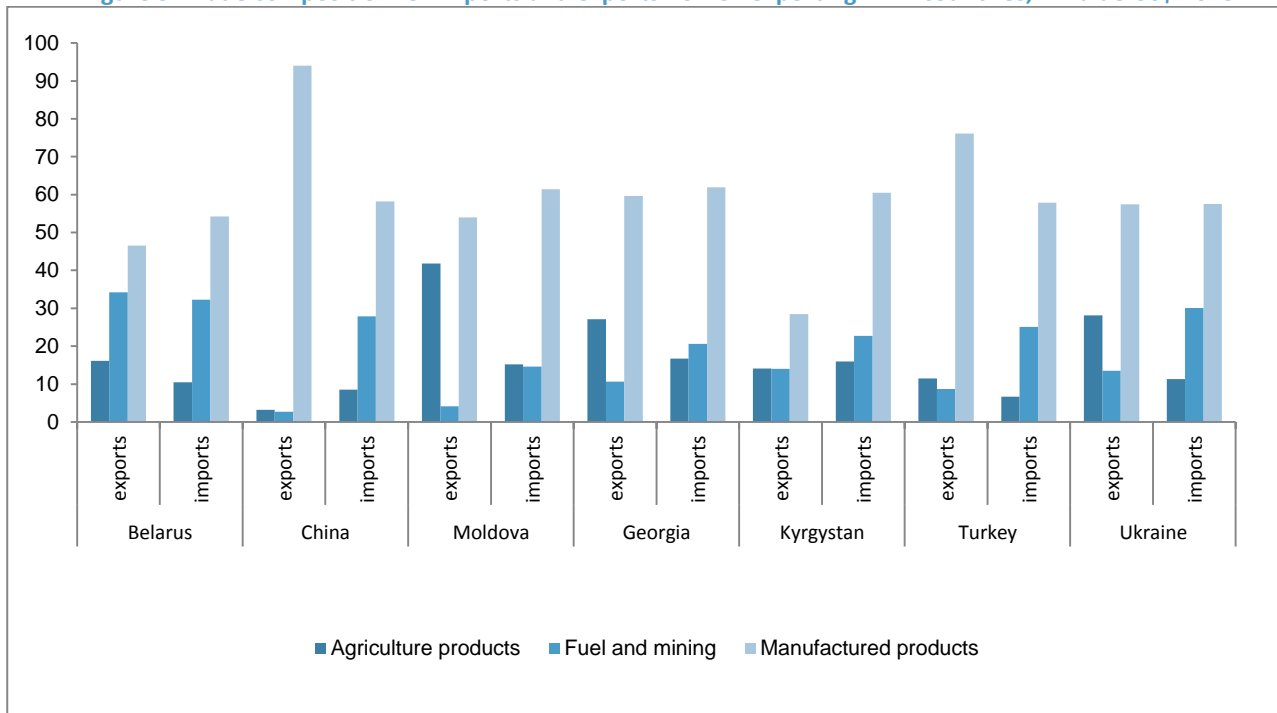
for China and 72 per cent for Turkey. Moldova exports mostly agricultural products, mainly to Europe.

Figure 4: Trade composition in 2013 for imports and exports for net energy exporting EATL countries



Source: Author based on data from WTO *Trade Profiles 2013* (2013, Geneva). Available from <http://www.wto.org>. Accessed December 2014.

Figure 5: Trade composition for imports and exports non-oil exporting EATL countries, in value US\$ 2013



Source: Based on data from WTO *Trade Profiles 2013* (2013, Geneva). Available from <http://www.wto.org>. Accessed December 2014. Note: The data for the Kyrgyz Republic appears to be incorrect.

### 3.3 Modal choice in international trade

Water, air, road, pipelines and rail are different modal options for international freight transport across short, medium and long distances. Each of the modes has its specific characteristics in terms of costs, speed, reliability, traceability, flexibility and security, and therefore advantages and disadvantages for the user. Transport consumers, shippers and freight forwards and logistics companies therefore carefully measure and weigh their choice of the transport mode in function of the volume and nature of the freight, the distance and

costs of transport as well as other specific characteristics of their logistics network. Usually the choice of the mode involves a combination of several modes, in particular in form of combining short haul road transport with any other mode to and from the geographically fixed hubs, railway terminals, airports, seaports, to the plant or company location.

### 3.3.1 General characteristic of transport modes

The general characteristics of the modes with regards to freight transport and without taking into consideration socio-economic or environmental factors are as follows:

- Air is the preferred mode of transport for high value and small volume shipments that are very time sensitive. Air transport is usually used for low volumes with low weight, notably consumer goods in small packages, or express cargo. Usage of air cargo has risen in recent years due to increased e-commerce and the broader market positioning of the express carriers for industry products. Studies show that air cargo carries goods on distances of more than 2 000 miles. Air transport is usually combined with short haul truck transport for final delivery.
- Trucks are the preferred mode of transport for short distances but are also frequently used in overland transport over medium and long distance when no alternative transport mode exists. Goods that are carried by trucks on these distances are of medium to high value, and the volume is full or less than full container size. Trucks may also be used for long haul distance transport for high value goods such as gas and oil. The advantage of road transportation is its flexibility in routes and loading units.
- Water, in particular maritime sea shipping, is the preferred mode of transport for long distances and is used to carry lower value goods such as bulk commodities which are the least time sensitive, and components for manufacturing, as well as consumer goods transported in containers. Inland water shipping and short sea shipping are used for hinterland and feeder transport to major sea ports.
- Rail is considered an efficient transport mode when moving heavy freight over long distances. Top commodities moved by rail consist of bulk commodities such as agriculture and energy products, primary metals and minerals, automobile and other components used in manufacturing, paper and wood products, and construction materials. Because of the low value, these products are very sensitive to high transport costs. It is also an option for shipment of large quantities of identical consumer goods that can be transported in rail cars or containers, in particular when combined with road transportation—so-called intermodal or combined transport<sup>48</sup>. Rail is the backbone of many long distance transport corridors but is inflexible because it depends on existing physical infrastructure that is expensive to put in place and to maintain.

Because of their different characteristics, not every transport mode is suitable for all goods, distances and logistics networks. Also, shippers do not always have the choice of all the modes on their territory. Transport choices are particularly limited for landlocked mountainous countries. Reaching a maritime seaport from a landlocked country already entails a road transport of many thousand kilometres (see table 3).

The maritime and rail mode compete on longer distances, in particular with regards to bulk commodities but increasingly also on containerised goods, as rail may be an alternative to

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<sup>48</sup> UNECE *Terminology on combined transport*, (Geneva, 2001) Intermodal transport: The movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes. Combined transport: Intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final legs carried out by road are as short as possible.

long distance shipping because of shorter time. Efficient and fast rail transportation is now also positioning itself as an alternative to air transportation—see UPS and DHL services in chapter 3.4.1. —when the time difference is not too high and can be controlled. Although road is not an economic competitive option over long distances, it is frequently used for freight moves on long distances if no rail infrastructure or frequent services are available

### 3.3.2 [Modal split in world trade](#)

Maritime shipping is the main mode of transport in international trade, accounting for about 90 per cent of all tonnage and 72.71 per cent of all value carried<sup>49</sup>. In 2013, world seaborne trade carried 9,548 million tonnes (tonnes loaded) out of which 1,524 million tonnes were containerised goods, 2,920 million tonnes the five main bulks goods (iron ores, coal, bauxite and alumina, phosphate rocks, and grain), 2,260 million tonnes other dry cargo that is not containerised (wood products and other break bulk cargo) and 2,844 million tonnes oil and gas<sup>50</sup>.

In 2012, the vast majority of freight tonnage of the external EU-28 merchandise trade used the maritime shipping mode (75.33 per cent), against 10.2 per cent by pipeline, 6.2 per cent by road and 3.7 per cent by rail<sup>51</sup>. While airfreight accounted only for a small percentage of tonnage moved (0.6 per cent), it represented 22.4 per cent of the total value moved. Data regarding the modal split of freight transport between Turkey and Asia and EU-27 also point to sea transport as the dominant mode of transport in international trade<sup>52</sup>.

The importance of rail for the movement of freight from Asia, namely China, and Europe is still very limited but has constantly been growing in the past years. Several regular freight rail services now exist serving this transport link, using the Trans-Siberian Railway (TSR) through Russia, and Kazakhstan Belarus, Poland and Germany (see chapter 3.4.)

### 3.3.3 [Modal split and transport performance in EATL countries](#)

It is very difficult to obtain statistical information on modal shift in EATL countries. Only OSJD publishes statistics on rail freight transportation<sup>53</sup> for EATL countries.

According to their data, total tonnage carried by freight railway in their member countries declined in 2012 by 4.99 per cent compared to 2011. Rail freight volumes already plunged by 6.42 per cent in 2011. Both national and international—export, import and transit—rail performance has experienced the declining freight volumes, but import rail freight increased, while export and transit volumes decreased. Overall transport performance measured as tonnes/kilometre has increased in 2012 by 1.69 per cent, indicating that less tonnage is moved on longer distances by rail.

In absolute terms OSJD member countries that are also EU member states have recorded the largest plunge in freight volume in 2012. Of the OSJD members countries which are CIS member countries, Tajikistan recorded the largest drop of -9.20 per cent, also continuing the trend of 2011 where total tonnage decreased by 11 per cent.

The OSJD calculates a modal split of freight transport at the national level, but does not differentiate by partner country, national or international traffic, or provides distances.

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<sup>49</sup> Data from IHS Global Insight, Inc. World Trade Service. Percentage does not include intra-EU trade.

<sup>50</sup> UNCTAD *Review of Maritime Trade 2014*, (Geneva, 2013).

<sup>51</sup> European Commission EU Transport in figures. Statistical Pocketbook (Brussels, 2014). Available from <http://ec.europa.eu/transport/facts-fundings/statistics/doc/2014/pocketbook2014.pdf> (accessed 6 January 2015).

<sup>52</sup> UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport*, (New York and Geneva, 2012), page 38

<sup>53</sup> OSJD *Bulletin of statistical data for international rail traffic for 2012*, (Warsaw 2012). Available at [http://en.osjd.org/statico/public/en?STRUCTURE\\_ID=5062](http://en.osjd.org/statico/public/en?STRUCTURE_ID=5062)

According to the OJSD data for 2012 (see table 12 and figure 6), road was the main freight transport mode for domestic and international transport. Pipelines carried a significant share of goods for Russia, Moldova, and Belarus (28.4 per cent, 36.1 per cent and 12.8 per cent respective share). In all countries only an insignificant volume of freight is carried by air.

Figure 6: Rail and non-rail modes of transport for freight transportation, OJSD member countries, 2012

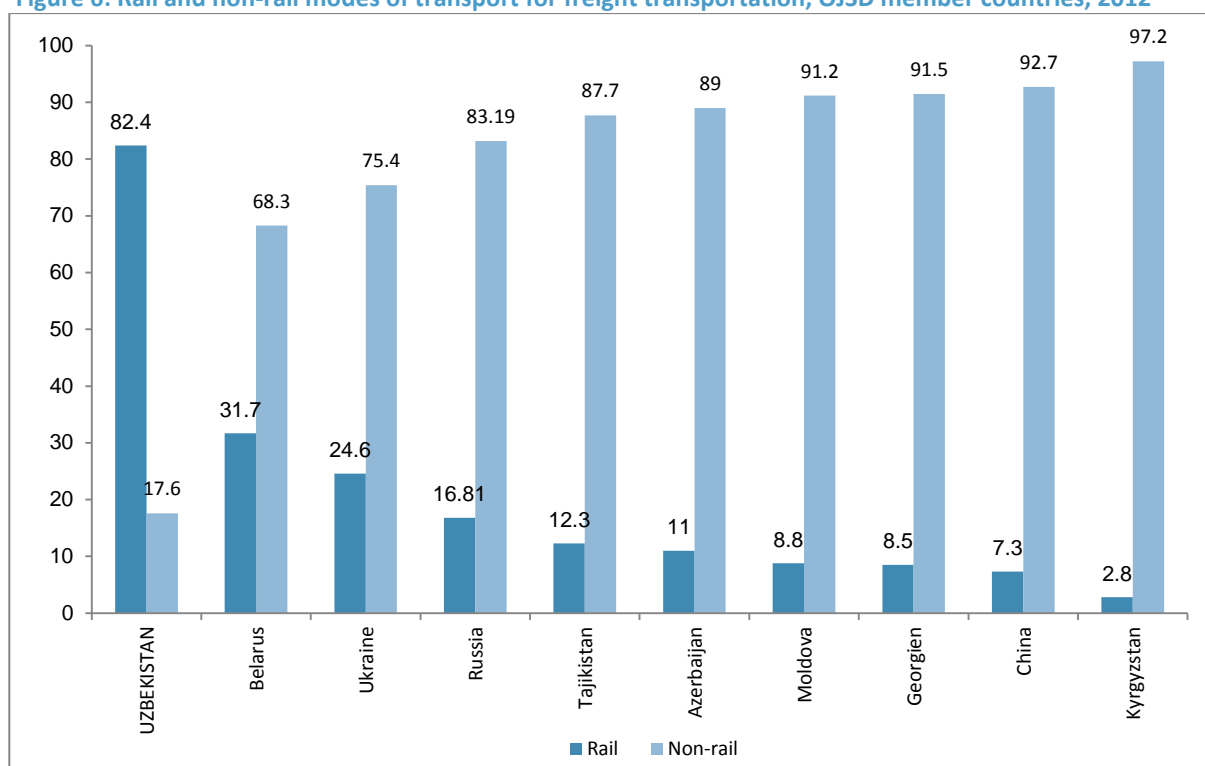


Table 12: Freight traffic statistics by mode, in per cent of overall tonnage carried, 2012

Modal Shift	Rail	Road	Overseas	Inland water	Pipeline	Air
Belarus	31.7%	39.1	0	0.8	28.4	0
Ukraine	24.6	68.1	0.2	0.2	6.9	0.01
Russia	16.81	68.46	1.86	0	12.85	0.01
Tajikistan	12.3	87.7	0	0	0	0
Moldova	8.8	54.8	0	0.3	36.1	0
China	7.3	81.1	10	0	1.6	0.01
Kyrgyzstan	2.8	96.5	0	0.03	0.7	0

Source for figure 6 and table 12: OJSD *Bulletin of statistical data for international rail traffic for 2012*, (Warsaw 2012). Available at [http://en.os.org/statico/public/en?STRUCTURE\\_ID=5062](http://en.os.org/statico/public/en?STRUCTURE_ID=5062)

The CCPMM provides information on type of products carried on the corridors and by which mode, but extrapolates this information only from their sample. It is therefore not representative of the total transport flows on the corridors, but provides an insight into the characteristics of the current transport flows<sup>54</sup>. The 2013 figures show that the most common product carried in 2013 were agricultural products, followed by machinery, industrial materials, base metals, textiles and wood. Manufactured items only appear on 7th position. Road is the favoured mode for agricultural products, textiles and industry materials. Agriculture products, namely vegetables, are commonly moved within the country or on short trips across the border and they therefore require a flexible means of transport, which is road's main advantage. Textiles and industrial materials may also be moved between production site, and rail may not always be available close to these sites, so that

<sup>54</sup> CAREC CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013

clients prefer to use road for the through journey. Rail is used for machineries, base materials, and wood. These are the typical heavy, low value, bulk commodities for which rail is the most costs effective transport. Interestingly, rail also has a large share of manufactured items. This share may be related to the transport of manufactured items from China to Central Asian countries such as Kazakhstan and Russia.

### 3.4 Existing rail and road transport services

According to the UNESCAP study<sup>55</sup>, the road freight transport market in CIS countries consisted of a high number of professional transport operators with a number of medium size operators that operate regularly from and to Europe, and have the experience and equipment to meet the technical regulations and environmental standards for the EU market.

With regards to the rail transport segment, each of the EATL countries have railways that operate freight and passenger transports. In most of the countries the rail operator is a state enterprise, and it is the unique operator. Others, such as Kazakhstan, have recently liberalised and privatised the railways.

There are no operational freight services between Georgia and Russia, Armenia and Iran, Armenia and Turkey, and Georgia and Turkey. Afghanistan has only recently, in 2012, opened the newly built 75 km. long railway from Hairatan (freight terminal on the Afghan river bank of the Amu Darya river that borders with Uzbekistan) to Mazar-i-Sharif. The rail link between CIS countries and China is currently limited to the Kazakhstan-China rail links in Khorgos and Dostik and Alatawshankou.

Currently, the main railways used for freight traffic are the northern and southern leg of the Trans-Siberian Railway (TSR). It has several advantages including limited number of border crossings, a uniform gauge and electrified traction<sup>56</sup>. Freight volumes on the TSR have plunged 2009, but picked up since then to reach pre-crisis level in 2012 with 638,216 TEU (combining transit, international and national traffic)<sup>57</sup>. The Coordinating Council on Trans-Siberian Transportation (CCTT) has been created to attract freight to the TSR and has now more than 100 members from 23 countries, including ports, stevedores, railways and rail operators.

There are also regular freight train services on the North-South connection from the Baltic Sea ports to Odessa/Ilyichevsk at the Black Sea. The Viking container train connects Lithuania with Belarus, Ukraine and through a branch Moldova, and links with Bulgaria and Turkey using RO-RO ferry services. After a slump in overall freight volume in 2012, volume has picked up again in 2013 to reach 381,73 TEU tonnes.

The connection from Istanbul to China via Iran, Turkmenistan, Uzbekistan, and Kazakhstan (EATL rail route 4) is seen as an important rail link for the future. There is currently no regular freight service on the entire leg, but a regular passenger service is available from Teheran to Istanbul, and pilot freight train runs have been undertaken in the past, including the so-called Gul or ECO train. This route is considered to be of strategic importance for China as a possible alternative to the TSR and therefore referred to as "Southern Corridor" or "Southern Silk Road"<sup>58</sup>.

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<sup>55</sup> UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1*, (New York 2003), p. 38

<sup>56</sup> UNECE and UNESCAP, *Joint Study on Developing the Euro-Asia Transport Links* (Geneva 2008)

<sup>57</sup> CCTT, <http://en.icctt.com/international-importance>, accessed January 2015.

<sup>58</sup> Shawn Donnan, "Geopolitics risks derailing new Silk Road", *Financial Times*, 17 October 2014.

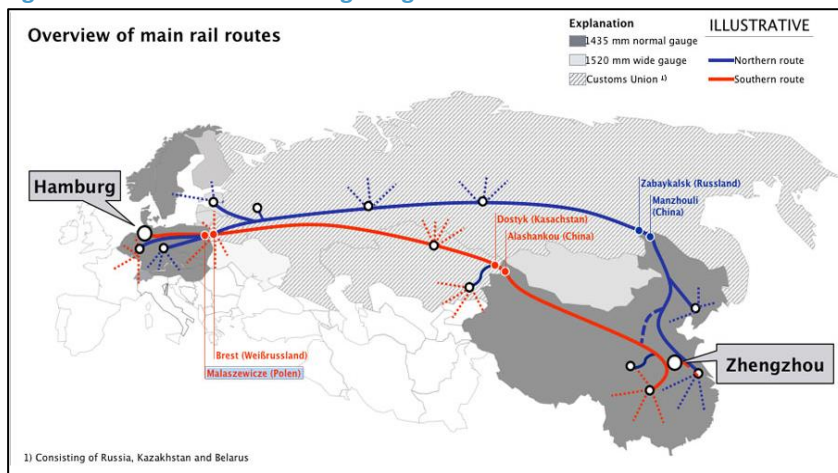
Transport services from Europe to Central Asia are available but are organised in an ad-hoc and flexible manner following the demands. These services are operated by combing many rail routes, including the TSR into Kazakhstan, and central rail link through Uzbekistan.

### 3.4.1 Examples of freight rail services

Examples of know freight rail services that operate regularly public or company trains on EATL rail routes. For other examples of regular or pilot freight trains in the past see UNECE (2012)<sup>59</sup>.

- a) DB Schenker and Russian Railways (RZD) created a joint venture, TransEurasia Logistics (TEL) in 2008 to operate regular multi-customer block trains from Germany to Moscow, CIS and China. Several different services are available:
  - Moscovite (weekly (5/7) train between Duisburg/ Grossbeeren and Moscow),
  - Tiger Train (Regular weekly block train 80 – 100 TEU between Duisburg/Grossbeeren and China including Zengzhou and Chongqing)
  - Tubetaika (Daily train from Duisburg to CIS, several origins/destinations possible)
    - Matroschka (Daily train between Duisburg and East Russia origins/destinations possible).
- b) DB Schenker and Zengzhou International Land Port Development and Construction Co. TLD<sup>60</sup>, launched a regular weekly container (41 TEU) block train from Zengzhou to Hamburg and return in mid-2013. This is a multi-customer train focusing on electronics such as robots.

Figure 7: DB Schenker Hamburg-Zengzhou container train



Source: DB Schenker, "First freight train from Zengzhou arrived in Hamburg, Press news 02-08-2013, Available at [http://www.dbschenker.com/ho-en/news\\_media/press/news/4261694/2013-08-02-chinatrains.html](http://www.dbschenker.com/ho-en/news_media/press/news/4261694/2013-08-02-chinatrains.html). Accessed January 2015.

- c) DB Schenker Rail Automotive operates a daily container train for BMW from Leipzig to Shenyang (23 day) to carry automotive parts and components to the company's factory there.
- d) Container train Madrid China. IRS InterRail Services GmbH, headquartered in Berlin, Germany, has launched a container freight train between China and Spain, in cooperation with the Chinese Railways and DB Intermodal. "On November 18, the first container block train between Yiwu in the coastal province of Zhejiang, East China, and Madrid, the capital of Spain, departed for Spain, pulling 30x40 foot HC TBJU containers"<sup>61</sup>. It is planned to

<sup>59</sup> UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012).

<sup>60</sup> Zengzhou Land Port Development and Construction Co. Ltd. has signed a logistics accord in 2014 with RZD to extend collaboration and use of CIM/SGMS consignment note.

<sup>61</sup> [http://www.interrailservices.com/index.php?id=31&L=1&tx\\_ttnews%5Btt\\_news%5D=20&cHash=a08afca929a2056297cff43e2d6c69c9](http://www.interrailservices.com/index.php?id=31&L=1&tx_ttnews%5Btt_news%5D=20&cHash=a08afca929a2056297cff43e2d6c69c9)



become a regular service of 2 trains per month from Yiwu to Madrid in 2015 and targets small consumer goods. Express carriers DHL and UPS both established partnerships in 2013 with local rail operators to launch rail freight services. DHL Global Forwarding offers a weekly train from Chengdu to Lodz in Poland that is specially equipped with temperature-controlled containers for sensitive products. It also plans to establish further daily services UTLC<sup>62</sup>, RZD, Kaz Timur Ehly, and Belarus state railway company. UPS offers a full container load rail transport option between Chengdu and Lodz and Zengzhou and Hamburg. UPS will purchase space on existing trains from various operators to offer this weekly service.

- e) Baltic transit trains from Latvia to Almaty and Bishkek, on the Northern Distribution Network (NDN)<sup>63</sup> provide transport services to Kabul.
- f) Container block train “Baltica transit” connects Riga port with Central Asia (Kazakhstan, Uzbekistan, Turkmenistan, Kirgizstan) and Afghanistan, adds cargo from other Baltic ports in Rezekne station (Latvia). The train is operated by the companies FESCO and Latvian Railway. “Baltica transit” provides regular service 2-3 times a week and gained more than 10 years’ experience from 2003. The main advantages of the train is cargo collection from all Baltic ports (Tallinn, Riga, Klaipeda), short transit times, possibility of tracking and tracing on-line, electronic declaration before arrival, simplified customs transit procedures. 8259 TEU were transported by the “Baltica transit” train in 2014.
- g) Container block train “Riga Express” since 2010 provides weekly container service between Port of Riga and Moscow. The train is operated by the company SRR and provides full package of services such as rail transportation, customs clearance, door to door deliveries, FCL and LCL.
- h) Container block train „Zubr” was launched in 2009 between Latvia and Belarus and now operated by railway companies from Latvia, Estonia, Belarus, Ukraine and Moldova. Train “Zubr” connects Port of Tallinn and Port of Riga with Ukrainian ports Odessa and Ilyichivsk. The train carries 20, 40 and 45 feet universal and special containers and provides such advantages as convenient service from door to door, necessary equipment and additional services like customs formalities, documentation handling, cargo tracking and tracing. 5265 TEU were transported by the “Zubr” train in 2014 which is 5,19% more than in 2013.
- i) Saulé/ Sun Train from Lithuanian port of Klaipedia and Vilnus to Almaty, and through Doystik/ Alatawshankou to Chongqing (China) is a 82 TEU container train operated by Lithuanian Railways runs bi-monthly and on flexible schedule since 2011. The travel time for the 10’929km is 13 days and the train carried 1’260 TEU in 2013. Through an extension by short sea shipping from Klapeida the total trip to Antwerp is 11 068 km. long and can be travelled in 18 days.
- j) Merkurijus between Kalingrad/Klapeida and Moscow is operated by Russian Railways and Lithuanian Railways departs on a fixed schedule and takes 2 days, carrying 114 TEU weekly.
- k) Viking train: Based on cooperation between operators, railroads and freight forwarders of Lithuania, Belarus and Ukraine – now joined by Bulgaria, Moldova and Turkey. Since 2003 it offers a combined rail transport train from the Port of Klaipeda to Ilyichevsk (Ukraine). Travels the distance of 1 734 km. from Klapeida to Ilyichevsk in 56.5 hours, with regular weekly (3/7) schedule. Connection can include a segment through Moldova, as well as a RO-RO connection via ferry to Sofia. The train carries 20, 40 and 45-foot universal and

<sup>62</sup> UTLC is A Russian, Belarus, a Kazakhstan joint venture

<sup>63</sup> The NDN is the supply logistics network of the US army in Afghanistan. It consists of a series of commercially-based logistical arrangements connecting Baltic and Caspian ports with Afghanistan via Russia, Central Asia, and the Caucasus. From <http://csis.org/program/northern-distribution-network-ndn>. Accessed January 2015

special containers, trailers, trucks and semi-trailers. In 2003, 177 TEU were moved on the Viking and the freight volume has since then constantly increased to 38,173 TEU in 2013 with 18,678 TEU into Lithuania and 19495 out of Lithuania. In 2011 56,000 TEU were moved by the Viking train.

Figure 8: Viking container train from Klaipeda to Odessa



Source: <http://railturkey.org/2013/09/17/viking-train-to-middle-east/>

- I) Japan-Russia Container block trains operated jointly by Russkaya Troika, Russian Railways and Mitsui&Co Ltd. This joint venture operates a number of public block trains and company trains from the Pacific coast ports of Vostochny and Vladivostok to Moscow, or to specific company locations inside Russia and Uzbekistan<sup>64</sup>. The regular container train named All Japan Consolidate Block Train (AJCBT) goes non-stop to Moscow and the overall travel time from Japan to Moscow is 25 days compared to 40 days by maritime shipping through Finish ports. The AJCBT is operating at only 60 per cent of its 100 million tonnes annual capacity<sup>65</sup>.

### 3.4.2 Characteristics of the current freight train services

The existing rail freight services are either company or public container block trains with a loading capacity between 40-80 TEU per train. The difference between these two types of freight train services is that public container trains are single wagon and part loads aggregated to one train. They are multiple-consignments for multiple-customers trains, and usually operate regularly on fixed routes and schedules in a bi-directional manner, meaning that they carry freight in both directions. Company trains, such as the DB Schenker BMW train service described above,<sup>66</sup> —are usually container or intermodal block trains that carry a single or few commodities for one customer. Company container trains also run regularly but are flexible according to the company's requirements. Hewlett Packard runs a weekly container block train operated by DB Schenker to its production facilities in Chongqing and is said to now move almost 2/3 of the notebooks, produced in its factory in Chongqing to their final markets in Europe via train on the TSR<sup>67</sup>.

These intermodal or container block trains combine the advantage of offering smaller loading quantities to its customers with the operational effectiveness of block trains, that are assembled at one point and sent directly to its destination point without intermediate handling, split up for adding and removing wagons. Block trains benefit from simplified

<sup>64</sup> [mitsui-tsr.com/en/index.html](http://mitsui-tsr.com/en/index.html)

<sup>65</sup> Mitsui, "To Russia by rail", Available at [https://www.mitsui.com/jp/en/business/challenge/1191093\\_1856.html](https://www.mitsui.com/jp/en/business/challenge/1191093_1856.html). Accessed January 2015

<sup>66</sup> Other container block trains for the automotive industry are described in UNECE, *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012), pp 83

<sup>67</sup> Shawn Donnan, "Geopolitics risks derailing new Silk Road", *Financial Times*, 17 October 2014.

documentation, such as the CIM/SMGS consignment note accepted for the entire transportation stretch, and faster customs clearance procedures when operated in a transport corridor (see Viking train example in chapter 4.4.).

In terms of market segment and commodities carried by these container cargo freight trains, the operators focus on the carriage of manufactured consumer goods such as electronic products, or intermediate parts and components or construction cargo, which can be containerised. Such commodities are of medium value, volume and weights. DB Schenker summarised their market segment of the regular rail freight services between Germany and China as *“products that need to be transported quickly but at a lower cost than by air freight, including sale items in the clothing industry, electronic equipment and heavy goods”*<sup>68</sup>.

The recently developed container block trains expand the traditional rail freight market segment that consisted of bulk commodities such as gravel, iron ore, coal, coke, steel sulphur, grain and wheat, or bulk liquids such as crude and mineral oil, to intermediate and finished goods, such as electronics products, automotive components or small consumer goods. Belarus Railways share of commodities moved by rail to the ports of Latvia also reflects this mix of commodities. In 2011 *“the major shipped commodities were oil and oil products (a 22.6 per cent increase in traffic as against 2010), chemicals and soda (up 7 times), iron (27.2 per cent), salt (30.2 per cent), construction cargo (18.6 per cent)”*<sup>69</sup>.

As mentioned before (chapter 2.4.), transport time is rail’s primary advantage over maritime shipping. On some routes rail transport cuts travel time by half<sup>70</sup>. Common issues for these container trains are the low temperatures in winter and hot temperatures in summer that make the transport unsuitable for sensitive goods. Developing refrigerated and temperature controlled freight service is therefore an additional new market segment (see DHL and UPS description above). Another difficulty is the unbalanced trade and transport flows between countries that create difficulties for operators to attract cargo for their return trip. An important success factor of the container block trains therefore is the close cooperation with seaports and freight forwarders in the origin and destination market to consolidate the required freight volume. Mitsui Ltd. for example is responsible for marketing of the “Russkaya Troika” container trains to Japanese customers, while the other partners of the joint venture bear operational responsibilities.

### 3.5 Demand for freight rail services on EATL routes

As mentioned above, it is impossible to make an assessment of current and future transport flows in terms of volume and transport mode and to estimate the potential for shifting cargo from maritime to rail transport. The qualitative information gathered in this paper only highlights recent and future evolutions that could change demand for rail freight transport.

Current transport flows on EATL routes are characterised by the extensive flow of bulk commodities, including liquid bulk such as crude and mineral oil, and dry bulk such as coal, coke, phosphate stone, sulphur, as export flows from CIS economies to Europe and Asia. Manufactured goods, such as electronics and industry products, automotive parts and components are also moved from Asia and Europe to production sites in Russia, China and Uzbekistan, or from production sites in China to Europe.

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<sup>68</sup> DB Schenker Press News, “Via container trains from Europe to China and back”, Available at [http://www.dbschenker.com/homenews\\_media/press/news/2728098/china\\_train.html](http://www.dbschenker.com/homenews_media/press/news/2728098/china_train.html). Accessed January 2015.

<sup>69</sup> Priobank, “Railroad cargo traffic between Belarus and Latvia up 32.2% in 2011”, 24 January 2012, Available at <http://www.priobank.by/e/news/biz/102255>. Accessed January 2015.

<sup>70</sup> [http://www.unece.org/fileadmin/DAM/trans/doc/2013/wp5/wp5-eatl/EATL\\_8th\\_session\\_InfDoc1e.pdf](http://www.unece.org/fileadmin/DAM/trans/doc/2013/wp5/wp5-eatl/EATL_8th_session_InfDoc1e.pdf)

There is a flow in manufactured goods, such as textiles and construction goods, vehicles and other automotive parts into Central Asia and Caucasus. Albeit being less important in volume, this segment of traded goods is set to grow further with the economic development in Central Asia and Caucasus countries. Agricultural products also are moved between EATL countries, namely from Uzbekistan, Armenia, and Kyrgyzstan to Russia, Tajikistan and Kazakhstan.

Turkey and Iran are also both growing in importance as an export market for China, and the continued growth of the Central Asian economies and Georgia and Armenia is likely to increase demand for manufactured goods from Asia.

Because of the low volume and the type of commodities, road will continue to remain an important transport mode for goods from Caucasus and Central Asia to Europe, Asia and in the region. Agricultural products, in particular vegetables and fruits, are perishable goods that are moved on shorter distances relying on flexible transportation to reach local markets. Road is the favoured and most suitable mode of transport for these commodities and trade flows. The bulk commodities are unlikely to generate new demand for rail freight. Even for the growing volume of containerised manufactured goods from China to Central Asia, road remains the major mode because of infrastructure limitations in Central Asia.

When looking at the long distance transport flows, the picture is a bit different. Regular freight trains East-West and North-South exist and are growing. The commodities that will be driving future demand for the long-distance rail services are manufactured goods, either consumer goods or intermediate goods, for which the container freight trains compete with maritime transport. These transport flows move from both directions, Europe and East Asia to production plants inside Russia, Uzbekistan and Kazakhstan<sup>71</sup>, and between Europe and China. The on-going re-location of production plants to locations inside China, (Chongqing and Zengzhou) has the potential to generate more demand for these transcontinental and cross-border long distance rail freight services, as is reflected in the increasing interest of operators to capture this market and offer regular freight trains to or from Zengzhou or Chongqing.

With Turkey, Iran and the Caucasus countries becoming a growing export market for Chinese and Asian products, there is a potential for growing transport along the South route. As the major commodity will be manufactured goods, rail freight could be a suitable and competitive alternative to road transport. The attractiveness of rail for these trade flows is however, restricted by limited network and services on these directions. Current efforts to improve rail infrastructure between Central Asia, Turkey, Iran and China, may however soon create new transport choices for the flow of these goods and also constitute an alternative Southern option to the northern transport link from Asia to Europe through Russia

The example of the Viking train has successfully shown how freight can be attracted to rail, and how a rail corridor becomes a backbone of a new transport link. It will be interesting to see how it can develop to become a transport option for the Caucasus countries of Armenia, Azerbaijan and Georgia that see a continuous economic growth.

## 4 Non-physical barriers

Non-physical barriers cause significant delays, increase transport and logistics costs, and have a negative impact on visibility and reliability in the transport chain. Traders, shippers, and transport operators face various non-physical barriers of different types and causes, the

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<sup>71</sup> There is a high number of company trains for car manufacturers that move components and disassembled cars between their plants.

main one being the long waiting times and queues at border crossing points (BCP) or en-route check points. These non-physical barriers are the result of complex national legislation and regulations, lack of cross-border harmonization and collaboration, organizational inefficiencies, non-application of trade facilitation standards and practices, lack of trained human resources, and insufficient investment in modern infrastructure and IT equipment for processing and data exchange.

#### 4.1 Border Crossing Points as bottlenecks

Border crossing points have been identified as the major bottleneck for transport and trade in the EATL region<sup>72</sup>, as they create delays and waiting times and create opportunities for unofficial payments to speed up the process.

Several studies showed that border crossing times on EATL routes vary from a number of days to a few hours, but are on average too long compared to waiting times measured in other regions, such as South Asia and Europe. A UNESCAP study on transit rail traffic in Asia and the Pacific point out that “average border-crossing times in Europe are in the 30-40 minutes range”, and that “the ECE recommendation for border stopping time is 60 minutes for international shuttle trains and 30 minutes for combined transport”<sup>73</sup>. TRACECA railroad study reckoned that inspections by “both railways and customs should be completed within the overall time span of two hours. In the case of total transit trains with bulk cargo, this should be reduced to 90 minutes”<sup>74</sup>. Both transport modes, road and rail, are affected by the long delays at border crossings, but rail delays tend to be even longer than waiting times in road transport.

The ADB CCPMM data allows a detailed comparison of waiting times in Central Asia at the level of individual border crossings. The CCPMM report<sup>75</sup> concludes that on a general level border crossing delays on CAREC corridors have not improved since 2009. Slight improvements can be observed for specific borders for road corridors, but rail transport border crossing times are still extremely high ranging from 65.6 hours at Dostyk (Kazakhstan) for cargo coming from China to the comparatively short times measured for the rail border crossing Alat-Farap between Uzbekistan and Turkmenistan where it takes only 6 hours to clear incoming cargo. Figure 10 and 11 both represent CCPMM data and show that times vary substantially from one border crossing to another.

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<sup>72</sup> UNECE Euro-Asia Transport Linkages. *Paving the way for a more efficient Euro-Asian transport* (New York and Geneva, 2012)

<sup>73</sup> AGTC, cited in UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1*, (New York 2003), p. 35

<sup>74</sup> TRACECA Project: Harmonization of Border Crossing Procedures, Recommendation of Border Harmonization Evaluation Workshop, cited in UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1*, (New York 2003), p. 35

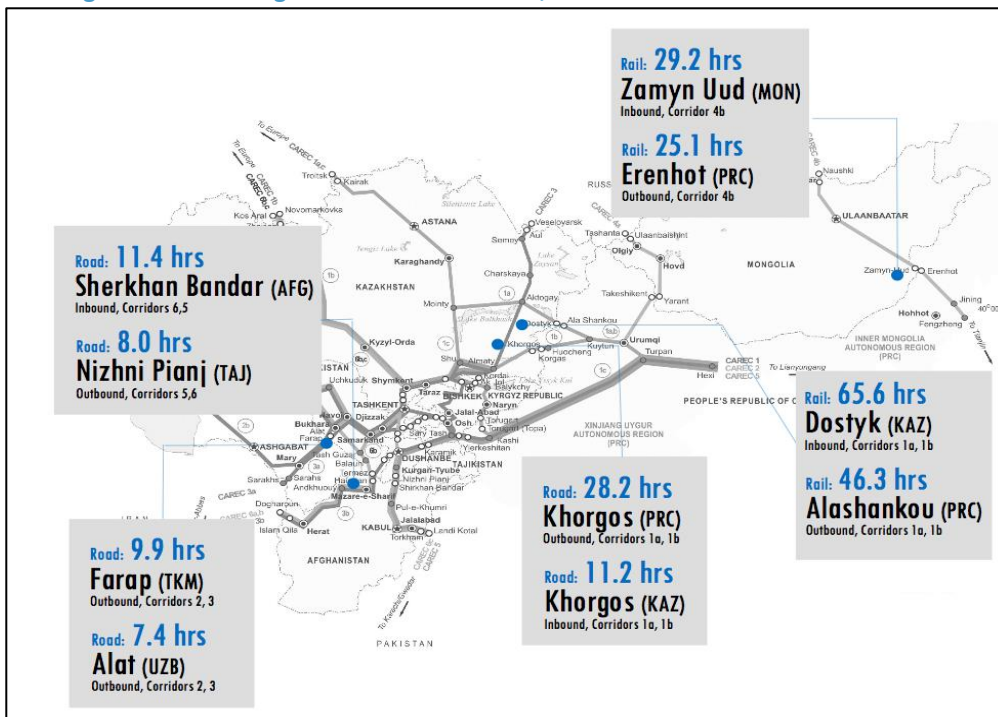
<sup>75</sup> CAREC CARECCPMM *Corridor Performance Measurement and Monitoring Annual Report*, 2013

Figure 9: Average border crossing times, Uzbekistan road BSP, 2013



Source: Author based on data from CAREC CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013

Figure 10: Average border crossing times for selected BCP, 2013



Source: CAREC CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013

Clearance time at the Kazakhstan-China border crossing Khorgos can take up to 28.2 hours for goods crossing into Kazakhstan and 11.2 hours for goods going into China. Clearance time for cargo at Tajik border points Dusti and Fatehobad with Afghanistan are, according to the CCPMM, amongst the lowest on the CAREC corridors (5.3 hours in Dusti and 5.1 hours in Fatehobad for incoming cargo). Waiting times at Uzbek border crossings range from 5.7 hours at the border with Kazakhstan in the North, Keles, to 9.7 hours at another border crossing with Kazakhstan further South, Yallama.

Border crossings waiting times and delays constitute a significant share of the overall travel time spent by trucks and trains on EATL routes and therefore have a strong negative impact on the attractiveness of the routes. A corridor analysis conducted by UNESCAP on the road

route from Almaty (Kazakhstan) to Berlin (Germany) via the Russian Federation (Kulin and Krasnoe), Belarus, and Poland, revealed that “50 per cent of the transit time is spend waiting at border crossing points between Kazakhstan and the Russian Federation (3-4 days) and between the Russian Federation and Belarus (4-7days).<sup>76</sup>” The overall time for the trip was 10-13 days, instead of the 6 days that were possible, if one assumes a border crossing time of 5 hours.

Rent-seeking by government officials in form of unofficial payments is reportedly rather frequent on EATL routes. The CCPMM measured those payments and concluded that unofficial payments affected road more frequently than rail transports and occur mainly during the border crossing process. Whenever there is an escort involved in the transport, the probability of having to pay an unofficial payment is very high—this payment is referred to as “tea money” with an average costs of 76 US\$. Unofficial payments at customs clearance are less probable but are more expensive with 202 US\$. Police controls or other vehicle, driver and goods inspections, including en route are also frequent causes for demand for unofficial payments<sup>77</sup>.

## 4.2 Multiple causes for the bottlenecks

Various problems underpin the border crossing delays and waiting times as many non-physical barriers affect the border clearance processes, as the border crossings are the location where national legislation is enforced and government agencies are present to control compliance.

### 4.2.1 Process inefficiencies at Border Crossing Points

Numerous government agencies are present at border crossings to control compliance with national legislation governing immigration, taxation, environment and health protection, customs and trade policy, transport services and vehicles, and other regulations<sup>78</sup>. Control measures apply to drivers, means of transportation, and goods, and include document checks, weighing, scanning and measuring of vehicles, and physical inspection of the goods. These formalities take time, in particular if the multiple agencies involved do not collaborate and share documents, and information.

As many studies reveal, un-coordinated and repetitive intervention of numerous government agencies on the same shipment, high level of physical inspection of the cargo, and inadequate infrastructure and equipment characterise the border crossings in the region. The high frequency of physical inspection of shipments and cargo at border crossings seems to be the major bottleneck in the clearance processes. Kazakh customs authorities at the border crossing Khorgos, for example, do not trust cargo documents for mixed load containers coming in from China and therefore systematically physically inspect containers coming in from China<sup>79</sup> to match the data with the actual goods. Customs also commonly physically inspect the shipments or at least open the loading unit for primary visual inspection. Physical inspections do not only uphold the individual shipment in question but also lead to congestion, as many of the equipment and infrastructure at the border crossing do not match the growing cargo volumes and frequency of such operations.

There are many reasons for the persistence of physical inspection. Often there is no effective risk management system in place that allows the border staff to target their inspections on

<sup>76</sup> UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries. Landlocked Developing Countries Series No1* (New York 2003)

<sup>77</sup> CAREC CARECCPMM *Corridor Performance Measurement and Monitoring Annual Report, 2013*

<sup>78</sup> Government agencies include border/national Security, Police controls, Visa and immigration controls, traffic and transport inspection including weight and standard inspection and vehicle registration

<sup>79</sup> Reported in an unpublished case study of the Corridor 1 by the CCPMM team

specific, high and medium risk cargo and means of transportation, while clearing the other cargo and trucks faster without physical inspection. Physical inspection is also an effective means for rent-seeking, as truck drivers and shippers want to speed up the process. Legislation may attribute a personal responsibility for non-detected fraud or smuggling to the border officials. Furthermore, numerous border crossing points lack equipment for non-intrusive controls, such as scanning or weighing of containers.

And finally, many of the border clearance process requirements are duplications: identical cargo and vehicle documents need to be presented, are reviewed and stamped by various agencies in a sequential process. Processes and document requirements are designed from the isolated perspective of each agency and are not optimized from the overall perspective of achieving a faster border crossing clearance through joint operations and sharing of data.

#### 4.2.2 [Waiting times because of transport operations](#)

Frequently, transport operations such as breaking up of containers and change of trucks are also undertaken at border crossings, where the unloading and loading operations add to the congestion if there is no dedicated storage and handling space.

Complex operational processes and procedures are also a reality for rail border crossings. Activities at border crossing for cargo by rail include documentary checks for matching between consignment notes, wagon lists, and cargo documents, customs controls and other operations such as classifications and switching of wagons, locomotive and crew, break-of-gauge<sup>80</sup> operations, marshalling and technical inspections and preparation of rail transfer documents. According to the CCPMM study, waiting times mainly causes rail traffic delays at border crossing. Such waiting times range from 6,5 hours at Saryagash (Kazakhstan) to 42,7hours at Alashankou (China). The time required for break-of gauge operations ranges from 2,8 hours to 2,5hours, the classification of trains from 1,7hours to 1,2 hours, and the customs clearance from 3,7hours to 15,1hours<sup>81</sup>.

Timely availability of rolling stock seems to be a cause of long waiting times, in particular when trains cross into Europe where different load and train length require the splitting of trains. Break-of-gauge operations also involve trans-loading the wagons/containers and require specific facilities and equipment such as forklifts, cranes, etc. The equipment of the border crossing points with such equipment is uneven. Alashankou on the Chinese side has four trans-loading centres, each equipped with a crane that can handle 36 tonnes, but Dostyk on the Kazhak side, where goods are trans-loaded when travelling eastward, only has one trans-loading facility<sup>82</sup>.

#### 4.2.3 [Political uncertainties](#)

Temporary closures of border crossing points between countries are also frequent in Central Asia, where border crossing point between Tajikistan and Kyrgyzstan have been closed frequently in 2013 and 2014 because of border incidents, and Uzbekistan frequently closes its borders with Tajikistan in the Fergana valley for short periods, such as 10 days, for the festivities of the Independence Day. Governments may also change the classification of a border crossing points putting in place restrictions for cargo movement. The Kyrgyz Republic for example has re-classified the Karamyk border crossing with Tajikistan, so that transit

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<sup>80</sup> Railways run on tracks with different gauge size. In the EATL network, Iran, Turkey, and China have 1,435mm gauge tracks, whilst the other CIS countries have 1,520 mm gauge tracks

<sup>81</sup> CAREC, *CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013*. Note that CCPMM only has few rail traffic samples and they are limited to Kazakhstan China, and Mongolia. The term customs clearance is also not defined can therefore include entry or exit procedures or full clearance of goods.

<sup>82</sup> CAREC *CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013*, p.18



cargo can officially no longer exist from there to Tajikistan. As Karamyk is an important crossing point for goods from China into Central Asia, the border crossing point is still used for transit cargo from China but truck drivers now have to add 100 km of to their travel route to drive to the next border post to get the exit stamp on the Customs declaration. Political conflicts amongst EATL countries also lead to permanent border closures. Such changes create disruptions but also increase uncertainty amongst the operators about the actual situation and reduce the efficiency in the transport chain as contingency times are frequently built into the schedules.

Cross-border trade relies on effective transit customs procedures. Many of the EATL countries are party to the TIR Convention that puts in place a common customs transit clearance procedure and a cross-border transit guarantee, the so-called TIR Carnets. The TIR Convention and its application by Customs authorities is crucial for Central Asia, Eastern European and Caucasus countries and is broadly believed to be well functioning and accepted by Customs authorities. In 2013 the functioning of the TIR system has however been put in doubt by a decision of the Russian Federation and uncertainty to its future prevails.

The effectiveness of the TIR systems rests upon the use and acceptance of TIR carnets as Customs declaration and customs guarantee. TIR Carnets are issued by a national association, usually transport association, and are recognised by Customs as national guarantee for the shipment in transit. In September 2013 the Federal Customs Service (FCS) of the Russian Federation had announced that it would no longer accept the TIR carnets as guarantee. This has caused a lot of concern, confusion and uncertainty with regards to the new procedure and the validity of the carnet<sup>83</sup>. Another more recent uncertainty in transit through Russia is the result of the trade sanctions imposed by the EU-28 and Russia on specific goods. There are reports that transit cargo including in rail cargo is refused to transit by the FCS.

### 4.3 Differences in legal regimes

Cross border road and rail transport has to comply with national legislation regarding the use of roads by foreign operators and the provision of transport services in the territory, the technical standards and regulations regarding transport vehicles (vehicle dimensions, weight and axel load restrictions etc.), visa regulations for foreign truck drivers and cargo clearance procedures. In the absence of a multilateral framework, national legislation and bilateral agreements prevail, creating an overlapping net of different requirements that shippers and operators have to respect.

#### 4.3.1 Legal regime applying to the vehicle and transport service

Multiple bilateral road transport agreements have been signed amongst CIS countries<sup>84</sup>. They regulate on a reciprocal manner *terms and conditions under which transport operators from one nation can function in the other* and systems and consultations are in place to regarding *annual quotas, fixing the total number of permits granted by each country*<sup>85</sup>. They also define the procedures for obtaining transport permits to benefit from preferential access to the transport market and roads of the foreign countries.

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<sup>83</sup> See <http://www.unece.org/unece-main/info-resources/presscurrent-press-h/transport/2014/tir-executive-board-takes-note-of-last-minute-decision-by-the-russian-customs-to-extend-the-use-of-tir-carnets-until-30-november-2014/tir-executive-board-takes-note-of-last-minute-decision-by-the-russian-customs-to-extend-the-use-of-tir-carnets-until-30-november-2014.html>

<sup>84</sup> UNECE mentions 140 bilateral transport agreements between Europe and Asia of which 75 are between to two transit countries. UNECE, *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport*, (New York and Geneva, 2012), p 158

<sup>85</sup> National associations issue their transport operators a fixed number of permits, as per the agreement. These permits grant the right to travel through the territories of the countries specified in the permit.

Although these bilateral agreements aim at facilitating trade, the bilateral nature of the conditions complicate the transport journey when several countries have to be crossed, or when vehicles and drivers come from different countries. In addition, a UNESCAP report, referring to a TRACECA study, judges that “*bilateral quotas are often too low, resulting in extremely high prices for road permits on occasion*”<sup>86</sup>. Specific routes and border crossings are fixed by the bilateral agreements and therewith limit the actual choice of transport routes for operators from foreign countries<sup>87</sup>.

The permit schemes also create complex formalities that can create delays and discriminatory processes. The CCPMM report 2013<sup>88</sup> highlights that Chinese truck operators need to go to Almaty to obtain the permit and that this process one of the many factors leading to inefficiencies at the Khorgos border crossing. Goods from China are unloaded and loaded onto Kazakh trucks for onward transport without adequate infrastructure for this operation, as sufficient storage and warehouse facilities in Khorgos are still underdeveloped.

Joining a multilateral permit or scheme, such as the one in place for members of the European Council of Transport Ministers (ECMT)<sup>89</sup>, or further harmonizing transport regulations and providing an equal treatment to all CIS countries would further facilitate road transport for CIS countries according to UNESCAP<sup>90</sup>.

#### 4.3.2 Different legal regimes for rail freight

Similar to road transportation, cross-border rail freight transportation has to comply with national legislation and there are similar restrictions with regards to technical standards, and access to the service market. There are multilateral frameworks in place that govern freight rail transportation in EATL and its neighbouring countries. As table 13 shows, the majority of the EATL countries are members of the OSJD and party to their legal agreements, such as the SMGS<sup>91</sup>. Others are members of the OTIF and their legal regimes, such as the COTIF/CIM<sup>92</sup>, and some are members of both. European countries are also members of the OTIF and contracting parties to the COTIF/CIM, with some countries – Poland, the Baltic States and several others (9 states in total) being members of both organisations and contracting parties to both legal regimes.

One key impact of these different legal regimes is that two different consignment notes for rail freight, each based on the respective legal regime, are used. Operators of a cross border rail transport crossing countries from the two regimes therefore have to re-write a consignment note when crossing into the territory where the different legal regime applies. The legal regimes also differ in other important aspects such as liabilities, and therefore increase uncertainty for cross-border rail freight transport crossing EATL countries.

A common CIM/SMGS consignment note has been developed to avoid reissuing of transport documents and in so doing to simplify customs clearance. But, according to one industry stakeholder, DB Schenker, “*CIM/SMGS consignment notes in both directions are only used in*

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<sup>86</sup> UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries*. Landlocked Developing Countries Series No1, (New York 2003)

<sup>87</sup> UNECE *Euro-Asia Transport Linkages. Paving the way for a more efficient Euro-Asian transport*, (New York and Geneva, 2012), p 158

<sup>88</sup> CAREC CARECCPMM *Corridor Performance Measurement and Monitoring Annual Report*, 2013

<sup>89</sup> Member countries of ECMT are: Albania, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Czech Republic, Denmark, Estonia, the former Yugoslav Republic of Macedonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom.

<sup>90</sup> UNESCAP *Transit Transport Issues in Landlocked and Developing Transit Countries*. Landlocked Developing Countries Series No1, (New York 2003)

<sup>91</sup> Agreement on the International Goods Transport by Rail (SMGS)

<sup>92</sup> CIM Uniform Rule concerning the Contract of international Carriage of goods by Rail Annex B to COTIF

26–27 per cent of cases<sup>93</sup> as not all Customs administrations accept the document. Customs authorities should accept the joint CIM/SMGS consignment note as an equivalent to a transit customs declaration. The benefits of the joint CIM/SMGS are significant for reducing delays in cross-border rail transport as mentioned by DB Schenker -“its use reduces the standing time of rolling stock at borders from three days to 1.5 hours. This considerably increases the competitiveness of rail freight transportation.”<sup>94</sup> The CIM/ SMGS consignment note is also issued as an electronic document so that it can be exchanged electronically in advance with authorities and other transport parties.

**Table 13: International transit, transport and trade facilitation conventions, 2014**

Countries	TIR Convention, 1975	Convention on the Harmonization of Frontier Control	WCO - Revised Kyoto Convention <sup>95</sup>	COTIF/ CIM	SMGS	CMR <sup>96</sup>	ADR <sup>97</sup>
Armenia	Yes	Yes	Y (2011)	Yes		Yes	
Azerbaijan	Yes	Yes	Y (2006)		Yes	Yes	Yes
Belarus	Yes	Yes			Yes	Yes	Yes
China					Yes		
Georgia	Yes	Yes		Yes	Yes	Yes	
Iran	Yes	Yes	Y (2011)	Yes	Yes	Yes	
Kazakhstan	Yes	Yes	Y (2009)		Yes	Yes	Yes
Kyrgyzstan	Yes	Yes			Yes	Yes	
Moldova	Yes	Yes			Yes	Yes	Yes
Russia	Yes	Yes	Y (2011)		Yes	Yes	Yes
Tajikistan	Yes	Yes			Yes	Yes	Yes
Turkey	Yes	Yes	Y (2006)	Yes		Yes	Yes
Turkmenistan	Yes				Yes	Yes	
Ukraine	Yes	Yes	Y (2011)	Yes	Yes	Yes	Yes
Uzbekistan	Yes	Yes			Yes	Yes	

Source: Author from various data sources incl. *United Nations Treaty Collection* (<http://www.treaties.un.org>), *WCO* (<http://wcoomd.org>) for RKC, OSJD (<http://en.osjd.org>) for SMGS, and OTIF (<http://otif.org>) for CIM.

#### 4.4 Possible improvements

Different root causes underpin these barriers and different type of interventions and instruments are necessary to address them. Regional or international co-operation is required to strengthen cross-border harmonization, in the areas of border crossing and customs clearance procedures, railway law and technical standards. Regulatory barriers, such as the complex document requirements and lengthy border crossing formalities or the lack of agency cooperation, must be addressed at the national level through adequate trade facilitation reforms.

<sup>93</sup> The Eurasian corridor: yesterday, today, tomorrow. Interview with Hans Georg Werner, Member of the Management Board for Region East of DB Schenker Rail, Available at [http://www.rail.dbschenker.ru/rail-russijaservices-en/News\\_Media/news/7832774/interview\\_georg\\_werner.html](http://www.rail.dbschenker.ru/rail-russijaservices-en/News_Media/news/7832774/interview_georg_werner.html). Accessed December 2015.

<sup>94</sup> The Eurasian corridor: yesterday, today, tomorrow. Interview with Hans Georg Werner, Member of the Management Board for Region East of DB Schenker Rail, Available at [http://www.rail.dbschenker.ru/rail-russijaservices-en/News\\_Media/news/7832774/interview\\_georg\\_werner.html](http://www.rail.dbschenker.ru/rail-russijaservices-en/News_Media/news/7832774/interview_georg_werner.html). Accessed December 2015.

<sup>95</sup> International Convention on the simplification and harmonization of Customs procedures

<sup>96</sup> Convention on the Contract for the International Carriage of Goods by Road (CMR)

<sup>97</sup> European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

#### 4.4.1 Trade facilitation performance of EATL countries

EATL countries perform very differently in terms of trade facilitation. Only seven out of the 15 countries have ratified the WCO Revised Kyoto Convention that contains key trade facilitation standards for Customs administration (see table 13 above).

Two global indicators allow for cross-country comparison of countries trade facilitation performance. Although their methodology has been criticized for relying on perceptions rather than observable data and including transport costs in absolute rather than weighted terms, they provide a general indication of a countries situation. Two of these indicators are used here - the Logistics Performance Indicators of the World Bank (WB), measures the availability and quality of logistics and key transport services, as well as government services; Trading Across the Border (TAB) indicator of the Doing Business Analysis of the IFC (World Bank group). It measures number of documents, time and costs of importing and exporting a 20-foot container shipment. The specific rankings of EATL countries in these indexes differ slightly (see table 14).

While the Caucasus countries, Armenia, Azerbaijan and Georgia, and Easter European countries, Ukraine, Belarus, and Moldova, have made reform efforts in the past years and improved the trade facilitation environment, the Central Asia countries have not taken significant actions and improved in overall terms.

**Table 14: Trading Across Borders (DB) and LPI Ranking for EATL countries 2010, 2014**

	TAB Rank	Overall LPI rank		Change in rank 2010-2014	Customs		Change in rank 2010-2014
	2015	2014	2010		2014	2010	
<b>Iran</b>		n.a.	103	n.a.	n.a.	106	n.a.
<b>Uzbekistan</b>	189	129	68	-61	157	107	-50
<b>Kyrgyz Republic</b>	183	149	91	-58	145	71	-74
<b>Russian Federation</b>	155	90	94	4	133	115	-18
<b>Georgia</b>	33	116	93	-23	131	81	-50
<b>Turkmenistan</b>	n.a.	140	114	-26	122	119	-3
<b>Kazakhstan</b>	185	88	62	-26	121	79	-42
<b>Tajikistan</b>	188	114	131	17	115	147	32
<b>Moldova</b>	152	94	104	10	98	124	26
<b>Belarus</b>	145	99	n.a.	n.a.	87	n.a.	n.a.
<b>Azerbaijan</b>	166	125	89	-36	82	117	35
<b>Armenia</b>	110	92	111	19	75	125	50
<b>Ukraine</b>	154	61	102	41	69	135	66
<b>China</b>	90	28	27	-1	38	32	-6
<b>Turkey</b>	98	30.00	39.00	9	34	46.00	12

Source: Author based on data from World Bank, <http://www.doingBusiness.org>, accessed January 2015, and World Bank, <http://lpi.worldbank.org>

Uzbekistan is the least performing of the EATL countries in both indicators. It ranks worst in terms of Customs performance in the LPI (157) and lowest in the TAB. Turkey and China appear in good position in both rankings, being at the 34 and 38 ranks respectively in terms of Customs performance in the LPI. Kazakhstan and Kyrgyzstan have both experienced a plunge in the customs performance ranking over the past four years, which is equally reflected by their low ranking in the TAB. Armenia and Ukraine on the other hand have improved substantially their ranking in the LPI (from 102 to 61 for Ukraine and 11 to 92 for Armenia) and are now among the top performers of the EATL countries in the TAB.

A significant, and somewhat inexplicable, difference amongst the LPI and TAB rankings is Georgia's performance. While Georgia is the best performer in the TAB ranking, it is ranked

only 131 in the Customs component of the LPI. The comparison with the 2010 LPI ranking indicates that the situation has worsened—a context that contradicts its good TAB position. In fact TAB mentions simplification of customs document requirements in 2010, and a reduction in clearance time in 2013 by creating “customs Clearance Zones” as progress factors. The CCPMM report 2013 likewise highlights Georgia’s customs reform efforts encompassing streamlined Customs procedures, joint controls with Azerbaijan, capacity building of Customs officials, and a Single Window<sup>98</sup>.

#### 4.4.2 Improvements at the national level

##### Promoting Risk management

Several activities can be undertaken to address the non-physical barriers and improve trade facilitation in EATL countries. A first set of activities should aim at changing the control measures, requirements and processes of government agencies, namely those being present at the border. The development and implementation of risk management to achieve selectivity of inspections would significantly reduce physical inspections of shipments. Often risk management is only discussed in the context of customs cargo clearance, but it is equally important for other government agencies to establish selectivity of inspections based on risk management to improve their effectiveness. Selectivity allows conducting better targeted and in-depth inspections rather than many fast inspection are therefore allow a better matching of available human resources to growing cargo volumes.

Cross-border exchange of data<sup>99</sup> and pre-arrival submission of consignment data would further strengthen risk management. It also allows reducing the documentary formalities and processes at border crossings to a minimum necessary, if these processes are re-designed taking into account the changed environment of electronically available data.

##### Strengthen border agency cooperation

Customs clearance and border crossing procedures are still paper based and driven by the physical presentation of documents to one agency after the other for review and approval. More and more documents, in particular transport documents, are now also available in electronic form<sup>100</sup> and agencies should take this as an opportunity to re-design their process and remove steps in border clearance process. To be able to undertake such a simplification, existing processes would first have to be mapped, using tools such as the WCO Time-Release Study.

Improving border agency cooperation and reducing the number of agencies present at border crossing points, by centralising or delegation of authority for primary controls, as well as introducing joint integrated controls is also an important area of intervention. Achieving results is however dependent on a strong political support to overcome organisational resistances. Kyrgyzstan and Tajikistan have both adopted regulatory means to advance border agency cooperation. Kyrgyzstan has even conducted a pilot project for a One-Stop Border at the Akjol-Kordai border with Tajikistan, but implementation has discontinued. Belarus has introduced joint controls for physical persons at border crossing points, whereby all concerned agencies conduct the controls at the same time and same location. Clearance

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<sup>98</sup> CAREC CARECCPMM Corridor Performance Measurement and Monitoring Annual Report, 2013, p.18

<sup>99</sup> Examples of successful systems of cross-border exchange of customs data are the NCTS supporting the transit amongst EU-28, Switzerland and Norway, and the SEED in the Balkans. <http://www.eu-seed.net/Shared%20Documents/SEED%20success%20story%20En%20FINAL.pdf>

<sup>100</sup> An e-CMR, and the e-CIM/SGMS consignment note have been developed to respond to the need for electronic exchange of data, and industry stakeholders would have to adopt such electronic consignment notes in their current practices. The e-TIR project and IRU developed TIR EPDR application allow for the advance submission of advance TIR declarations, and could, if accepted by Customs authorities simplify border crossing of TIR transit shipments.

time for physical persons has been reduced to 2 maximum 15 minutes and therefore significantly reduced delays at border crossing points<sup>101</sup>.

#### Encourage process optimization through IT

Information system and sharing of data once again play an important role in supporting agency cooperation. While most Customs administrations have their Automated Clearance System (ACS), other agencies are not equally equipped, and least at the border crossings. They still require paper documents and collect data that is already available by customs. The idea of agency wide sharing of data underpins Single Window projects, which some of the EATL countries have implemented in the past years, including Kazakhstan, Kyrgyzstan and Azerbaijan. The current forms of Single Window however, focus on the collection and submission of clearance relevant documentation to customs, rather than on pre-arrival sharing of information across agencies and supporting the clearance and inspection processes at the border. There is a need to look into how data and information sharing requirements at border crossing points can best be supported by ACS or Single Windows.

#### Optimising border crossing traffic flow

And finally, to manage the traffic flow and congestion at the border, a re-organisation of the flows needs to be considered. This does not always entail reconstructing a border crossing. Minor adjustments to queuing systems, centralised locations for documentation and payment have proven very effective in reducing congestion. It is also possible to create separate lanes for specific consignments and transport flows, such as transit traffic or empty vehicles, and to deploy modern equipment and technology for vehicle weight control and scanning<sup>102</sup>.

#### Developing a trusted partnership

One more aspect is central to the success of trade facilitation reforms: the existence of trusted partnerships between traders, transport operators and government authorities, including customs. In the absence of such a relationship mutual mistrust prevails and government agencies tend to counter this mistrust with increased control efforts—as reported for the Kazakh-China border crossing Khorgos. It encourages discriminative behaviour based on personal relationships and withholding rather than sharing of information. A partnership amongst traders and government agencies encourages and supports compliant behaviour, and agencies can reward operators in return for compliant behaviour in form of less controls and simplified procedures. Building a trusted partnership is a process and starts with holding regular meetings to discuss procedural issues and share information. Such regular consultation meetings are very effective at border crossing level and allow parties to find common solutions to issues.

In an appropriate business and trade facilitation context, partnerships may also lead to formalised agreements between both parties in form of so-called Authorised traders programs or schemes, whereas companies complying with specific criteria, apply for membership, are evaluated and monitored for compliance with the requirements, and in granted simplified treatment, such as no or less inspection, periodic declarations and payment, as well as clearance at local premises.

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<sup>101</sup> Information from the Belarus Customs Service reported in UNECE/OSCE *Handbook of Best Practices at Border Crossing - A Trade and Transport Facilitation Perspective*, (February 2012), p. 41

<sup>102</sup> For a discussion of infrastructure designs see “Chapter 6 Options for the design of border crossing points”, in UNECE/OSCE *Handbook of Best Practices at Border Crossing - A Trade and Transport Facilitation Perspective*, (February 2012), pp .148-162; and for a brief summary of such equipment see UNESCAP *Model on Integrated Controls at border crossings*, 2012.

### **The Viking Freight Train: An operational solution to overcome barriers**

One example where partnership, infrastructure modernisation, simplification of procedure, and electronic processing come together to improve performance of a transport corridor is the Viking corridor. The different partners from public and private sector implemented several facilitation activities, including infrastructure measures, such as installation of new equipment to measure weight and scan and screen content without causing trains to stop or to be unloaded at the EU/CIS border station Kena, investment into IT systems to exchange data amongst partners, the acceptance of the joint CIM/SMGS consignment note on the entire transport journey<sup>103</sup>, cross-border electronic exchange of data and alignment to one single data-document (NCTS<sup>104</sup> rail declaration). Close cooperation with Customs authorities and other government authorities have reduced border-crossing time in Kena to 30 min. In 2012 the Ukraine State Border Guards introduced facilitated border control procedure for the Viking combined train on the basis of a bilateral Agreement between Ukraine State Administration of Railway Transport and Ukraine Customs Service<sup>105</sup>. This is an example of successfully pooling together different stakeholders for facilitation of transport and trade.

#### **4.4.3 Regional and international cooperation**

Many issues can only be addressed through regional and international cooperation. Regional or international instruments harmonise and simplify procedures and requirements and enable cross-border co-operation and exchange of information. The EATL countries are party to many of such regional or international agreements contributing to trade and transport facilitation (see table 13), such as the Convention on the Contract for the International Carriage of goods by road (CMR), the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR, 1975), and the Convention on the Harmonization of Frontier Control<sup>106</sup>.

Amongst the transport relevant conventions, the ADR aims at facilitating and securing cross-border transport of dangerous goods, and the CMR establishes a cross-border legal regime for transport of goods by road. As discussed above, there is no similar unique legal framework applying to freight transport by rail as of today. Since 2011 the UNECE Inland Transport Committee is working on unified rail transport law with the objective to develop a new convention on rail transport. Such a convention would “include and address contractual elements, such as:

- a) Liability rules (level, conditions, limitations, relief);
- b) Documentation (paper, electronic or both);
- c) Formal reports;
- d) Handling of claims;
- e) Limits of action;
- f) Compensation between carriers; and

<sup>103</sup> Investment in the IT port community system at the port of Klaipėda, to support the placing of handling operations with the stevedoring companies and booking and control of temperature storage, and the customs formalities; investment in the IT system of Lithuanian Railways to allow for a better data exchange and cooperation between the rail operator, Lithuanian Railways and Klaipėda Port, and the Port Community system Single Window in Odessa, Plascek.

<sup>104</sup> New Computerised Transit System, developed by the EU for intra community transit and transit from Switzerland and Norway.

<sup>105</sup> <http://www.vikingtrain.com/about/news/8>

<sup>106</sup> For a comprehensive overview of these conventions and other relevant agreements, see “Chapter 1 Trade and Customs. The international legal framework2, in UNECE/OSCE *Handbook of Best Practices at Border Crossing - A Trade and Transport Facilitation Perspective*, (February 2012),

g) Further elements that might need to be developed, as required.<sup>107</sup>”

The unified railway law would facilitate border crossing procedures, and address the existing differences in the legal regimes of the OSJD and OTIF by allowing the carriage of goods under a single legal regime, and therewith enable the operation of “*fast, reliable and seamless rail and intermodal transport services along Euro-Asian links*”. It also aims at supporting electronic workflow.<sup>108</sup>”

Other important agreements aiming at harmonising customs and border crossing controls and procedures are the Customs Convention on the International Transport of Goods under Cover of TIR Carnets, the TIR Convention, 1975, and the UNECE Convention on the Harmonization of Frontier Control. The TIR Convention establishes common transit Customs procedures requiring less control interventions and simplified documentation requirements, defines cross-border standards regarding Customs seals of loading units and containers, and establishes a cross-border guarantee covering Customs duties and taxes for goods in transit. Applying the provision of the TIR Convention reduces waiting times at border crossing points, simplify and harmonise documentation, and secures revenue collection for the Customs Services. The TIR Convention and the TIR carnets are widely used in the EATL countries—see the recent changes in Russia in chapter 4.2.3 - and, with the exception of China, all EATL countries are party to the TIR Convention (see table 13). The advantages of using the TIR system are apparent when comparing procedures at the border for Goods in transit from China and goods under TIR carnet in the Kyrgyz republic. The goods not moved under TIR carnet are subject to customs escorts at the border entry points, which increases the waiting time and fees for the transport.

The International Convention on the Harmonization of Frontier Control has been ratified in 1982 and applies to all goods being imported or exported or in transit, when they are moved across one or more maritime, air or inland frontier. It aims at simplifying border crossing controls through activities such as alignment of operating hours, joint controls, and harmonisation of procedures and requirements. With this objective it provides the framework for cross-border co-operation that need to be further concretised in bilateral agreements<sup>109</sup>. Georgia and Azerbaijan have<sup>110</sup> fostered their cross-border co-operation with the development of a joint customs control arrangement. Tajikistan and Kyrgyzstan had also initiated joint controls at the Akjol-Kordai border crossing point, before the activities were discontinued in a context of acute border conflicts in the region.

## Conclusion

A quantitative analysis of the current transport flows on the EATL routes would be necessary to assess the evolution of transport demand and the potential of switching cargo transport from maritime to rail. At this stage, the data required for such an analysis is not centrally collected and available. While all countries report their trade statistics, more detailed data regarding the transport flow is not easily available and confidently comparable. Conducting such an analysis therefore requires a substantive data collection effort and the selection of an appropriate model. The characteristics of the current transport flows hint at the existence of several different types of transport flows depending on the distance covered, the

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<sup>107</sup> UNESCAP *Monograph Series on transport facilitation of International Railway Transport in Asia and the Pacific*. (First Edition). P.45

<sup>108</sup> UNECE *Joint Declaration on the promotion of Euro-Asian rail transport and activities towards unified railway law*, 2013. Available at [http://www.unece.org/trans/main/sc2/sc2\\_geurl\\_itc\\_declaration.html](http://www.unece.org/trans/main/sc2/sc2_geurl_itc_declaration.html), Accessed January 2015

<sup>109</sup> See Chapter 2.11 Cooperation Agreements in UNECE/OSCE *Handbook of Best Practices at Border Crossing - A Trade and Transport Facilitation Perspective*, (February 2012), pp 44

<sup>110</sup> CAREC *CARECCPMM Corridor Performance Measurement and Monitoring Annual Report*, 2013, p.18



commodities and countries involved. It is therefore possible to further segment the analytical approach and to reduce the volume of data that needs to be collected.

When considering the nature of commodities transported, three different transport flows can be identified: Bulk commodities are currently moved over long distances; manufactured products are moved over long distances and increasingly so in container trains; and agriculture products are moved locally and on short cross-border distances. These transport flows lead to different transport demands and differ in their potential to be shifted to rail transport. Existing freight trains predominantly focus on long distance East-West movements by using the Trans-Siberian Railway to carry manufactured goods from Asia and Europe to production sites in Russia, China and Uzbekistan, and from production sites in China to their destination markets in Europe. North-South connections are carrying cargo between the European CIS countries and the Baltic ports. Rail freight however plays a little role for freight transportation, in particular of dry bulk or manufactured goods, to and from Central Asian and the Caucasus countries.

The commodities that will be driving future demand for the long-distance rail services are manufactured goods, either consumer goods or intermediate goods, for which the container freight trains compete with maritime transport. There is a potential for growing transport demand, including for rail freight transport, along the southern route connecting China across Central Asia to Iran and Turkey. Also the southern route is currently still limited by physical infrastructure barriers and lack of regular long-distance freight rail trains, this route may open up an additional intermodal transport route for freight transport between Asia and Europe. At this stage, it is unclear how the landlocked Central Asian countries will integrate into the rail freight routes given their lower trade volumes and more difficult access to the physical infrastructure. Connecting to the main northern and central routes will require developing effective intermodal transport services in these countries.

Persistent non-physical barriers along the routes lead to comparatively high transport time and costs that impact the competitive advantage of overland transport over maritime transport and affect the possibility of the landlocked countries to effectively integrate into international trade flows. Long waiting times and queues at border crossing posts and different legal regimes, procedures as well technical standards render the cross-border transport complex and expensive. Whilst some of the EATL countries have undertaken customs reforms and invested into border infrastructure and equipment to facilitate trade and transport, the trade facilitation performance across the countries is uneven. It is therefore necessary to further advance trade facilitation reforms, in particular in the Central Asian countries, and strengthen regional co-operation on trade and transport facilitation to improve the attractiveness of the EATL.