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The International North–South Transport Corridor: Promoting Eurasia’s Intra- and Transcontinental Connectivity

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THE INTERNATIONAL NORTH–SOUTH TRANSPORT CORRIDOR: PROMOTING EURASIA'S INTRA- AND TRANSCONTINENTAL CONNECTIVITY

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The launch of the International North-South Transport Corridor (INSTC) and its connection to latitudinal transport corridors will enable the creation of a single Eurasian transport framework. Significantly shorter delivery time is the key advantage that the INSTC will have relative to the other transport routes. This report looks at potential INSTC freight traffic, which is estimated at 14.6–24.7 million tonnes per year. The gravity model points to a huge trade expansion potential, subject to achievement of "seamless" transport routes improving the quality of the transport infrastructure and digitisation of the international corridor. With a global drive for decarbonisation under way, the authors also assess the INSTC carbon footprint, which is comparable with that of deep-sea maritime transport. In the future, the transport corridor may become an economic development corridor for the EAEU member states, through expansion of production cooperation and build-up of logistical chains with the countries along the INSTC.

Keywords: international transport corridors, transport infrastructure, international trade, EAEU, Eurasia.

JEL: F15, F17, L92, O19, R11, R41.

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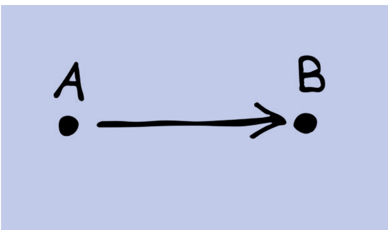
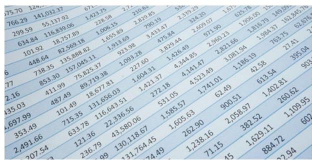


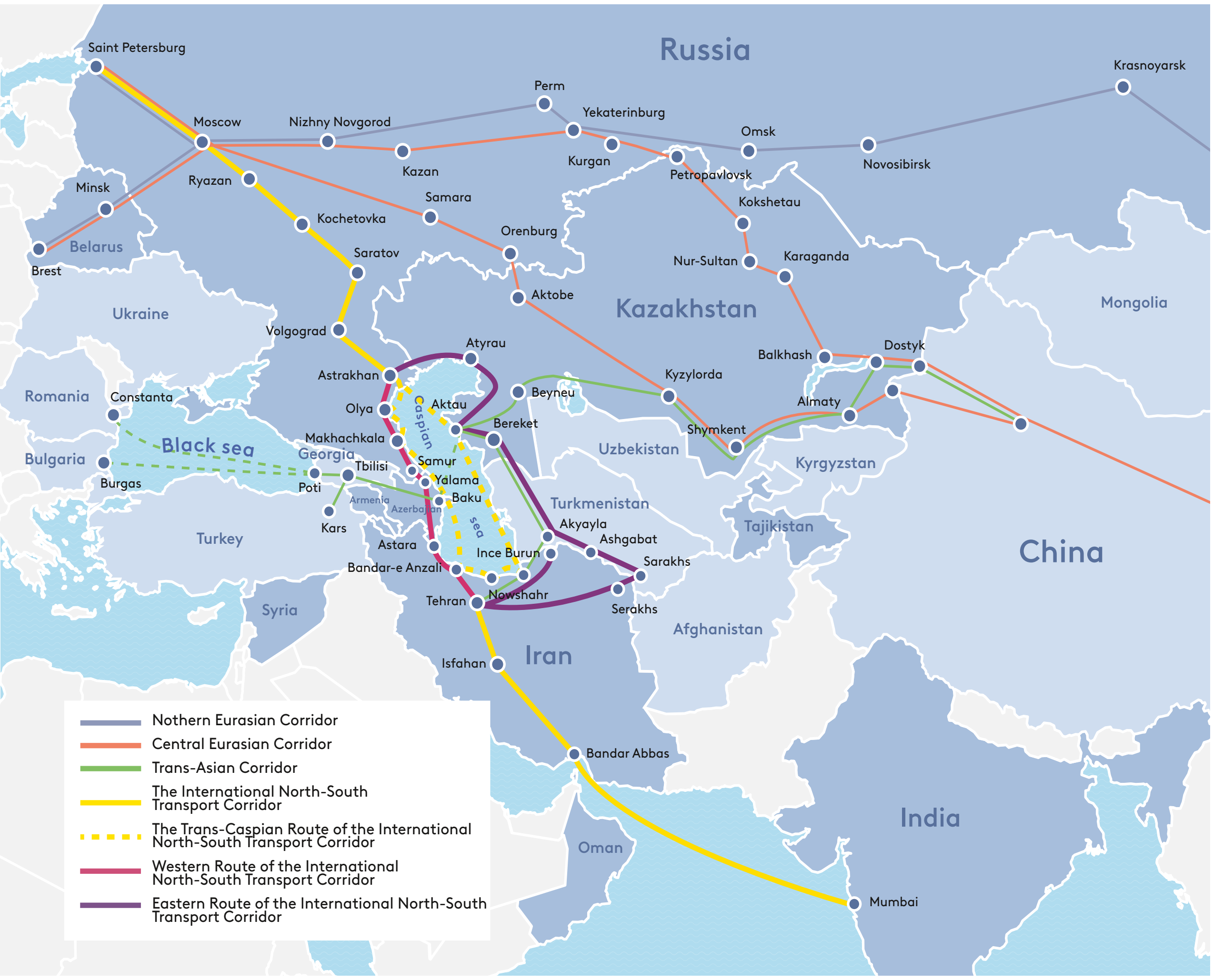


Summary

The multimodal International North–South Transport Corridor connects the northwestern part of the Eurasian Economic Union (EAEU) and the Nordic countries with the countries of Central Asia (CA), the Persian Gulf, and the Indian Ocean (see Figure A). The corridor includes railway, road, and inland water transport infrastructure, Caspian Sea ports (Astrakhan, Olya, Makhachkala, Baku/Alat, Aktau/Kuryk, Türkmenbasy, Anzali, Nowshahr, Amirabad), Persian Gulf ports (Bandar Abbas and Chabahar), automobile crossing points (ACPs), railway crossing points, and international airports. The legal basis underlying the creation of the North–South corridor was provided by the signing by three countries (the Republic of India, the Islamic Republic of Iran, and the Russian Federation) of the Inter-Governmental Agreement on the International North–South Transport Corridor at the Second International Euro-Asian Conference on Transport (Saint Petersburg, Russian Federation) on 12 September 2000.

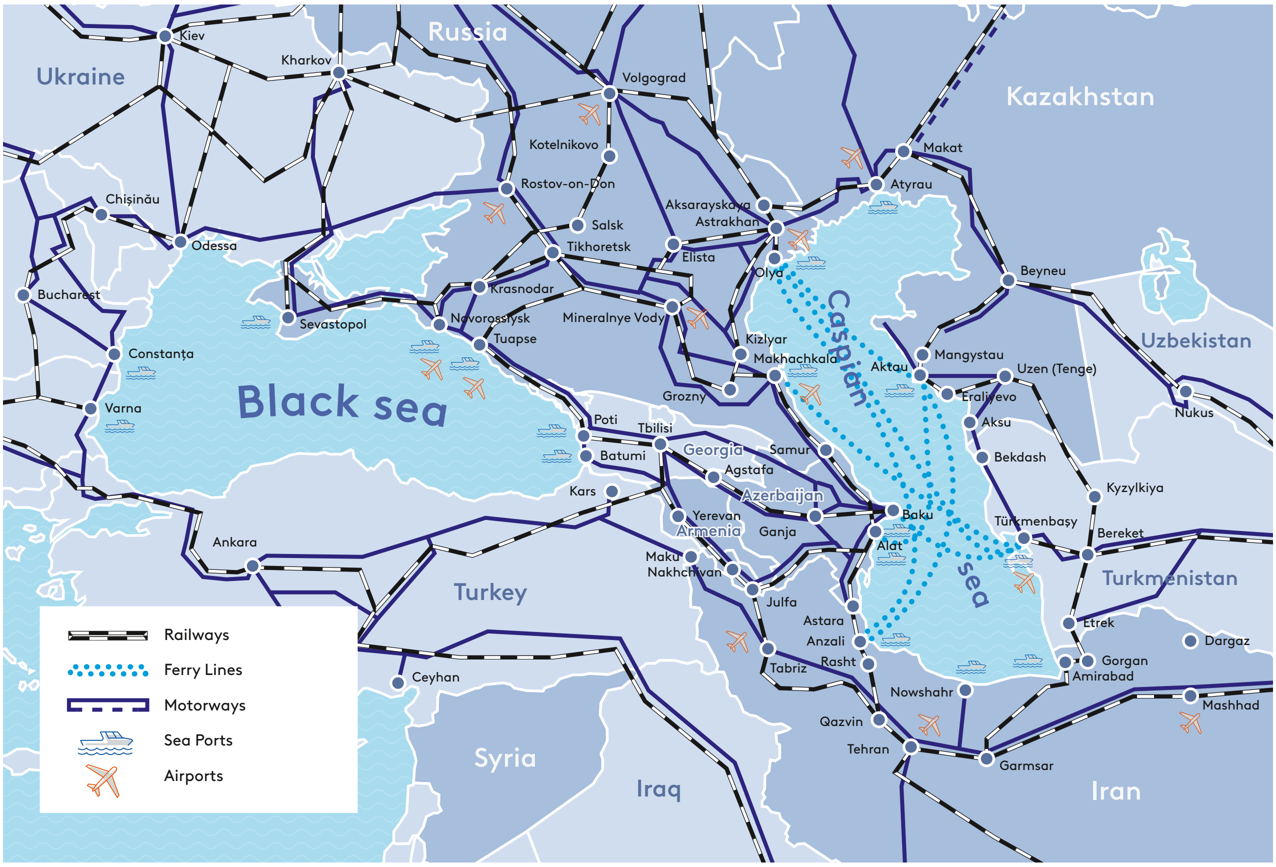
Over the last several years, the **key factors** that are increasing the importance of transport routes along the North–South axis are **active interaction of the EAEU with India, Iran, and other countries in the southern part of the corridor, within the scope of the Greater Eurasia concept,**

Figure A. INSTC — Meridional Corridor of the Eurasian Transport Framework



Source: EDB.

Figure B. INSTC Transport Infrastructure Facilities in the Caspian Region

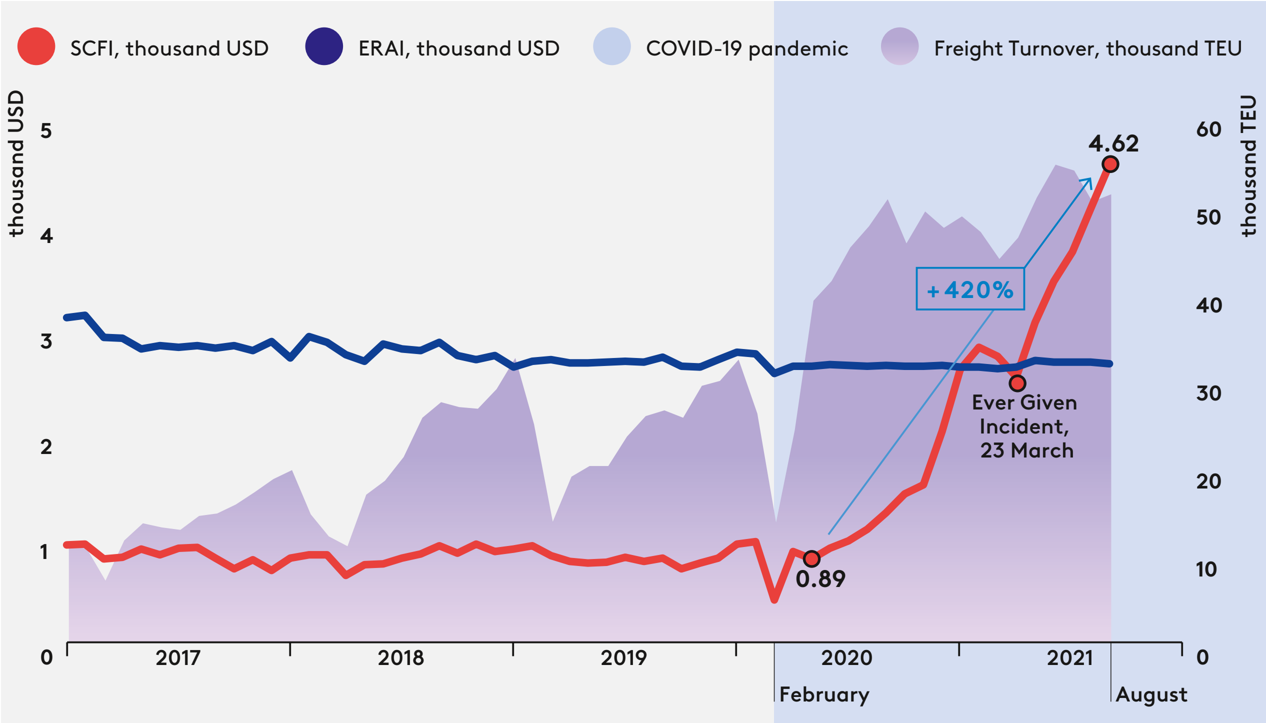


Source: EDB.

as well as the increasingly intensive involvement of Azerbaijan, Kazakhstan, Turkmenistan, and other countries that are along with the INSTC in the expansion of transit and multimodal corridors in the Caspian region. For example, the new 900-km Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan railway line running from north to south and connecting Kazakhstan, Turkmenistan, and Iran was put in operation in December 2014. An Interim Agreement leading to formation of a Free Trade Area (FTA) was signed by the EAEU and Iran in May 2018. Negotiations on the execution of an FTA agreement are under way between the EAEU and India. Realisation of the trade potential of the EAEU, Central Asia, and countries in the southern part of the INSTC is an important prerequisite for the continued development of the corridor.

The unique INSTC route makes it possible to connect it to other global and regional east-west latitudinal transport corridors (see Figure B). The INSTC is an important component of a network of latitudinal and meridional trade routes, including those to be built as part of the Chinese One Belt One Road (OBOR) initiative, and its development directly facilitates emergence of a macro-regional transport and logistics system (**"Eurasian transport framework"**) which, in turn, underpins expansion of trade and investment partnerships within Eurasia, and may become a driver of Greater Eurasia. Construction of that framework addresses the need to accommodate the long-term economic interests of many countries of the Eurasian continent (especially landlocked countries), reduces the negative economic impact of large distances and high transport costs, helps Central Eurasia to get rid of its "continental curse" by placing

Figure C. SCFI* and ERAI Quotes and Volume of Europe–China/China–Europe Rail Container Traffic**



Note: * SCFI — Shanghai Containerised Freight Index; ** ERAI — Eurasian Rail Alliance Index.
Source: Thomson Reuters (2021), ERAI (2021).

it at the intersection of transport corridors and, ultimately, facilitates continental cooperation and regional integration.

The INSTC should facilitate finding optimal routes to deliver goods from the countries in the southern part of the corridor to Central, Western, and Northern Europe (and back), and also in switching freight traffic from the sea routes running through the Suez Canal and Gibraltar to land and multimodal corridors. The relevance of a multimodal North–South corridor was reaffirmed during the COVID-19 pandemic, when a major supply chain disruption provoked extreme volatility of maritime freight rates (see Figure C). A new upsurge of those rates (in stark contrast to the continued stability of end-to-end railway rates) was recorded after the Suez Canal obstruction on 23 March 2021, when the Ever Given container ship blocked all traffic between the Red Sea and the Mediterranean Sea, which caused a global failure to meet cargo delivery deadlines, aggravated the existing shortage of containers, proliferated uncertainties related to the operation of freight logistical chains and, accordingly, boosted demand for railway transport services in the Eurasian continent, highlighting the need to set up an additional freight channel. With that in mind, stakeholder countries can regard the INSTC as an alternative channel and necessary **insurance that will secure uninterrupted trade** between Asia and Europe.

The main advantage of the INSTC compared to the other routes, including the sea route via the Suez Canal, is the **significant reduction** of cargo **delivery times**. For example, it takes **30 to 45 days** to deliver cargo from Mumbai to Saint Petersburg by the traditional route through the Suez Canal, while INSTC land route delivery times may vary from **15 to 24 days**. Moreover, using the Eastern route of the corridor that runs through Kazakhstan and Turkmenistan can reduce delivery times to **15–18 days**, and they are set to become even shorter after the commissioning of the Iran section of the Astara–Rasht railway. Reduced delivery times are critical for many products that may be transported through the corridor, including food, textiles, household appliances, consumer electronics, etc. Higher capital turnover rates (lower in-transit cargo costs) are critical for manufacturers of expensive goods.

While the use of **INSTC transport routes enables a reduction of cargo delivery times by at least 25%**, the associated freight charges are not among the corridor's competitive advantages. Despite the fast delivery, they remain relatively high. The average railway tariff charged for delivery of cargo from India/Pakistan/Iran/Oman to Europe is USD 3,500. The rate charged by JSC RZhD Logistika for the transportation of a twenty-foot equivalent unit via the INSTC from the port of Nhava Sheva (India) to the village of Vorsino (Kaluga Region, Russia[1]), currently USD 2,650 (assuming a round trip), can be used as a benchmark. By comparison, before the COVID-19 pandemic, maritime freight rates charged for delivery of similar cargoes through the Suez Canal were about half that, ranging from USD 1,000 to USD 1,200. However, in practical terms, development of transport routes does not always depend on availability of lower rates. **The key is the combination of stable end-to-end freight rates and short delivery times**, which assures the economic viability of the INSTC.

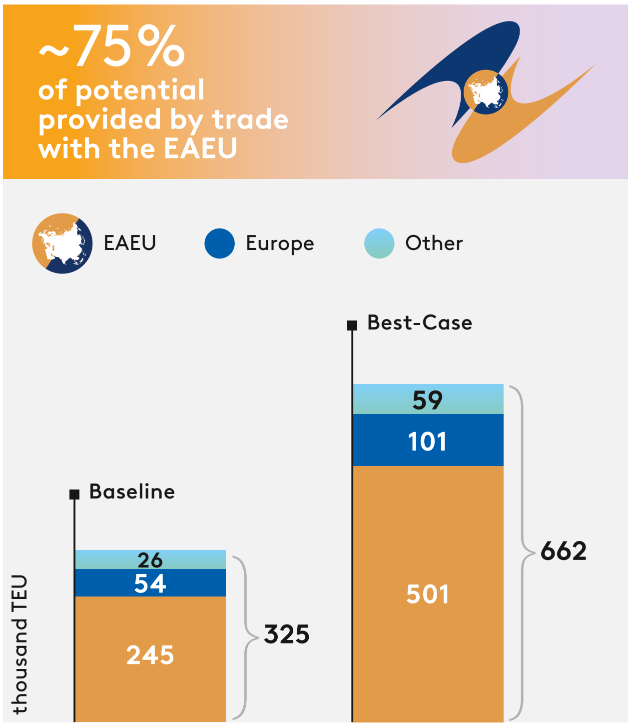
The **aggregate potential INSTC container freight traffic, including all three main routes and all modes of transport, may be as high as 325,000–662,000 TEU (5.9–11.9 mln tonnes) by 2030**, depending on the scenario (see Figure D). Synergies arising from interlinking the INSTC and the Eurasian east-west latitudinal transport corridors might be equivalent to 127,000–246,000 TEU (2.3–4.4 million tonnes), or about **40% of total potential** container freight traffic (see Figure E). Subject to the current geographical and commodity structure of foreign trade flows between the countries along with the corridor, an increase of freight traffic from north to south appears to be more likely. The aggregate railway container traffic by 2030 is projected at 9–18 pairs of container trains per day. That is well within the transport capacity of the corridor's single-track railway lines (up to 24 pairs per day).

Expansion of INSTC container freight traffic is of considerable interest to the EAEU member states. By 2030, incremental freight traffic between them and the countries of South Asia and the Persian Gulf may amount to 245,000–501,000 TEU (4.4–9.0 mln tonnes), or about 75% of total potential container traffic (see Figure D). The main contribution to potential container traffic can be provided by the freight flows between the EAEU on the one hand and Azerbaijan, Iran, India, and Pakistan on the other. Interlinking the INSTC and the Baku–Tbilisi–Kars (BTK) latitudinal railway route can also have a significant favourable impact on the EAEU member states. That connection will enable expansion of railway container traffic between the EAEU, Georgia, and Turkey.

Currently the **main INSTC product categories** suitable for containerisation in all corresponding traded pairs, including non-traditional product categories, are as follows: Food Products (excluding Grain and Bulk Oil) with an aggregate potential of 69,000–164,000 TEU in 2030; Metals (Ferrous and Non-Ferrous Metals, Metal Products) with an aggregate potential of 54,000–113,000 TEU in 2030; Wood, Wood Products, and Paper with an aggregate potential of 31,000–68,000 TEU in 2030; Machinery and Equipment with an aggregate potential of 27,000–60,000 TEU in 2030;

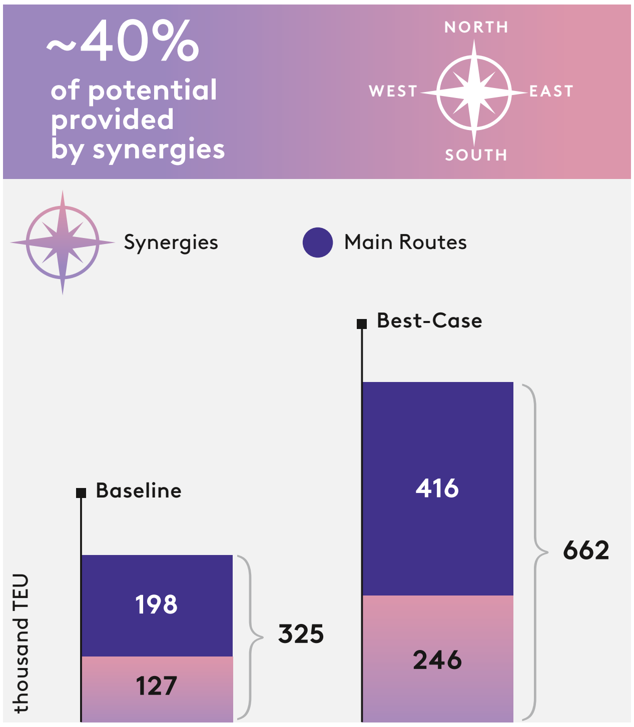
[1] Vorsino is currently the only INSTC destination where transport and logistics operators can use fixed freight rates.

Figure D. Potential Container Traffic Through the Key INSTC Routes in 2030 (thousand TEU)



Source: Authors' calculations.

Figure E. Potential Synergies in the INSTC Container Traffic Structure in 2030 (thousand TEU)



Source: Authors' calculations.

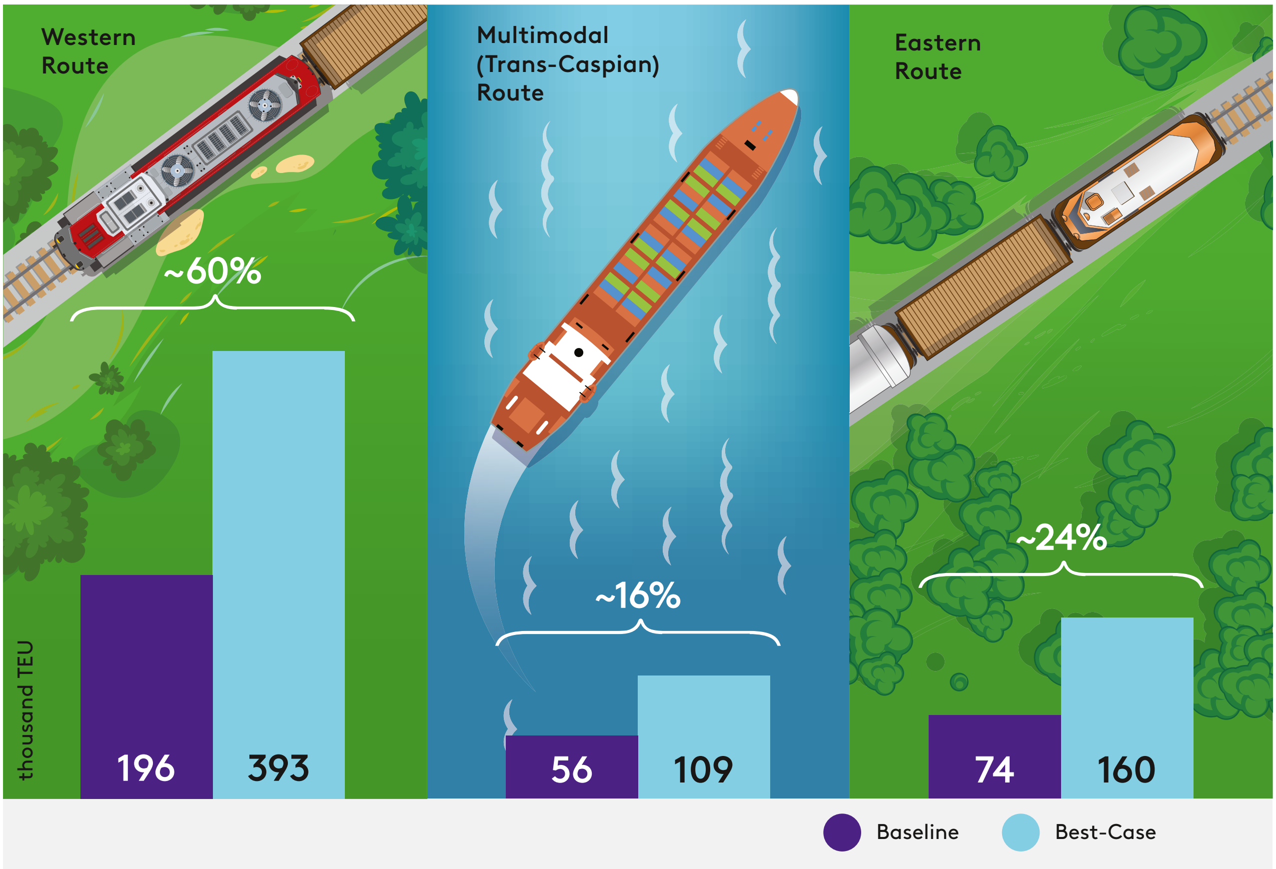
Mineral Fertilisers with an aggregate potential of 16,000–34,000 TEU in 2030; Textiles, Textile Products, and Footwear with an aggregate potential of 15,000–24,000 TEU in 2030.

Grain is classified under a separate category and, in terms of freight traffic, is currently the main product delivered through the INSTC. It is projected that by 2030 the INSTC grain traffic may reach 8.7–12.8 mln tonnes, and will continue to exceed the potential container freight traffic generated by all other product categories combined (5.9–11.9 mln tonnes). As a result, **by 2030 the aggregate potential INSTC freight traffic**, including the two types of product categories (containerised and non-containerised cargo), is expected to reach **14.6–24.7 mln tonnes** (see Figure G).

All three INSTC routes are important for realisation of the transit transport potential. However, the bulk of that potential is associated with two railway routes — the Western Route and the Eastern Route (see Figure F). Their shares in total potential freight traffic are about 60% and 24%, respectively. The critical role of railway transport in INSTC development is illustrated by the "mono-modality" of the corridor currently observable in some of its sections, primarily because railway service in the Caspian region is **more developed**.

The effectiveness of railway development is supported by estimates of the effects of the gravity model showing that improving the quality of railway infrastructure has the greatest impact on promoting trade between the countries along with the international North–South transport corridor, compared to other modes of transport. Thus, it is expected that, if the quality of the railway infrastructure improves by 0.1 points, the average increase in foreign trade volume will be 5.8%, all other things being equal. **Railway transport has a minimal carbon footprint**, which is an important competitive advantage for the purposes of INSTC freight carriage. As

Figure F. Structure of INSTC Container Freight Traffic by Key Routes, 2030 (thousand TEU)



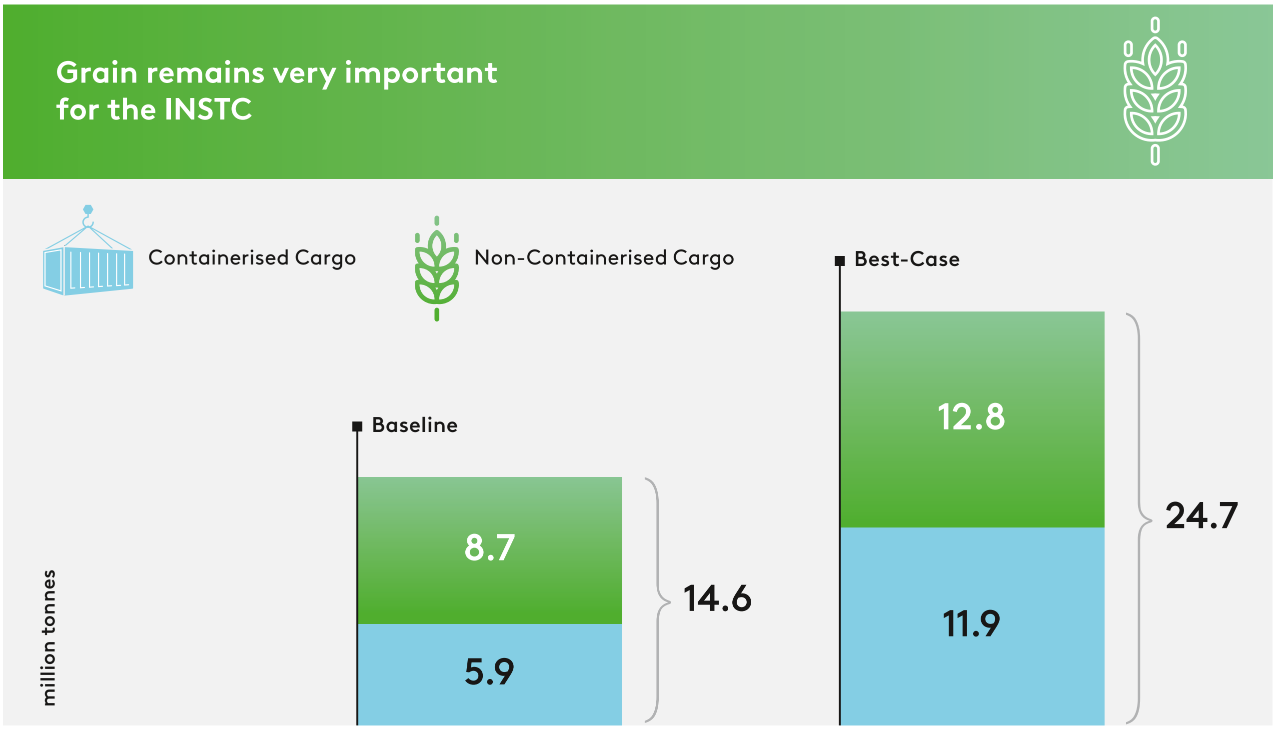
Source: Authors' calculations.

container traffic is switched from maritime transport to railway transport using the INSTC, greenhouse gas emissions may decrease by at least 25%. As with the East–West transport corridor, development of the INSTC shows that railway combined with road freight traffic will be the key driver of expansion of Eurasian land route transit potential.

The development potential of the multimodal (trans-Caspian) route is lower at this time than that of the land routes. The water transport infrastructure presents a number of bottlenecks, such as the dimensions of the Volga–Caspian Sea Canal, and accumulation of sediment. At the same time, one of the development objectives of the INSTC is its transformation into a fully functional multimodal corridor, where mono-modal sections are integrated with sea lanes connecting Iranian, Indian, Pakistani, and other ports. Another task is to increase the load of the multimodal (trans-Caspian) route of the INSTC, thus enabling it to attract international freight traffic, including containerised traffic, to the Volga water transport route.

Potential INSTC road and inland water freight traffic is much lower than the potential railway freight traffic, and is expected to reach 45,000–50,000 TEU (0.8–0.9 mln tonnes) and 10,000–20,000 TEU (0.2–0.4 mln tonnes), respectively, by 2030, depending on the scenario. Road transport is indispensable for small and medium-sized enterprises interested in delivery of small cargoes. The Islamic Republic of Iran is the key INSTC country for the purposes of expansion of international road freight traffic. Development of inland water transport relies primarily

Figure G. Projected Aggregate Potential Freight Traffic on INSTC Routes in 2030 (million tonnes)



Source: Authors' calculations.

on the potential of the Unified Deep Water System of the Russian Federation, connecting the Caspian Sea via the Volga River to the Azov-Black Sea, Baltic, and North Sea basins.

Tariff and non-tariff barriers constrain the potential expansion of INSTC freight traffic. Possible challenges faced by the INSTC in its progressive development include the lack of a single tariff, uncoordinated transport policies of the member countries, international sanctions, lack of harmonised international transport standards and border-crossing procedures, missing links, and corridor bottlenecks. Accordingly, successful enlargement of the INSTC's potential hinges on expansion not only of the corridor's "hard" infrastructure, but also of its "soft" infrastructure. The gravity model indicates that:

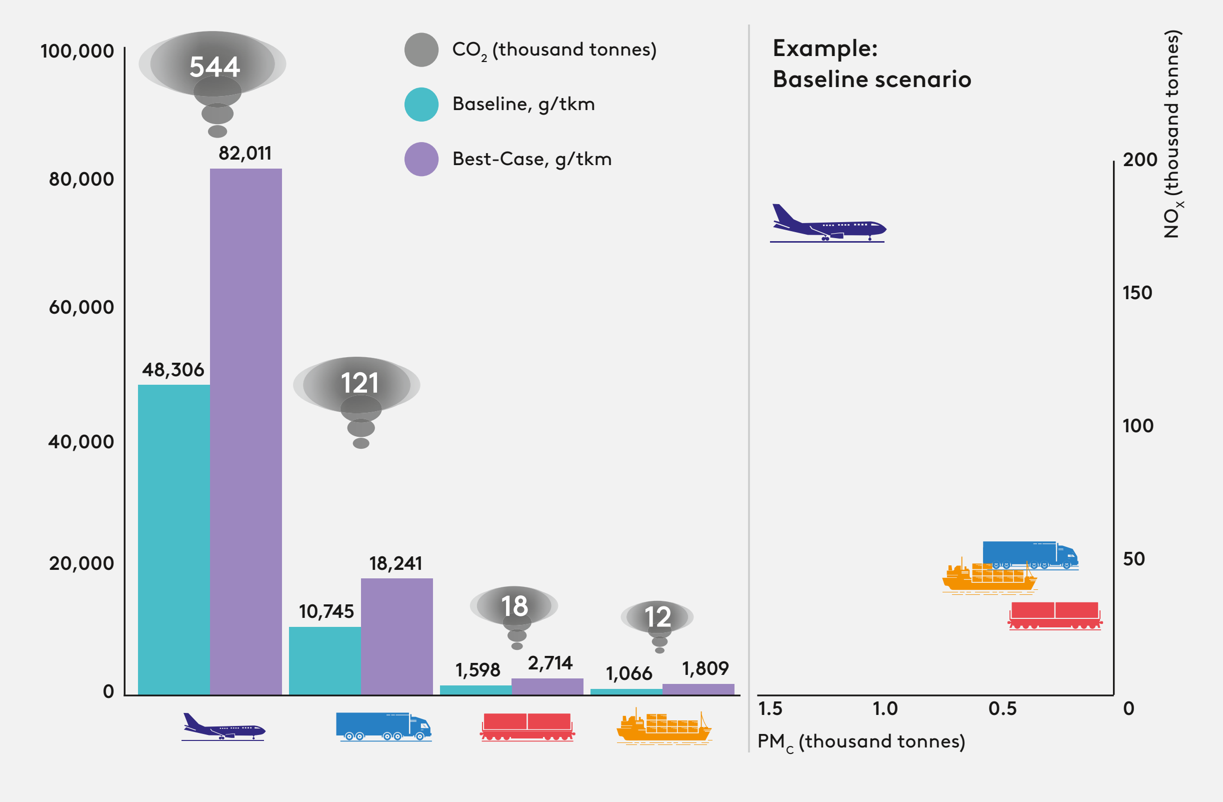
- The reduction of export costs associated with border compliance in states participating in the INSTC Agreement, from the current USD 376.12 to USD 79.65 (EU average), is associated with the increase in their foreign trade by 5.9% (USD 59.08 billion) compared to 2019;

- The reduction of export time associated with border compliance in states participating in the INSTC Agreement, from the current 51.33 hours to 7.48 hours (EU average), is associated with the increase in their foreign trade by 52.6% (USD 526 billion) compared to 2019;

- Deployment of intelligent transport systems and digitisation of international multimodal transport and logistics using CIM/CMGS and CMR electronic waybills, eTIR carnets, and satellite navigation systems has a beneficial impact on foreign trade in the states participating in the INSTC Agreement, and can open up new opportunities for simplification of border-crossing procedures, reduction of cargo delivery times, and improvement of the INSTC safety record.

Box A. Environmental Advantages of Railway Transport

The average level of direct and indirect greenhouse gas emissions generated by railway transport is 18 g/tkm, which is only slightly higher than that of the maritime transport used for long-distance sea freight (12 g/tkm). As for the other modes of transport, railway transport is more environmentally friendly, producing half the amount of emissions of inland water transport, one-seventh that of road transport, and one-thirtieth that of air transport. If we take into account emissions not only of greenhouse gases, but also of particulate matter and mono-nitrogen oxides, which also have deleterious effects on the environment and human health, then railway transport can be safely described as the most environmentally clean mode of transport.



Source: Authors' calculations based on coefficients published by Klein et al. (2021).

Creation of conditions conducive to further development of INSTC transport operations (elimination of infrastructural bottlenecks, simplification of border-crossing procedures, alignment of tariff policies, development of corridor management mechanisms, etc.) **may result in an expansion of the list of interested countries and countries participating in the Agreement**, including some countries of the Persian Gulf, the Indian Ocean and East Africa; countries of Central Asia, such as Turkmenistan, the Kyrgyz Republic, and the Republic of Uzbekistan; China (to the extent of expansion of its bilateral trade with Iran); and some countries of Central and Eastern Europe.

The **INSTC can make an important contribution to the implementation of international initiatives and programmes**, such as the Vienna Programme of Action for Landlocked Developing Countries 2014–2024, the UNESCAP Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific, phase I (2017–2021), and the Regional Action Programme for Sustainable Transport Development in Asia and the Pacific (2022–2026) to be adopted at the fourth UNESCAP Ministerial Conference on Transport (14–17 December 2021). Clearly, development of the INSTC will provide an important impetus to implementation of Sustainable Development Goals (SDGs), UN General Assembly resolutions on sustainable transport and transit transport corridors, and recommendations of the two global UN conferences on sustainable transport held in November 2016 in Ashgabat, and in October 2021 in Beijing.

In the future, the INSTC may become a development corridor for the EAEU. Implementation of large-scale transport infrastructure projects will not only reduce time in transit and carrier operating costs, but also indirectly promote sustainable development. Thus, in addition to expanding trade, development of the ITC will promote construction of industrial parks and special economic zones along transit routes, facilitate cooperation in the production of goods and services, and accelerate creation of new manufacturing and logistical chains between the EAEU member states and the large developing countries of the Persian Gulf and the Indian Ocean, including Iran, India, and Pakistan. This, in turn, will create new jobs, improve economic growth prospects, and increase the well-being of the local population. Moreover, with the development of the ITC, freight traffic will switch from maritime transport to railway transport — environmentally friendly mode of freight transport in terms of CO_2 emissions (as measured in grams per tonne-kilometre).

Introduction

Development of international transport corridors is one of the key tools used to expand trade and economic cooperation between countries, and an incentive to strengthen regional economic integration. According to several international studies, creation of international transport corridors makes it possible to enhance freight traffic management, improve laws and regulations, implement aligned border-crossing procedures, attract infrastructure investments, and increase the efficiency of state–business interactions (World Bank, 2011). Development of transport corridors enables rational utilisation of national transit capacities, promotes localisation of industrial production along their routes, enables expansion of exports, and strengthens the connectivity of intracontinental states and regions (Vinokurov et al., 2018b).

Transport corridors are particularly important for landlocked countries. Resolution 74/15 adopted by the UN General Assembly on 5 December 2019 after the High-Level Midterm Review on the Implementation of the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024 (UN, 2019) recommends that landlocked developing countries and transit countries should consider promoting a corridor approach to improve trade and transit transport. Landlocked developing countries and transit countries should make additional efforts to reduce travel time along the corridors, and to adopt an integrated and sustainable approach to the management of international transport corridors in order to avoid the duplication of efforts, promote regional connectivity, and maximise the associated economic opportunities. Landlocked countries experience weaker growth than countries with access to sea (being landlocked reduces average growth by about 1.5 percentage point) (Arvis et al., 2010). There are 44 landlocked countries in the world, including four of the five member states of the Eurasian Economic Union (EAEU).

The multimodal International North–South Transport Corridor connects the northwestern part of Europe and the Nordic countries with Central Asia and the Persian Gulf (Vinokurov et al., 2009). The idea of forging transport routes between India and Europe traversing the territory of Russia, as well as the practical plans required for implementation of that idea, were discussed as early as the end of the 19th century (Migulin, 1903). At that time, the Russian Empire was seeking access to the Indian Ocean, and its railway network expansion plans included construction of a railway leading to India through Afghanistan and Persia. At the end of the 20th century, that idea returned to the agenda, as the INSTC concept emerged under the influence of strenuous efforts to establish pan-European ("Cretan") transport corridors, which would then be discussed at length at three International Eurasian Conferences on Transport held in Saint Petersburg in 1998, 2000, and 2003.

The prerequisites for creation of the North–South corridor were active development of the economy and trade in India and the countries of the Persian Gulf and the Middle East and, accordingly, a search for optimal ways to deliver goods from those countries to Central, Western, and Northern Europe. Like the other Eurasian transport corridors (Transsib, TRACECA, Southern Corridor) approved at the Second International Eurasian Conference on Transport (12–13 September 2000, Saint Petersburg, Russian Federation), the INSTC should be instrumental in switching freight traffic from the sea routes running through the Suez Canal and the Strait of Gibraltar to land and multimodal routes. The steep increase in international trade between

Europe and Asia calls for a broader transcontinental approach to creating efficient transport systems (Vinokurov and Libman, 2012).

The relevance of the plans to create an alternative multimodal North–South corridor was reaffirmed by the incident in the Suez Canal on 23 March 2021, when a container ship flying the Panamanian flag ran aground and blocked all traffic between the Red Sea and the Mediterranean Sea, causing a global failure to meet cargo delivery deadlines, a rapid increase in sea freight rates, and growing uncertainty regarding the operation of logistical chains involved in the movement of goods between Europe and Asia.

At the same time, unlike the existing Eurasian corridors (Transsib and TRACECA), the INSTC is still **not operating successfully along its entire length**, and has so far failed to attract significant container freight traffic. Objective reasons include differences in the transport systems used by the INSTC Agreement member states (different track gauges in the "1,520 mm gauge area", Iran, and India), unfinished railway sections in the Islamic Republic of Iran, absence of the relevant legal framework (agreements on international road transport between Belarus, Russia, Kazakhstan, and other member states on the one hand, and India and Pakistan on the other), different customs regimes, high harbour duty rates charged by the Caspian ports, and lack of an adequate modern fleet, especially as regards roll-on/roll-off vessels, container ships, etc. The absence of a single multimodal operator still prevents the merger of ITC sections in different countries into a single logistical mechanism, and generally hinders development of trade and economic relations between the developing countries of the south and the developed countries of Western and Northern Europe.

Over the last several years, the active interaction of the EAEU with India and Iran within the scope of the Greater Eurasia concept and the increasingly intensive involvement of Turkmenistan and other countries of the region in the expansion of transit and multimodal corridors have been the key factors driving the importance of transport routes along the North–South axis. A new Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan railway line running for more than 900 km from north to south and connecting Kazakhstan, Turkmenistan, and Iran, was put in operation in December 2014. A Provisional Agreement leading to the creation of a Free Trade Area was signed by the EAEU and Iran in May 2018. Negotiations on the execution of an FTA agreement are under way between the EAEU and India. The EAEU, being fully aware of the strategic need for integration in global markets and international production chains, is making ample use of the FTA tool (Vinokurov, 2018). Accordingly, the transport corridors connecting Europe and the EAEU with the countries in the southern part of the Eurasian continent are becoming more and more incorporated in the network of the main transport routes covering the vast Eurasian space (Vinokurov and Libman, 2012).

For all these reasons, **an examination of the prospects of development of the INSTC and its routes acquires special significance**, and requires an additional conceptual and analytical review to assess the steps being taken to operationalise individual routes and the corridor as a whole, and to identify high-potential projects that will facilitate development of hard infrastructure (an "framework") and soft infrastructure, and thus eliminate the existing constraints.

1. INSTC — Meridional Corridor of the Eurasian Transport Framework

1.1. INSTC Development Prerequisites

The legal basis for the creation of the North–South corridor was provided by the signing by three countries (the Republic of India, the Islamic Republic of Iran, and the Russian Federation) of the **Inter-Governmental Agreement on the International North–South Transport Corridor** at the Second International Eurasian Conference on Transport (Saint Petersburg, Russian Federation) on 12 September 2000.

Following the ratification of the agreement by all three parties, it came into force on 16 May 2002. The Coordination Council of the International North–South Transport Corridor was established to deal with matters related to implementation of the Agreement and practical application of its provisions. The Charter of the Coordination Council was developed and adopted in 2002. In 2002–2021, there were seven meetings of the Coordination Council (the latest was on 5 March 2019 in Tehran, Islamic Republic of Iran), and several meetings of INSTC expert teams.

The Agreement provides the following **definition of the term "international transport corridor"** (Article 1, paragraph 1.8): "International transport corridor — a network of main transport systems (both existing and to be constructed) connecting the Parties, as a rule equipped

Box 1. INSTC Participants

Founders:
- Republic of India — date of ratification of the Agreement: April 2001;
- Islamic Republic of Iran — October 2001;
- Russian Federation — March 2002

New Members:
- Republic of Kazakhstan — September 2003;
- Republic of Belarus — January 2004;
- Sultanate of Oman — December 2004;
- Republic of Tajikistan — December 2005;
- Republic of Azerbaijan — January 2006;
- Republic of Armenia — January 2006;
- Syrian Arab Republic — February 2006.

Observer:
- Republic of Bulgaria — April 2006.

adequately to handle various modes of transport, which shall ensure international transportation of passengers and goods especially in the directions of their most concentration". Paragraph 1.9 of Article 1 says that the **INSTC supports transport from India, Oman via sea, to and through Iran, the Caspian region, the Russian Federation and further, and transport in the reverse direction**.

Four of the five EAEU member states are parties to the Agreement. Turkmenistan has not yet acceded to the Agreement, even though it is traversed by the new Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan railway line opened in 2014, one of the INSTC routes running along the eastern shore of the Caspian Sea.

The need to develop the INSTC and its significance were repeatedly reaffirmed at the highest political level during the meetings of the Presidents of the Russian Federation, the Republic of Azerbaijan, and the Islamic Republic of Iran held in Baku on 8 August 2016, and in Tehran on 1 November 2017.

Supporting the rapidly growing trade between India on the one hand, and the EU member states and CIS countries on the other, is traditionally considered the **key INSTC development driver**. Over the last decade, the volume of trade between India and the EU has doubled, and continues to increase. The EU member states account for about one fifth of total Indian exports.

India's interest in the development of the INSTC is manifested by its active position in bilateral negotiations (with Iran, Russia, etc.) and multilateral negotiations (within the INSTC Coordination Council, various venues hosted by international organisations), and by its willingness to invest in the development of INSTC infrastructure and use the Indian container fleet for transport of cargo along the INSTC.

India's investments in INSTC infrastructure have amounted to about USD 2.1 billion, including construction of the port of Chabahar[2] in the Islamic Republic of Iran (USD 0.5 billion), and reconstruction of the existing and construction of new railway lines connecting Chabahar with the railway hub in Zahedan (the capital of the Iranian province Sistan and Baluchistan) and the Zaranj station in the Islamic Emirate of Afghanistan (USD 1.6 billion). Another USD 0.5 billion was allocated to Iranian Railways for acquisition of locomotives (Iran.ru, 2019).

The port facilities built under the first of the five stages of the project for expansion of the Iranian port of Chabahar were unveiled by Iranian President Hassan Rouhani on 3 December 2017. As a result, the port's cargo-handling capacity tripled to 8.5 million tonnes (which is equal to the aggregate capacity of all northern Iranian ports), and it is now capable of processing ultra-large container ships (with deadweight of up to 120 thousand tonnes).

The state Indian company IRCON is participating in the construction of a 500-km Chabahar–Zahedan railway line, whose completion was scheduled for mid-2021.

The development of the INSTC will be further facilitated by the **agreement executed in New Delhi on 25 February 2020 between the Russian company RZhD Logistika and the Container Corporation of India Ltd (CONCOR)**, the largest railway containers operator in India. According to the agreement, the Indian company will provide a fleet of high-capacity universal containers and other equipment required to support INSTC freight operations.

The Islamic Republic of Iran is interested in the development of the INSTC in order to use the country's national railway and road networks to support transit freight traffic from India, the countries of the Persian Gulf, Afghanistan, and the states of Central Asia, and to increase hard currency revenues from transit operations. **Iran is seeking to expand economic cooperation**

[2] Chabahar, the only ocean port of the Islamic Republic of Iran, consists of two separate ports: Shahid Kalantari and Shahid Beheshti.

and trade ties with the other Caspian countries traversed by the INSTC by using its free economic zones, in particular the FEZ Anzali, in the vicinity of Anzali (Bandar-e Anzali), Iran's oldest and largest Caspian Sea port.

Over the last several years, **Iran has been actively attracting foreign investments** in the development of its road and railway infrastructure; for example, Indian investors are co-financing the construction of the Chabahar–Zahedan railway line, and investors from Azerbaijan are involved in the last stages of construction of the Rasht–Astara railway line.

One of the parties interested in the development of the INSTC is the Republic of Azerbaijan. At this time, the INSTC is servicing primarily Russian–Azerbaijani transport and economic ties (more than 90% of the total international freight traffic through the corridor). During the first two decades of the 21st century, the **Republic of Azerbaijan pursued an active strategy to expand its transport infrastructure**, including large-scale reconstruction and new construction of Grade 1 four-lane highways from the Russian border to the Iranian border, construction and commissioning in 2018 of a new Astara (Azerbaijan)–Astara (Iran) railway line, reconstruction of automobile and railway crossing points at the border with Russia, and construction of a new sea trading port and the region's largest logistical centre in Alat.

The Republic of Azerbaijan is co-financing construction of the remaining sections of the Qazvin–Rasht–Astara railway line in the Islamic Republic of Iran; the first section (Qazvin–Rasht) was put in operation on 6 March 2019 (AzRusTrans, 2019). **The main priorities of the Republic of Azerbaijan** in the development of the INSTC are to increase transit traffic, expand the country's foreign trade, and attract freight traffic to the Baku–Akhalkalaki–Kars railway line connected to the INSTC and, through the INSTC, to the other Eurasian corridor, the TRACECA.

The EAEU is interested in the development of the INSTC because it creates an opportunity to establish close and mutually beneficial economic ties with the countries of the continent. The INSTC development priorities are defined at both transnational and national levels. Development of the INSTC routes that complement the east–west corridors is aligned with the strategic interests of Russia (in particular, of the interior regions of Siberia and the Urals), and the countries of Central Asia and the South Caucasus, including Armenia (Vinokurov, 2019). Improvement of continental transport connectivity improves the overall efficiency of national economies, and facilitates successful realisation of the potential of the interior Eurasian regions and countries.

The priorities of the Russian Federation in development of the INSTC were articulated in numerous policy documents dealing with transport development, including the following:

- Sub-programme International Transport Corridors of the Federal Special-Purpose Programme Modernisation of the Transport System of Russia (2002–2010) (2005);
- Russian Federation Transport Strategy 2030 (2008);
- Railway Transport Development Strategy 2030 (2008);
- Russian Federation Inland Water Transport Development Strategy 2030 (2016);

- Russian Caspian Sea Ports Development Strategy 2030 (including Railway and Road Access Routes) (2017);
- Russian Federation Spatial Development Strategy 2025 (2019).

The INSTC **development priorities** include the following:

- **Creation of competitive container and piggyback routes** on the basis of technically and technologically integrated transport and logistical infrastructure and supply chain business process coordination systems, attraction of freight traffic between the countries of Asia and Europe to land transport networks (railways and highways), and construction of high-speed highways along the INSTC routes (The Russian Government, 2014);
- **Creation of direct railway routes to Iran**, and expansion of international railway traffic between Europe and the countries of the Persian Gulf and the Indian Ocean (The Russian Government, 2008);
- **Development of container and piggyback transport** of containerisable cargo along the International North–South Transport Corridor using inland water transport (The Russian Government, 2016).

The **Russian Federation Spatial Development Strategy** (The Russian Government, 2019) points out that the main railways and highways comprising the INSTC have limited-capacity sections, including federal highway sections in the central, southern, and northwestern regions of the European part of the Russian Federation and in the Volga region, and railway access routes leading to large sea ports and transport hubs, and to international border-crossing points.

According to the Strategy, **development of INSTC infrastructure is required to provide Russian enterprises and organisations with efficient access to foreign markets**, increase transit freight traffic between Asia and Europe across the Russian Federation, and promote export of transport services by high-potential large centres of economic growth in the constituent entities of the Russian Federation.

One of the priorities defined by the Strategy is preferential development of high-speed transport, including INSTC rail and road routes supporting transport links between Iran, India, other countries of the Caspian region, western and southern Asia on the one hand, and countries of Europe on the other, through the territory of the Russian Federation. It is also proposed to expand international social and economic cooperation with the INSTC member states, and to develop appropriate port infrastructure, as well as railway and road access to sea ports.

On 14 February 2020, A. R. Belousov, First Deputy Chairman of the Government of the Russian Federation, approved an Action Plan for the Development of INSTC Transit Potential. The document envisages a number of administrative measures designed to develop the corridor, including the establishment of an International Transport Corridors Directorate, which will provide expert and analytical support to the INSTC development project; conduct comprehensive surveys of the market for transport services, including multimodal services, complete with assessment of existing and potential INSTC freight traffic; develop a financial model for (and become the founder of) the INSTC Single Operator; and execute contracts between such operator and major foreign and/or Russian freight forwarders and others.

Such a **Single Operator — the independent, non-profit International Transport Corridors Directorate (INPO ITC Directorate) — was established on 10 April 2020** by Executive Order of the Government of the Russian Federation No 969-r. The Decree of the Government of the Russian Federation No. 552 On Approval of the Rules Governing Allocation of Federal Budget Subsidies to INPO ITC Directorate to Finance Activities Related to Organisation of Expert, Analytical and Information Support for the Adoption by Federal Executive Bodies, Development Institutions and Business Entities of Coordinated Management Decisions to Ensure Development and Efficient Utilisation of International Transport Corridors was approved on 6 April 2021.

For the Republic of Kazakhstan, the INSTC is one of the key areas for development of transport and economic ties with Iran and India. The purpose of Kazakhstan's participation in the development of the corridor is to attract additional freight traffic generated by trade between Iran and China on the one hand and the Russian regions of the Urals, Siberia, and the Far East on the other.

The successful track record of development of the trans-Caspian transport route and the build-up of transit freight traffic from China to the countries of the Caucasus, Turkey, and EU countries can be replicated by the INSTC. Kazakhstan and its partners are currently working to increase the speed of transportation of passengers and cargo in order to streamline transport costs and to improve the quality of transport services, and are taking steps to attract freight traffic and organise container trains.

Work is under way to launch a regular car ferry service between the ports of Aktau (Kazakhstan) and Caspian (Iran) in Kazakhstan's multimodal section of the INSTC.

For the Kyrgyz Republic, the INSTC provides an opportunity to gain access to the sea. The Kyrgyz Republic is interested in launching the Bandar Abbas–Osh railway corridor, running through Iran, Turkmenistan, Uzbekistan, and the Kyrgyz Republic. The Iranian side fully supports that project, and is willing to negotiate application by Iranian Railways of minimal rates to KR cargo. At the 76th Session of the UN General Assembly held in New York on 23 September 2021, the Foreign Ministers of Iran and the Kyrgyz Republic discussed the possibility of allocation by Iran to the Kyrgyz Republic of a land plot and related infrastructure facilities in the port of Bandar Abbas for transit and supply of goods to/from the Kyrgyz Republic (Embassy of the Kyrgyz Republic, 2021).

Creation of a trans-Afghan route connecting Central Asia and the Iranian port of Chabahar through the territory of Afghanistan over the medium term is another possible area for development of the North–South corridor.

The corridor can play a large role in improving transport connectivity between the Republic of Armenia and foreign markets. The North–South highway, whose construction is nearing completion, and which will connect the Republic of Armenia and the Islamic Republic of Iran, can be supplemented with a new 23-km Kvesheti–Kobi section, complete with a 10-km tunnel in Georgia. The tunnel, operating as the backup route for the existing road to the Russian-Georgian automobile crossing point at Verkhniy Lars, will open up new transport and communication opportunities for the Republic of Armenia, and facilitate access of its goods to foreign markets.

If **Armenia** connects to the INSTC, it **may become an important transit hub**. India and Iran actively support that initiative. In March 2021, the Ambassador of India to Iran said that Armenia could connect to the INSTC through the Iranian port of Chabahar (Sarkisyan, 2021). The launch of a transport corridor through Armenia has strategic significance for Iran and India. Iran will be able to diversify the routes used for delivery of its cargo to Russia and Europe. At this time, most Iranian cargo shipped to Russia and Europe is carried through Azerbaijan and Turkey, respectively.

By the same token, **India can strengthen its positions in the INSTC project by gaining access to a short route to Georgia, the Black Sea ports, and the EAEU market** (Sarkisyan, 2021). However, Armenia will be able to connect to the international transport corridor only upon completion of construction of the Armenian section of the national North–South highway, which will reduce the travelling distance from the Georgian to the Iranian border (Krasnaya Vesna information agency, 2021). It should be noted that the Foreign Ministers of Armenia and Iran discussed the barriers to freight transit from Iran to Armenia and ways to overcome those barriers, at the 76th Session of the UN General Assembly. In that connection, the Foreign Minister of Armenia disclosed the details of construction of a new section of the Sisian–Kajaran highway within the framework of the North–South highway corridor. Thus, at the end of September 2021, the Government of Armenia approved an investment programme for construction of that highway section to connect the southern regions of the country to the centre of Armenia (ARKA information agency, 2021). Design work is under way on the Kajaran–Agarak section, which will facilitate access to Iran. Construction of the relevant sections of the North–South highway corridor will proceed with the participation of international partners, including tendering and fundraising activities.

The deepening of regionalisation in the Eurasian space is based on the establishment of close, mutually beneficial economic ties between the EAEU and the other countries of the continent, including those in its southern part. Development of Eurasian integration is accompanied by the growing role of the EAEU in linking Europe and Asia, and improvement of transport connectivity within the Eurasian continent. In turn, realisation of the transport potential of Eurasia has a beneficial impact on the development of integration ties along the INSTC, giving rise to a new round of integration. Most importantly, at the end of the day such cooperation not only promotes development of Eurasian integration on the international level, but may also significantly improve interaction among interior Eurasian regions (Central Asia, Siberia, the Urals, and the Caucasus) (Vinokurov, 2019).

1.2. Configuration and Distinctive Features of the INSTC Routes

The INSTC **includes railway, road, and inland water transport infrastructure, Caspian Sea ports** (Astrakhan, Olya, Makhachkala, Baku/Alat, Aktau/Kuryk, Türkmenbasy, Anzali, Nowshahr, Amirabad), Persian Gulf ports (Bandar Abbas and Chabahar), automobile and railway crossing points, and international airports.

The main direction of the corridor, as stipulated by the Agreement, is as follows: border with the Republic of Finland — Saint Petersburg — Moscow — Astrakhan — (Makhachkala — border with the Republic of Azerbaijan) — Caspian Sea — Iran — countries of the Persian Gulf/India.

Table 1. Geography of Transport and Economic Ties Supported by Various INSTC Routes

INSTC Route	Modes of Transport	Transport and Economic Ties
Western	railway transport, road transport	Western Europe — Belarus — central regions of Russia — Russian Volga region and North Caucasus — Azerbaijan — Iran Northern Europe — central regions of Russia – Russian Volga regions and North Caucasus — Azerbaijan — Iran Baltic ports — central regions of Russia — Russian Volga region and North Caucasus — Azerbaijan — Iran Northern Europe — Baltic ports — central regions of Russia — Kazakhstan — countries of Central Asia
Multimodal (Trans-Caspian)	inland water transport, railway transport, road transport	Central and northwestern regions of Russia, Volga regions, North Caucasus, Southern Urals — Russian Caspian ports — Iranian Caspian ports — Iran Central and northwestern regions of Russia, Volga region, North Caucasus, Southern Urals — Russian Caspian ports — port of Türkmenbasy — Turkmenistan — countries of Central Asia Kazakhstan — ports of Aktau/Kuryk — Iranian Caspian ports — Iran
Eastern	railway transport, road transport	Kazakhstan — Turkmenistan — Iran China — Kazakhstan — Turkmenistan — Iran Russia (Urals, Siberia, Far East) — Kazakhstan — Turkmenistan — Iran

Source: UNECE (2012).

Following the commissioning in 2014 of the Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan railway line providing access to the Kazakhstan railway network through Aktau and Beyneu, there is a route through Kazakhstan, Turkmenistan, and Iran along the eastern coast of the Caspian Sea (even though Turkmenistan has not yet acceded to the INSTC Agreement).

Therefore, the corridor has **three main routes**:

1. **Western** (along the western coast of the Caspian Sea through Russia and the Republic of Azerbaijan) — approximately 5,100 km from the Russian–Finnish border to the port of Bandar Abbas, Iran's main export port on the Persian Gulf, with the best connections to railway and road networks;

2. **Multimodal (Trans-Caspian)** (using ferry and container lines across the Caspian Sea) — approximately 4,900 km from the Russian–Finnish border to the Iranian port of Bandar Abbas;

Figure 1. INSTC — Meridional Corridor of the Eurasian Transport Framework

Source: EDB.

3. **Eastern** (along the eastern coast of the Caspian Sea through Kazakhstan and Turkmenistan), sometimes called the KTI (Kazakhstan–Turkmenistan–Iran) corridor — approximately 6,100 km from the Russian–Finnish border to the Iranian port of Bandar Abbas.

The northern direction of the corridor (coinciding with Pan-European International Transport Corridor No. 9) supports export and import traffic between Russia, the Baltic countries, and the countries of Northern Europe. Most export and import cargo transported along the northern part of the INSTC is processed at the trading ports on the Baltic Sea. The northern direction of the corridor supports transport between the Republic of Kazakhstan, countries of Central Asia, the Republic of Azerbaijan, and the Republic of Armenia on the one hand, and the Baltic ports on the other.

The railway lines of the northern INSTC have sophisticated technological infrastructure — most of them are double-track electrified lines. The highways of the northern direction, with the exception of access roads leading to the Caspian ports, are Grade 1 or Grade 2 federal highways.

Currently **the southern part of the INSTC** supports transport and economic ties between the Republic of Azerbaijan, the Republic of Belarus, the Republic of Kazakhstan, Russia, Turkmenistan, and countries of Central Asia on the one hand, and the Islamic Republic of Iran and India on the other, through the port of Bandar Abbas (in the future, through the new port of Chabahar); however, for the time being, end-to-end traffic along the entire length of the corridor from Europe to India is virtually non-existent. The railway lines of the southern direction are, as a rule, one-track non-electrified lines; still, they have a relatively high capacity (up to 24 pairs of container trains per day).

The highways in the Islamic Republic of Iran are capable of supporting traffic between all Caspian ports and the Persian Gulf coast. Road transport plays the feeder role in Iran, including on the unfinished section of the Rasht–Astara railway. There is also limited direct highway traffic along the Russia–Iran, Belarus–Iran, and Kazakhstan–Iran routes.

Railways, highways, and inland waterways comprising the Western, Eastern, and Multimodal (Trans-Caspian) Routes are incorporated in international transport networks and routes along most of their length.

Some railway and highway sections of the INSTC coincide with other critical Eurasian railway routes and networks (for details, see Appendicies 1 and 2). The INSTC is, essentially, the same as OSJD[3] Corridor No. 11, as well as Railway Route No. 5, Road Route No. 6, and Inland Water Route No. 11 within the UNECE Euro-Asian Transport Linkages (EATL) Project. The railway, highway, and water sections of the INSTC are part of the European network of international highways, railways, and combined lines, and of Category E inland waterways. In addition, the railway and highway corridor sections are included in the Trans-Asian Railway (TAR) and the Asian Highway networks developed by UNESCAP.

Matters related to INSTC development were examined at different times by the following international organisations: UNECE, UNESCAP, OSJD, ECO, EurAsEC, and subsequently the Eurasian Economic Commission (EEC), International Union of Railways (UIC), and International Road Transport Union (IRU).

The Eurasian Development Bank (EDB) has raised issues related to the operation of the INSTC at conferences and in analytical reports, notably in the report Development Prospects of the Infrastructure of Highways and Railways Included in EurAsEC Transport Routes, published in 2011 (EDB, 2011).

1.3. Multimodal Transport Infrastructure of the Corridor

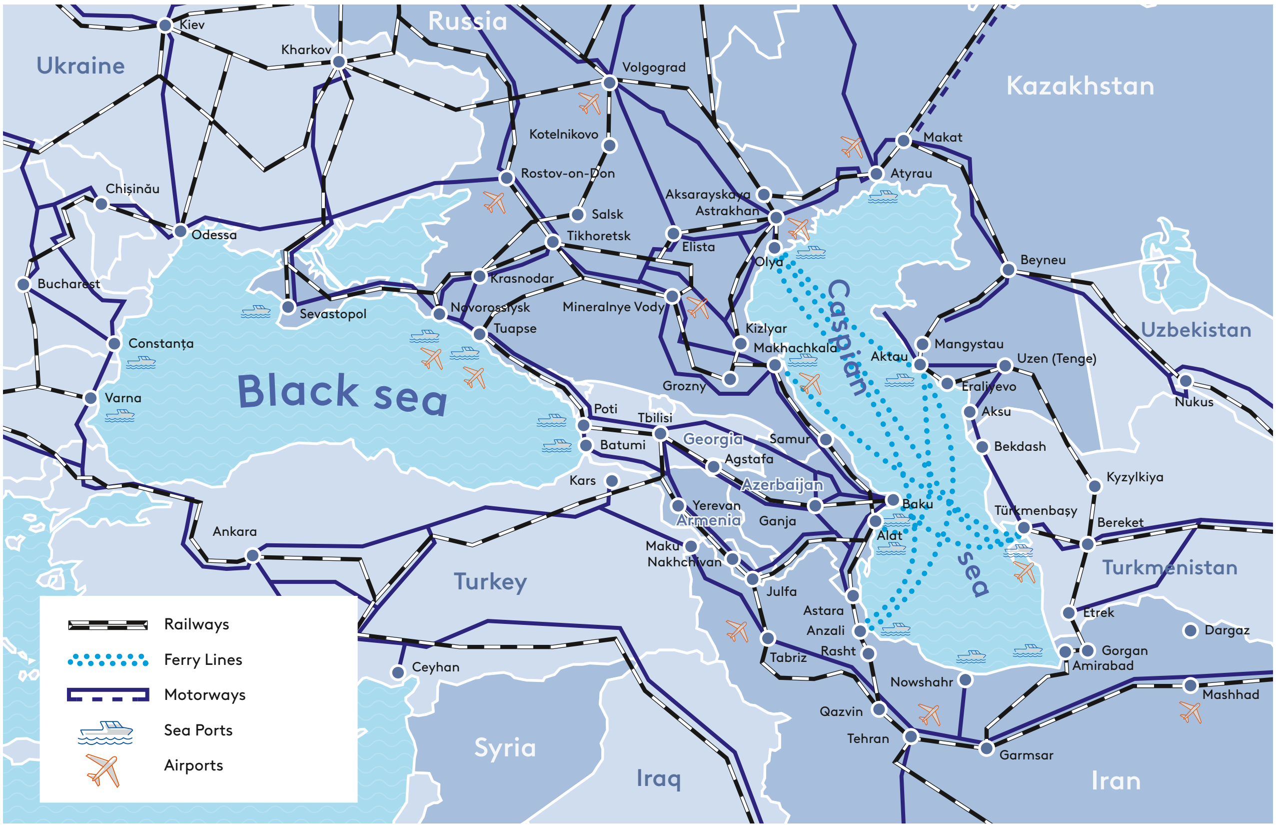
INSTC infrastructure is represented by all modes of trunk transport (see Figure 2).

Railway Transport

All INSTC countries are actively developing railway freight transport, both domestic (delivery of cargo to the Caspian Sea trading ports) **and international**, including the Caspian ferry lines. The Caspian coastal railway network (see Figure 3) currently connects all the Caspian countries, with the exception of Azerbaijan and Northern Iran. The end-to-end Western

[3] The Organisation for Cooperation between Railways (OSJD) is an international organisation established by the Railway Ministers at the Ministerial Meeting on 28 June 1956 in Sofia (Bulgaria). The OSJD operates in accordance with the Regulations on the OSJD, a document which has the status of an international treaty. The OSJD members are transport ministries and central government bodies responsible for the operation of railway transport in 29 countries.

Figure 2. INSTC Transport Infrastructure Facilities in the Caspian Region



Source: EDB.

INSTC route connecting the Baltic ports with the Persian Gulf ports will be created following the commissioning of the end-to-end Rasht–Astara line, co-financed by Azerbaijan (completion of construction is scheduled for 2025). However, the track gauge difference (Iranian railways: 1,435 mm; railways in the other Caspian countries: 1,520 mm) remains a significant infrastructural barrier to further development of end-to-end railway freight transport.

The **INSTC sections in the Republic of Azerbaijan**, running from Baku along the Caspian coast to Makhachkala (Russia) and the Baku–Alat section, are electrified two-track lines. Modernization of the Alat–Astara railway is currently under way (implementation period: 2019–2023). 244.4 km of the secondary main track have already been laid, and the entire section has been electrified. The lines were designed to support speeds of 80 km/h for freight trains and 100 km/h for passenger trains. They are equipped with a fully automated blocking system, ensuring high throughput capacity.

In 2019, the maintained track length of the railways in the **Islamic Republic of Iran** was 9,146 km of standard European gauge (1,435 mm), of which 2,040 km (22.3%) were two-track lines (including the Bafq–Bandar Abbas section, which is part of the INSTC). Only an insignificant portion of the lines in the vicinity of Tehran were electrified; however, a number of sections, including the Tehran–Qazvin section, are currently being electrified.

The long-term plan for the development of railway transport in the Islamic Republic of Iran until 2025 was adopted in 2009. According to the plan, by 2025 the length of railway lines should be increased to 25,000 km, including 6,000 km of two-track lines and 6,000 km of electrified lines. Freight traffic is expected to reach 202 million tonnes.

Over the last several years, the Iranian railway network was expanded insofar as the INSTC is concerned. A new line leading to the port of Bandar Abbas was built, making access to the Persian Gulf more convenient. In 2014, a new exit from Turkmenistan (the Etrek–Gorgan line) was put in operation, opening access from Iran, Turkey, and the countries of the Persian Gulf to the transport network of Kazakhstan and the countries of Central Asia.

The laying of the second track at the 150-km Meybod–Rakhsh section of the Tehran–Bafq–Bandar Abbas line **was completed in November 2019**, and the 165-km Qazvin–Rasht line was launched on 6 March 2019. Construction is under way of a new line from the port of Chabahar to the Zahedan station, which will connect the port with Bafq and Tehran, and also with Afghanistan. There are plans to build a straightening line from the port of Bandar Abbas to the Marvdasht station, with possible access to Isfahan and Tehran, and a high-speed Tehran–Isfahan line enabling the use of the existing line for freight transport. The Rasht–Anzali section (40 km) and the Rasht–Astara section (164 km) will be put into operation **by 2025**.

It is expected that new straightening lines from the port of Chabahar to the Fahraj station (691 km) and from Qazvin to Qom (182 km) will be built **by 2030**; as a result, the freight transport distance from the Azerbaijani border (Astara) to the port of Chabahar will be reduced by about 400 km.

The Eastern INSTC route with break-of-gauge at the border station of Gudurolum connects Iran with Turkmenistan and Kazakhstan. The gauge difference between Iran and Turkmenistan constrains railway freight potential, resulting in accumulation of freight cars at border stations, and increasing the time spent waiting for transhipment or bogie exchange.

The railway system of the Republic of Kazakhstan includes numerous long, one-track sections, while two-track sections account for more than one third of total network length (about 4,800 km).

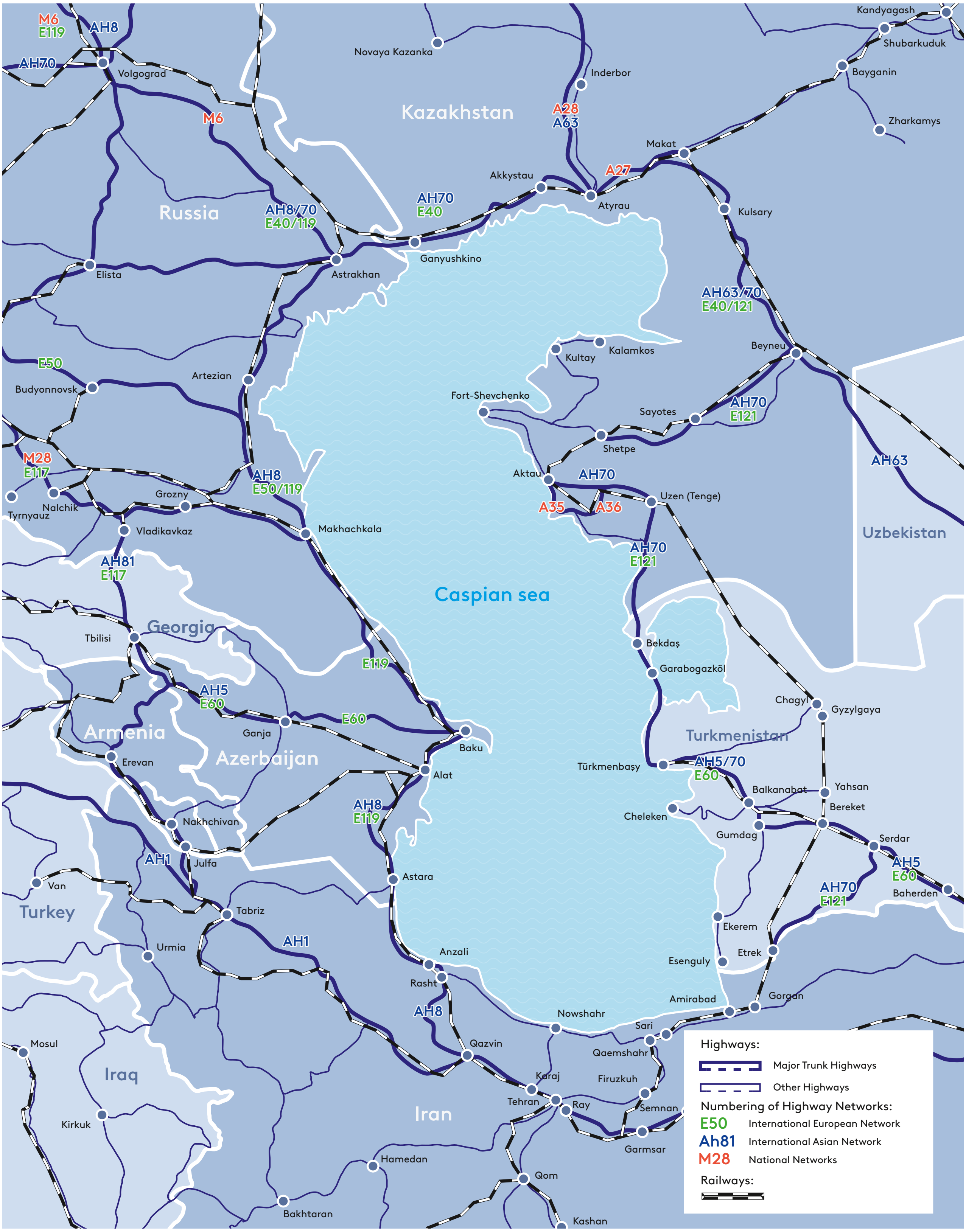
The following lines are included in the INSTC:

- Border with the Russian Federation — Makat — Beyneu — border with the Republic of Uzbekistan;
- Beyneu — Aktau;
- Aktau — Eraliyevo — Kuryk — Bolashak (border with Turkmenistan).

The main INSTC railway route in the Russian Federation (The Russian Government, 2001):

NSR: Buslovskaya (border with Finland) — Saint Petersburg — Moscow — Ryazan — Michurinsk — Rtishchevo — Saratov — Volgograd/Urbach — Verkhniy Baskunchak — Astrakhan.

Figure 3. Railway and Highway Infrastructure Facilities along the INSTC in the Caspian Region



Source: EDB.

Branches:

- NSR1: Saint Petersburg — Volkhovstroy — Petrozavodsk — Murmansk[4];
- NSR2: Shesterovka (Belarus) / Ponyatovka (Russia) — Bryansk — Oryol — Yelets — Michurinsk;
- NSR3: Moscow — Yaroslavl — Vologda — Konosha — Arkhangelsk[5];
- NSR4: Michurinsk — Liski — Likhaya — Rostov — Krasnodar — Novorossiysk/Tuapse — Sochi — Vesyoloye (Russia) / Gantiadi (Georgia);
- NSR5: Ryazan — Ruzayevka — Syzran — Samara — Orenburg — Kanisay (Russia) / Iletsk I (Kazakhstan);
- NSR6: Uspenskaya (border between Russia and Ukraine) — Martsevo/Taganrog — Rostov-on-Don — Tikhoretskaya — Kavkazskaya;
- NSR7: Urbach — Ozinki (Russia) / Semiglaviy Mar (Kazakhstan);
- NSR8: Krasnodar — Kavkazskaya — Armavir — Mineralnye Vody — Prokhladnaya — Beslan / Chervlyonnaya — Makhachkala;
- NSR9: Astrakhan — Aksarayskaya (border with Kazakhstan);
- NSR10: Astrakhan — Makhachkala — Samur (border with Azerbaijan).

The main investment projects envisaging further development of INSTC sections are:

- Comprehensive reconstruction of the Trubnaya–Verkhniy Baskunchak–Aksarayskaya section (construction of the second track, including electrification of the section);
- Reconstruction of bridges across the Volga at the Aksarayskaya–Astrakhan section.

The total length of the railway network of Turkmenistan is 3,551 km, including 1,300 km built since the country's independence. Diesel locomotives are used at all sections.

One of the largest projects, completed in 2014, is **the new Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan** railway line, running for more than 900 km from north to south and connecting Kazakhstan, Turkmenistan, and Iran. Construction works in Turkmenistan were started at the end of 2007, and were financed with national budget funds and credits extended by Iranian banks and the Asian Development Bank (ADB) (the ADB financed 75% of total project costs). It is expected that cargo turnover on the line will reach 10 million tonnes per year.

[4] This section is scheduled for inclusion in the future.
[5] Ibid.

Maritime Transport

The Baku International Sea Trading Port (BISTP) is one of the largest in the Caspian region (see Appendix 3). After all cargo-handling operations are transferred from the old Baku port to Alat, the Baku port will be used for passenger vessels and leisure trips.

The Alat Port Development Project has three stages; the first stage was completed in 2014, enabling a transfer of operations from the old Baku port without any major disruptions. The largest amount of work involved laying of a 7.5-km approach canal (width: 160 m; depth: 7.6 m).

Railway and motorway access routes were also built during the first stage, to connect the port to the national transport network, including the new highway between Baku and Sumqayit.

Two ferry bridges, three loading berths capable of handling container ships, roll-on/roll-off vessels, and universal vessels/bulkers, a container terminal, warehouses, and administrative buildings were erected during the second stage. The port of Alat is currently capable of handling 17 million tonnes of dry cargo and 150 thousand TEU per year.

The third stage of the project envisages construction of two additional loading berths. Upon completion of the third stage, the port of Alat will be capable of handling 25 million tonnes of cargo and 1 million TEU. The port is designed for handling vessels with deadweight of up to 13,500 tonnes, which is optimal for the Caspian Sea.

The port of Astrakhan is one of the largest in the Caspian region. Harbour waters and the territory of the port include a section of the Volga River, the Volga-Caspian Sea Shipping Canal, the Astrakhan roadstead, the Serebryanaya Volozhka anabranch, and berths owned by various entities. The port of Astrakhan has 26 berths.

The port is used for transhipment of ferrous metals, rolled stock, timber, paper, asbestos, equipment, containers, motor vehicles, food, and other cargoes.

Grain is the leading cargo in terms of handling volume. Over the last several years, the port has started to handle new types of cargo, including coke, ores, and cast iron. In addition, there are inward cargo flows represented by ores and ore concentrates from Iran, and petcoke from Turkmenistan. These cargoes are processed at a specialised bulk terminal with a design capacity of 750 thousand tonnes per year.

The sea port of Astrakhan consists of 28 isolated land plots; the sea port of Olya has nine land plots.

Currently the Astrakhan water transport hub consists of 17 port facilities comprising the port of Astrakhan, with an aggregate capacity of 10 million tonnes and a berth space of about 3,800 running metres.

The port of Astrakhan is connected to the Caspian Sea by an approach canal — the Volga-Caspian Sea Shipping Canal (length: 188 km; depth: 4.5 m; width: 100 m). The canal can be used for two-way navigation by vessels with a length of up to 126 m, width of up to 16 m, and draught of up to 4.5 m.

The sea trading port of Olya (Astrakhan Region) is an important infrastructural facility of the International North–South Transport Corridor.

The port's five berths, with an aggregate capacity of 1,750 thousand tonnes of dry cargo per year, can be used for year-round transhipment of diverse cargoes.

Despite the insignificant volume of cargo it handles, **Olya is one of the most promising Caspian ports**. It is situated at the mouth of the Volga, in the Bakhtemir distributary, 65.3 km up from the point of entry to the Volga-Caspian Sea Shipping Canal from the Caspian Sea. Ice breaker assistance is provided during the winter.

The port has a 200-m dry cargo terminal and a car ferry complex capable of handling roll-on/roll-off vessels operating along the routes to/from Türkmenbasy (Turkmenistan) and Anzali (Iran). There are plans to develop ferry services to Azerbaijan and Kazakhstan. The car ferry complex has vehicle intake and inspection facilities, and a number of sheltered warehouses. The terminal supports all existing breakbulk, packaged, and containerised cargo-handling technologies.

A container terminal with a design capacity of about 400 thousand tonnes, a grain terminal with a design capacity of 500 thousand tonnes per year, and a vegetable oil transhipment terminal were built under the Russian Merchant Fleet Revival Programme.

There is a plan to build an oil terminal with a design capacity of up to 2 million tonnes of oil per year, which will become a part of the Caspian oil extraction infrastructure. The terminal will handle both export cargoes (light and dark petroleum products) and import cargoes (crude oil).

Another plan envisages creation of a bulk cargo transhipment complex with a design capacity of 1 million tonnes per year. The complex will be equipped with a suite of cranes capable of concurrently handling up to 80 railway cars.

A special site for refrigerated containers, and several heated warehouses to be used during the winter, were built at the container terminal to enable the handling of perishable cargoes from the countries of the Caspian region.

All Olya modernisation projects are PPP ventures. The state builds the harbour basin, the passageways, and the mooring berth, while private investors create and develop the technological park. The main purpose of the port expansion efforts is to attract new freight traffic, and build new technological facilities to handle cargo that is currently transported on other routes.

The Special Economic Zone Lotos, established in Astrakhan Region in 2014, should help to realize the potential of the ports of Olya and Astrakhan and the trans-Caspian INSTC route. The purpose of the SEZ is to create favourable conditions for investment projects in industrial production, and build-up of local ship-building and machine engineering chains for the production, among other things, of electrical equipment, machines, tools, automation systems, modern materials, textiles, and furniture for vessels. SEZ Lotos export capacity creates additional opportunities for generation of INSTC freight traffic.

The Makhachkala International Sea Trading Port is one of the oldest Russian Caspian ports, and the largest Russian port in the Caspian basin. In 2020, the Makhachkala port handled about 4.7 million tonnes of cargo, a 3% increase vs. 2019. Liquid cargoes account for more than 90% of all transhipments.

The harbour basin is ice-free all year round. The port's oil depot is equipped with tanks that have an aggregate capacity of 500,000 m^3 (which makes it possible to handle up to 100 railway tanker cars at once), and is connected to the Baku–Novorossiysk trunk oil pipeline. The bottom of the harbour was dredged, and five landing docks and breakwaters were fully refurbished. After 12 new berths had been built in the port of Makhachkala, its handling capacity increased to 12 million tonnes.

Reconstruction of the railway ferry complex in the port of Makhachkala made possible the Aktau–Makhachkala–Aktau railway ferry service.

The dry cargo harbour of the port is a universal complex for transhipment of bulk and general cargoes, including coke, cement, grain, metals, containerised cargoes, railway-ferry and other rolling cargoes, as well as various packaged cargoes.

The oil harbour is a specialised complex for the transhipment of dark and light petroleum products, including crude oil, kerosene, diesel fuel, and gasoline. The harbour is equipped with specialised berths for transhipment of oil and petroleum products, and auxiliary berths. The overall capacity of oil harbour transhipment complexes is 7.95 million tonnes.

The port accepts vessels with lengths of up to 150 m and draughts of up to 4.5 m in the dry cargo harbour, and up to 6.5 m in the oil harbour.

The port provides mandatory piloting services and tugging services. Other vessel services include supply of food, bunker fuel, and fresh water, and removal of waste water, oil-polluted water drains, dry trash, and galley waste. It is possible to make arrangements for equipment repairs and examination of underwater vessel parts by divers.

The launch of the ferry service will reduce the cost of railway carriage of oil cargo and the time required in transit for freight and passenger traffic.

The port of Aktau is on the eastern coast of the Caspian Sea, and handles various dry cargoes, crude oil, and petroleum products. Creation of new industrial centres, economic development in the west of Kazakhstan, and growth of off-shore oil production boost freight traffic and necessitate further expansion of the infrastructure of cargo terminals.

The port of Aktau has open sites (79,700 sq.m) and sheltered transit warehouses (2,000 sq.m), four specialised oil-loading terminals (design capacity: 10.4 million tonnes; actual transport capacity: up to 12 million tonnes), three universal dry cargo terminals capable of handling general cargo and containers, transhipment of outsized cargoes, and processing of roll-on/roll-off vessels, a railway ferry complex (design capacity: 1 million tonnes; actual transport capacity: 2 million tonnes), and a grain terminal with a capacity of 0.6 million tonnes per year, complete with a special-purpose berth.

The port of Aktau is capable of round-the-clock acceptance of vessels with lengths of up to 150 m and widths of up to 20 m, while draughts should not exceed:

- For dry cargo terminals — 4.6 m;

- For oil terminals Nos. 4, 5, 10 — 6.8 m; for terminal No. 9 — 5.1 m;
- For the ferry berth — 5.1 m.

Nine vessels can be handled concurrently at the nine berths of the port.

Kazakhstan's new port of Kuryk is 90 km from the regional centre of Aktau:

- Number of berths — 4;
- Length of the mooring line — 466 m;
- Maximum dimensions of accepted vessels: length — up to 170 m, width — up to 17.5 m, draught — 4.5 m;
- Harbour basin depth — up to 7 m.

In 2020, **total freight traffic through the sea ports of Aktau and Kuryk amounted to about 4.8 million tonnes**, a decrease of 9% vs. 2019 (5.3 million tonnes). Transhipment of containers and trucks more than doubled.

A regular container line between the port of Aktau and the Iranian port of Amirabad, and the Kuryk–Anzali (Iran) car ferry service, were launched in 2020. Work is under way to set up a container service between the ports of Aktau and Türkmenbasy, and a ferry service between the ports of Kuryk and Makhachkala.

The Iranian port of Anzali is capable of transhipping up to 17 million tonnes of cargo per year. The draught in the harbour basin is limited to 5.5 m. The port can handle vessels with a maximum length of 170.7 m, and deadweight of about 4.5 thousand tonnes. It has 12 berths enabling concurrent mooring of 12 vessels with displacement tonnage of up to 6 thousand tonnes.

Since 2011, the port has 20 hoist cranes with a capacity of 10–20 tonnes. The port's berths, with a total length of 1,430 m, can concurrently handle 10 commercial vessels.

The port of Anzali has seven well-equipped warehouses with a total floor area of 2,452 sq.m, including warehouses for export and import cargoes, and container warehouses.

The Aktau–Anzali car ferry service was launched in 2012, the Kuryk–Anzali service in 2020.

The port of Nowshahr has eight fully equipped warehouses with a total floor area of 27,412 sq.m, including seven temporary cargo storage facilities and one export cargo storage facility. The remaining facilities are multipurpose warehouses used for storing diverse cargoes.

The port of Neka has two berths with a maximum permissible draught of 4 m for handling tankers with deadweight of up to 4.5 thousand tonnes. The port of Neka is the point of destination for delivery of oil and petroleum products from Kazakhstan under swap agreements.

The port of Amirabad (Hazar), with a design capacity of 6 million tonnes and a ramified network of infrastructure facilities and access routes, uses only an insignificant part of its potential because of its shallow access canal.

Road Network

The following key road sections of the INSTC in the Caspian region are classified as international highways (see Figure 3):

- Volgograd–Astrakhan–Atyrau (E40/AH70);
- Astrakhan–Makhachkala (E119/AH8);
- Makhachkala–Baku–Anzali–Tehran (AH8/E119);
- Atyrau–Beyneu–Aktau–Türkmenbasy–Bereket–Serdar–Etrek (E121/AH70).

Over the last ten years, all INSTC member states and Turkmenistan have gone to great lengths to improve their primary highways.

In 2012, the ADB surveyed the state of repair of the roads included in the CAREC corridors traversing Kazakhstan and Azerbaijan. The survey showed that **20% of CAREC corridor roads in Kazakhstan were in a good state of repair and 100% of those in Azerbaijan** (where the government has been allocating substantial funding to improve road infrastructure over the last several years).

Because of the increasing intensity of traffic, the Government of the Republic of Kazakhstan **plans to improve the quality of roads along the aforementioned international transport corridors**. Plans are being made to modernise international highways to bring them into compliance with Grade 3 standards (loads of up to 10 tonnes per axle). It is anticipated, that international highways will be modernised to ensure their compliance with Grade 2 (minimum 13 tonnes per axle) and Grade 1 standards.

The main INSTC highway route in the Russian Federation[6]:

NSA: Torfyanovka (border with Finland) — Saint Petersburg — Veliky Novgorod — Tver — Moscow — Kashira — Tambov — Borisoglebsk — Volgograd — Astrakhan.

Branches:

- NSA1: Saint Petersburg — Petrozavodsk — Belomorsk — Murmansk[7];
- NSA2: Kashira — Voronezh — Kamensk-Shakhtinsky — Rostov-on-Don — Pavlovskaya — Krasnodar — Novorossiysk/Sochi — Vesyoloye (Russia) / Leselidze (Georgia);
- NSA3: Moscow — Yaroslavl — Vologda — Bereznik — Arkhangelsk[8];

[6] Sub-programme International Transport Corridors of the Federal Special-Purpose Programme Modernisation of the Transport System of Russia (2002–2010).
[7] This section is scheduled for inclusion in the future.
[8] Ibid

- NSA4: Krichev (Republic of Belarus) / Roslavl (Russia) — Bryansk — Oryol — Yelets — Voronezh — Borisoglebsk — Saratov — Ozinki (border with Kazakhstan);
- NSA5: Moscow — Ryazan — Penza — Syzran — Samara — Mashtakov (Russia) / Pogodayevo (Kazakhstan);
- NSA6: Kamensk-Shakhtinsky — Donetsk (Russia) / Izvarino (Ukraine);
- NSA7: Astrakhan — Karaozek (border with Kazakhstan);
- NSA8: Rostov-on-Don — Taganrog;
- NSA10: Rostov-on-Don — Stavropol — Budyonnovsk — Kochubey;
- NSA12: Pavlovskaya — Mineralnye Vody — Nalchik — Beslan — Khasavyurt — Makhachkala;
- NSA14: Astrakhan — Kochubey — Makhachkala — Yarag-Kazmalyar (border with Azerbaijan);
- NSA16: Beslan — Vladikavkaz — Verkhniy Lars (border with Georgia).

One of the **large highway development projects in Kazakhstan** under way in 2021 is reconstruction of the Aktau–Beyneu highway (446 km). The value of the project is USD 1.2 billion, and the highway is scheduled to be put into operation in 2022.

INSTC highway **investment projects** are as follows:

- Construction and reconstruction of the M6 Caspian Highway — from Moscow (starting at Kashira) through Tambov and Volgograd to Astrakhan;
- Construction and reconstruction of the M29 Caucasus Highway — from Krasnodar (starting at Pavlovskaya) through Grozny and Makhachkala to the border with the Republic of Azerbaijan (towards Baku);
- Reconstruction of select sections of the Astrakhan — Kochubey — Kizlyar — Makhachkala highway;
- Reconstruction of the Tambov — Volgograd — Astrakhan highway.

The main Eastern INSTC highway route in Turkmenistan is the E121 highway, running from Garabogaz at the border with Kazakhstan through Türkmenbasy to the border with Iran (Gudurolum).

The maximum permitted vehicle dimensions and weight are as follows: height: 4 m; length: 18 m for trailers, 20 m for trucks with trailers, and 24 m for road trains; width: 2.5 m; axle load: 6.9 tonnes; total weight: 38 tonnes. The maximum permitted speed for trucks on the main (Grade 1) highways is 90 km/h.

The key Western INSTC highway route in the Republic of Azerbaijan is the 521-km E119 highway running from the Russian border (Quba) through Baku to Astara (on the border with Iran).

Vehicle weights and dimensions are set in line with the international agreement On Masses and Dimensions of Motor Vehicles Used in International Freight Carriage on Highways of the CIS Member States. The dimensions of the vehicles should not exceed the following values: height — 4 m; width — 2.55 m; length — 20 m. The mass should not exceed 44 tonnes. The permitted load per axle varies from 10 tonnes for one-axle vehicles to 22 tonnes for three-axle vehicles.

Mature road infrastructure has created prerequisites for the development of international road transport on individual sections of the INSTC, including between the Republic of Azerbaijan and the Russian Federation, between the Islamic Republic of Iran on the one hand and the Republic of Azerbaijan, the Republic of Belarus, the Republic of Kazakhstan, and the Russian Federation on the other and so on.

In addition, road transport plays an important feeder role in the delivery of cargo to the Caspian Sea ports on the multimodal Trans-Caspian route of the corridor. Until now, road transport has delivered cargo transported by rail, as well as on the unfinished rail section between Rasht and Astara in the Islamic Republic of Iran.

The role of road transport is irreplaceable in a multimodal (rail and road) corridor. In particular, grain cargoes following the corridor in the direction to the Islamic Republic of Iran are reloaded at the Iranian border into vehicles to deliver cargo further to the final destinations in the country or ports located on the coast of the Persian Gulf.

1.4. INSTC Connection with Regional and Eurasian Corridors

The INSTC is only one of several transport corridors connecting Europe and Asia. Its unique direction enables links to other global and regional east-west transport corridors:

- **The Transsib Eurasian Corridor** and its components — OSJD Corridors No. 1 and 2, and the Europe–Western China (EWC) International Transport Route;
- **OSJD Corridor No. 5 and OSJD Corridor No. 8** connecting China and Central Asia to Ukraine and the countries of Central and Eastern Europe (CEE);
- **The TRACECA International Transport Corridor** and the coaxial Lapis Lazuli International Transport Corridor and Black Sea — Caspian Sea International Route; CAREC Transport Corridor No. 2;
- **The Southern Eurasian Transport Corridor** connecting the countries of Southeast Asia to India, Pakistan, Iran, and Turkey (currently only the Iran–Turkey section and, to a much lesser degree, the Pakistan–Iran sections are functional).

The INSTC also has connections to:

- The so-called Southern Railway Route, connecting Central Russia with Black Sea ports;
- The Black Sea Ring Highway (BSRH);
- The Baku–Tbilisi–Kars (BTK) Transport Corridor;

- The Eastern INSTC route is connected to CAREC Corridors No. 3 and No. 6, providing, among other things, access to the Islamic Emirate of Afghanistan.

Successful development of some of those connections appears highly feasible.

Connection to the Transsib Eurasian Corridor

The land sections of the INSTC are connected to the Transsib Eurasian Corridor (which coincides with OSJD Corridor No. 1 and OSJD Corridor No. 2) in the vicinity of the Moscow Transport Hub and at the Volgograd Transport Hub (for the Transsib ITC branches Kurgan–Samara–Volgograd–Rostov-on-Don/Novorossiysk), and the inland water sections in the vicinity of the Volgograd, Samara, Kazan, and Nizhny Novgorod hubs.

It should be noted that accession of Belarus to the INSTC Agreement resulted in the INSTC becoming automatically connected to the Transsib Corridor at the Moscow–Minsk section, with a possibility of subsequent access to transport communications in Poland, Germany, and the Baltic states.

The connection to the Transsib corridor provides access to the INSTC for the Russian regions of the Centre, the Volga, and the Urals, as well as (with respect to the Transsib ITC branches Kurgan–Samara–Volgograd–Rostov-on-Don/Novorossiysk) for the North Caucasus, Rostov Region, and Krasnodar. Industrial and agricultural products (including grain) could become the key commodities transported between the INSTC and the Transsib Eurasian Corridor. The potential of the INSTC link to the Transsib Eurasian Corridor has been generally realised, given the current freight rate policy.

Connection to the Europe–Western China International Transport Route

The INSTC and the Europe–Western China international transport route are closely connected. The geographical structure of trade and transport flows and the directions of transit traffic point to strategic interests that are shared by China and the corresponding countries in virtually all major INSTC transport and logistical hubs intersecting the routes of the EWC ITR.

The routes of the two corridors coincide in the Moscow–Saint Petersburg section. The connection of these corridors in Moscow makes it possible for the INSTC to attract freight traffic originating in the Republic of Kazakhstan and moving primarily towards the Baltic ports. Until 2026, the EWC ITR will load the northern part of the INSTC serviced by the port of Saint Petersburg and other Baltic ports with foreign trade cargoes originating in the Republic of Kazakhstan, countries of Central Asia, and Western China.

In the Caspian region, the Eastern INSTC route forms a network which is virtually identical to the relevant section of the China–Kazakhstan–Iran (CKI) transport corridor. The Western Route incorporates the transport and logistical infrastructure of Azerbaijan, which, because of its geographical position, can serve both latitudinal and meridional routes. In addition, the Multimodal (Trans-Caspian) Route makes it possible to connect the Caspian ports to latitudinal corridors, in particular to the Trans-Asian Railway Corridor, which largely coincides with the Trans-Caspian International Transport Route, with its significant containerisation potential (Kenderdine and Bucsky, 2021).

Connection to OSJD Corridor No. 5 and OSJD Corridor No. 8

The INSTC and OSJD Corridor No. 5[9] are connected at the Rtishchevo Railway Hub (Volga Railway). That connection makes it possible to attract to the INSTC part of the freight traffic originating in the Republic of Kazakhstan and the Kyrgyz Republic and moving primarily towards the Baltic ports, Central Russia, and the Republic of Belarus.

The INSTC and OSJD Corridor No. 8[10] coincide at the Beyneu–Makat–Aksarayskaya–Astrakhan–Volgograd sections **in Kazakhstan and Russia**. That makes it possible to attract to the Northern INSTC freight traffic from the Republic of Uzbekistan and, potentially, from the Republic of Tajikistan and the Islamic Emirate of Afghanistan (Termez–Hairatan line). In the future, freight traffic moving along the southern part of the corridor from the Republic of Azerbaijan and the Islamic Republic of Iran will be able to gain access to Ukraine (currently the section of the Russian-Ukrainian border through which OSJD Corridor No. 8 passes is closed).

Branch No. 8(a) of OSJD Corridor No. 8 is the shortest land route for cargo from Northwestern Kazakhstan and for Russian cargo from the South Urals region moving towards the Republic of Azerbaijan and the Russian regions of the North Caucasus. Branch No. 8(c) of OSJD Corridor No. 8 is a section of the Eastern Route of the INSTC in the Republic of Kazakhstan and Turkmenistan.

Connection to the TRACECA International Transport Corridor

The Western Route of the INSTC is connected to the TRACECA[11] corridor in the vicinity of the Baku Transport Hub and the logistical centre and sea trading port of Alat in the Republic of Azerbaijan. The Eastern Route of the INSTC is connected to the aforementioned corridors in Turkmenistan at the Bereket hub. The INSTC and TRACECA connections are particularly important, as they make it possible to attract freight traffic from the countries of the South Caucasus and Turkey to the western route of the corridor, and from the Republic of Uzbekistan, the Republic of Tajikistan, and the Islamic Emirate of Afghanistan to the eastern route of the corridor.

A significant contribution to further development of that interlink between the two ITCs can be made by implementing the **project for construction of the Baku–Tbilisi–Akhalkalaki–Kars railway line (BTK Corridor)**, which provides land access from the countries of the South Caucasus to the railway network of Turkey. Even now, the BTK is creating new opportunities for development of trade among all the countries of Central Asia and Turkey. For the Republic of Belarus and the Russian Federation, such opportunities will emerge if the INSTC is connected to the BTK.

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[9] OSJD Corridor No. 5 traverses ten countries: Hungary, Slovakia, Ukraine, Russia, Kazakhstan, Moldova, Georgia, Azerbaijan, China, and the Kyrgyz Republic. The main direction is: Bajánsenye/Sopron/Hegyeshalom — Budapest — Záhony — Chop — Stryi — Lvov — Krasne — Zhmerinka — Fastov — Darnitsa — Grebyonka — Poltava — Kharkov — Topoli — Valuyki — Penza — Kinel — Kurgan — Utyak — Presnogorkovskaya — Kokshetau — Aktogay — Dostyk — Alashankou — Ürümqi — Lanzhou — Lianyungang. The total length of the main direction is 11,520.7 km.

[10] The main OSJD Corridor No. 8 direction is as follows: Fastov — Znamenka — Nizhnedneprovsk-Uzel — Krasnaya Mogila — Gukovo — Likhaya — Volgograd — Verkhniy Baskunchak — Aksarayskaya — Makat — Beyneu — Naymanko'l — Nukus — Uchquduq — Navoiy. The total length of the main direction is 3,747.98 km. Terminals for the handling of high-capacity containers operate along the length of the corridor: three in Ukraine, one in Kazakhstan, and two in Uzbekistan. OSJD Corridor No. 8 is the natural extension of pan-European (Cretan) International Transport Corridors No. III and No. V from the Fastov hub (Ukraine) in the south-eastern direction. The corridor is the connecting link between Europe and Asia. However, railway crossing points at the border between Russia and Ukraine have not been functioning since 2014, and for the time being, transport of cargo through the Russian–Ukrainian sections of the corridor is impossible.

[11] The corridor and its branch network connect the countries of Central and Eastern Europe (Bulgaria, Moldova, Romania, Ukraine) and Turkey (where the corridor links to the Trans-European Transport Network (TEN-T)) with the countries of the South Caucasus, the Islamic Republic of Iran, and the countries of Central Asia all the way to their borders with China and Afghanistan.

Connection with the International Lapis Lazuli Transport Corridor

The creation of the International Lapis Lazuli Transport Corridor is one of the initiatives being realised within the framework of Turkmenistan's transport diplomacy with its foreign partners to ensure implementation of the agreement signed in Ashgabat on 15 November 2017, during the Seventh Regional Economic Cooperation Conference on Afghanistan (RECCA-VII).

The agreement envisages development of regional economic integration and trade ties among the Islamic Emirate of Afghanistan, Turkmenistan, the Republic of Azerbaijan, Georgia, and Turkey, by creating, among other things, an integrated transit and transport system.

Along most of its length, the Lapis Lazuli Corridor coincides with the TRACECA ITC. Its connection to the INSTC will enable expansion of freight traffic to Afghanistan (northwestern provinces and the city of Herat) and from Afghanistan along the Eastern INSTC route (toward Kazakhstan, Russia, and European countries).

Connection to the CAREC Transport Corridors

The potential associated with attracting freight traffic from the countries of Central Asia to the eastern route of the INSTC can be realised by connecting it to the CAREC[12] corridors. Out of the six CAREC transport corridors, three are connected to the INSTC: Corridor No. 2, Corridor No. 3, and Corridor No. 6.

CAREC Corridor No. 2 (Mediterranean Region — Eastern Asia) also known as Trans-Caspian connects Istanbul with China via Azerbaijan, Turkmenistan, Kazakhstan, Uzbekistan, Tajikistan, and the Kyrgyz Republic, and comprises 9,900 km of highways and 9,700 km of railways. CAREC investments are used to finance reconstruction and modernisation of about 1,600 km of highways, 890 km of railways, four airports, and three sea ports. This CAREC corridor overlaps in many ways with the Trans-Caspian ITR and it has a significant containerisation potential (Kenderdine and Bucsky, 2021).

CAREC Corridor No. 3 (border of the Russian Federation — Middle East and South Asia) connects the southern part of Western Siberia with the countries of the Middle East and South Asia via Kazakhstan, the Kyrgyz Republic, Uzbekistan, Tajikistan, and Afghanistan, and comprises 6,900 km of highways and 4,800 km of railways. CAREC investments are used to finance reconstruction and modernisation of 1,555 km of highways, 1,022 km of railways, and three airports. The connection of CAREC Corridor 3 with the Lapis Lazuli Corridor will allow attracting freight traffic from the establishing trans-Afghan transport network to the INSTC.

CAREC Corridor No. 6 (Europe — Middle East and South Asia) links the Russian Federation with the Middle East and South Asia via Kazakhstan, Uzbekistan, Tajikistan, and Afghanistan, and comprises 10,600 km of highways and 7,200 km of railways. CAREC investments are used to finance reconstruction and development of 2,500 km of highways, 1,200 km of railways, and two airports. Connection to CAREC Corridor 6 in the northern part of the Caspian region provides access to freight traffic from/to Central Asia.

[12] The Central Asian Regional Economic Cooperation (CAREC) programme was launched in the mid-1990s by the ADB. The members of the CAREC programme are: Afghanistan, Azerbaijan, the People's Republic of China, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.

The vast **mosaic of INSTC connections** with other Eurasian transport corridors **creates extensive opportunities** for delivery of cargo among various countries within the Eurasian space.

There is a sufficient number of international examples showing that the **corridors can be used most efficiently not along their entire length, but rather at certain sections, or in combination with other routes**. This operating model applies, in particular, to freight corridors in the United States. The Transsib Eurasian Corridor receives 90% of its China–Europe container freight traffic from the branches leading through the Iletsk station and the Presnogorkovskaya station to the Republic of Kazakhstan and then on to China (through the border-crossing points at Altynkol and Dostyk).

In 2020, those two Transsib branches were used by 5,649 UTLC ERA container trains, which carried a total of 546.9 thousand TEU, or 68.3% of total container freight traffic served by the Russian Railways network. Therefore, **container freight traffic within the Transsib corridor reaches maximum concentration at sections lying to the west of Yekaterinburg**.

The INSTC and Routes Established within the Framework of the OBOR Initiative

The Chinese factor can play an important role in the development of the INSTC through the expansion of trading and economic ties between the PRC, the countries of Central Asia, and Iran. The rapidly increasing Chinese–Iranian trade that can be served by the routes traversing Central Asia can be of special significance.

The OBOR Initiative includes projects for creation of new railway routes, such as China–Kyrgyz Republic–Republic of Uzbekistan–Turkmenistan–Iran and China–Kyrgyz Republic–Republic of Tajikistan–Afghanistan–Iran. Both potential corridors depend on attraction of international investment capital to finance construction of new sections (including sections of the Trans-Afghan Mainline from Panji Poyon to Herat through Mazar-i-Sharif).

Development of new transport routes can provoke competition between the corridors, with potential freight traffic switching to the new lines. A good example is the China–Pakistan Economic Corridor (CPEC) connecting the Xinjiang Uyghur Autonomous Region (XUAR) with the new Pakistani port of Gwadar. The corridor serves freight traffic between China and the countries of the Indian Ocean, the Persian Gulf, and Eastern Africa, and potentially may compete with the INSTC.

The **INSTC is an important component of a network of latitudinal and meridional trading routes**, and its development directly facilitates emergence of a macro-regional transport and logistics system (**"Eurasian transport framework"**), which, in turn, underpins expansion of trade and investment partnerships within Eurasia, and may become a critical **Greater Eurasia[13] growth driver**. Construction of that framework addresses the need to accommodate the long-term economic interests of many countries of the Eurasian continent (especially landlocked countries), reduces the negative economic impact of "large distances" and high transport costs, helps Central Eurasia to get rid of its "continental curse" by placing it at the intersection of transport corridors (Otorbaev et al., 2021) and, ultimately, promotes development of continental cooperation and regional integration.

[13] The Greater Eurasia project, as defined by the document Strategic Development Areas of Eurasian Economic Integration until 2025, approved by Decision of the Supreme Eurasian Economic Council No. 12, dated 11 December 2020, seeks to expand and intensify economic cooperation among all countries of Europe and Asia.

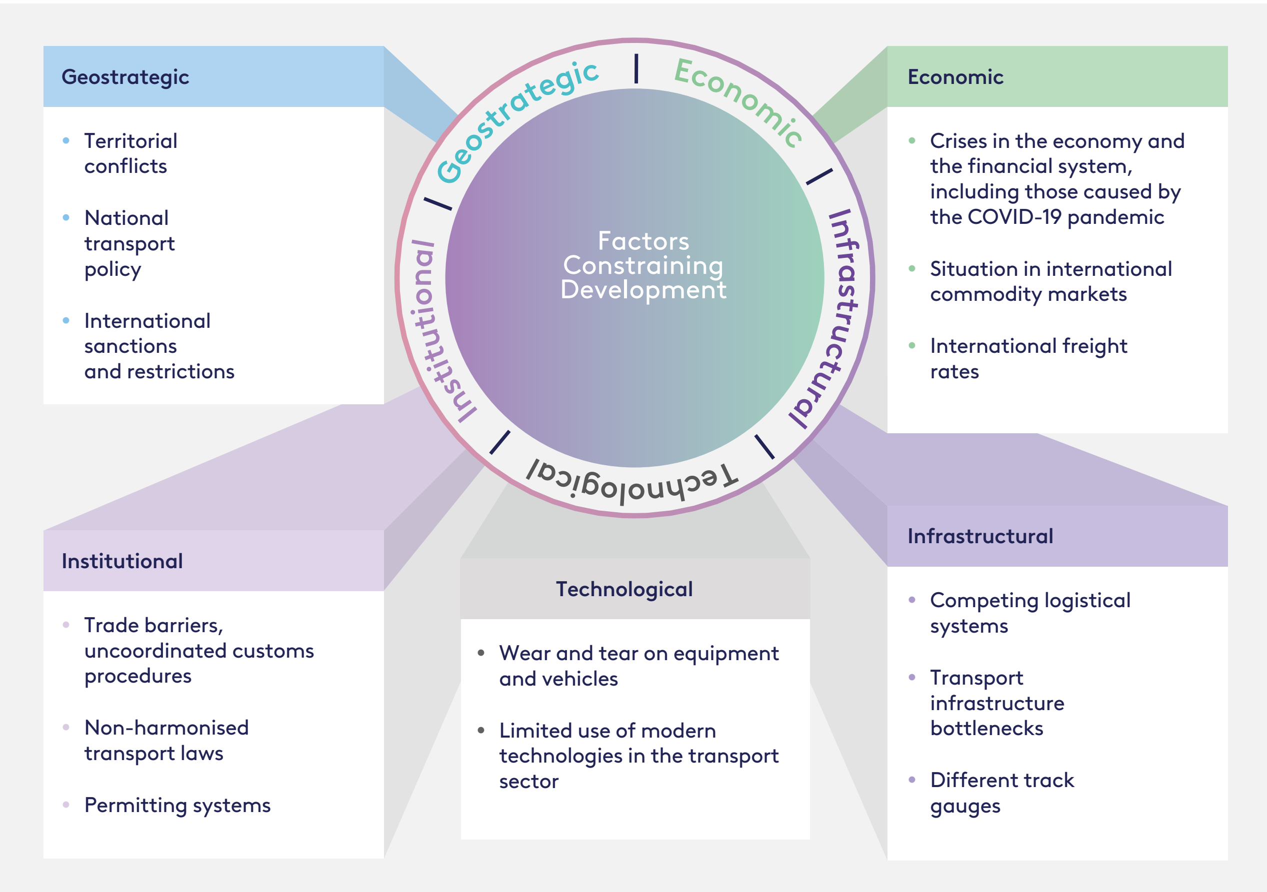
Due to shared interests, **diversity of connections among Eurasian ITCs facilitates interactions between the EAEU** (which positions itself as one of the centres driving the integration contour of Greater Eurasia) and such regional economic associations as the SCO, the Association of Southeast Asian Nations (ASEAN), and the CIS, while also contributing to a systemic dialog with the EU.

1.5. Challenges and Risks

The challenges that the INSTC faces as it continues to evolve include uncoordinated transport policies of the member states, international sanctions, the economic crisis, non-harmonised international transport standards and border-crossing procedures, high competition between modes of transport, missing links, and corridor bottlenecks (see Figure 4).

One of the most serious constraints is the sanctions imposed on the Islamic Republic of Iran and on the companies implementing projects in that country, as well as the secondary sanctions that apply to third-country businesses involved in joint projects with Iranian companies. The impact of the sanctions on the operation of the INSTC is significant; in particular, there are certain issues with completing construction of certain transport infrastructure facilities and with attempts of international shipping companies to visit Iranian ports (with the exception of the port of Chabahar, whose expansion is financed with Indian money), and serious problems

Figure 4. Factors Constraining Development of the INSTC



Source: Developed by the authors.

that plague mutual settlements among all parties involved in international freight traffic along the corridor. Transportation of cargo along the INSTC is also associated with additional insurance costs. All these factors currently prevent the INSTC routes from gaining the competitive edge needed to expand container transit between India, other countries of South Asia and the Persian Gulf, and Europe.

The conflict in Nagorno-Karabakh in 2020 deprived the Republic of Armenia of access to international markets through INSTC infrastructure, even though the country is a party to the INSTC Agreement.

The transport policies pursued by the INSTC Agreement member states are not sufficiently aligned: meetings of the Coordination Council are held rather seldom (there were no meetings in 2007–2017, and the latest meeting took place in March 2019), while meetings of expert teams established in accordance with the Charter of the Coordination Council to discuss matters related to the operation of customs, ports, etc., are not convened at all.

National policies of individual countries may also inhibit expansion of the corridor. In particular, restrictions imposed by the Federal Customs Service (FCS) of Russia on the use of TIR carnets in the Russian Federation, together with the Russian food sanctions, resulted in foreign and transit freight traffic switching from the INSTC to other corridors. Sea routes and the southern TRACECA route (Turkmenistan, Iran, the South Caucasus, and Turkey) were employed as alternatives for the delivery of cargoes, including perishable cargoes. The Iranian statistical agency notably recorded an increase in west–east freight traffic, while north–south traffic declined.

Permitting systems are one of the key mechanisms used to gain access to the international road freight transport market. In the corridor member states, those systems are mostly bilateral, and imply individual (for each country pair) conditions governing carrier access, transit operations, etc. Most Eurasian countries currently have no bilateral agreements with India and Pakistan, which prevents direct road freight transport, inflates delivery costs, and causes problems with third-party liability coverage of cargoes and vehicles.

There are only limited opportunities for the development of a direct railway service between the Eurasian countries in the "1,520 mm gauge area" and the Islamic Republic of Iran because of the need to resolve the gauge conversion problem by either exchanging freight car bogies or using sophisticated and costly bogies with an automated break-of-gauge capability (which is not economically feasible for freight operations). One possible solution is transhipment of containers from one railway flatcar to another, as is done with China–Europe container trains. Still, different track gauges remain a significant obstacle for transporting other types of cargo, e.g., liquid cargoes, where bogie exchange or car-to-car transhipment is not always possible for safety reasons.

Delays in the development of the Iranian railway network prevent delivery of containers at high route speeds. With the exception of several sections near Tehran, the country's railway network uses diesel locomotives, and about 77% of lines are one-track lines.

Infrastructural issues are also encountered by the Russian Federation when it uses the multimodal water route. The Volga-Caspian Canal, used by sea-going vessels to call at the ports of Olya and Astrakhan, gradually accumulates sediment, which requires regular dredging.

So far, **the use of ferries for transporting container railcars or heavy trucks has been relatively less efficient** than transhipping containers in the Caspian ports. This is the consequence of the high cost of freight using outdated railway ferries manufactured back in Soviet times for the Azerbaijan Caspian Shipping Company (ASCO), the indefinitely long time spent by container-carrying railway cars or trucks at the port waiting to be loaded onto the ferry, and the lower cost of trans-Caspian delivery of containers by general cargo vessels. The experience of delivering containers by scheduled feeder vessels between the ports of Aktau/Kuryk and Baku/Alat along the Trans-Caspian Transport Route can be used to improve container and truck freight carriage along the multimodal INSTC route.

Development of the INSTC is constrained by certain administrative issues: the absence of an end-to-end logistical operator, competition between the Western and Eastern Routes of the corridor and the multimodal route, the absence of a marketing policy and end-to-end ferry schedules (with the exception of the Aktau/Kuryk–Baku/Alat line in the TRACECA ITC).

Lack of coordination of rate policies for railway freight services, as well as for vessel maintenance and cargo handling services provided by sea ports, is another **important constraint**. Unlike the Trans-Caspian Transport Route, the INSTC still has no end-to-end freight rate, and until recently port maintenance costs depended on the flag flown by the vessel. The high and non-transparent costs of Caspian port calls automatically increase ferry service costs.

Uncoordinated customs rules complicate the process of state border crossing by cargo and vehicles. Some border-crossing points lack the "one-window" mechanism, and have failed to implement the Transit Guidelines of the World Customs Organisation. Because of that — and also because of the relatively poor infrastructure — it takes carriers a long time to complete customs and other formalities at sea ports and automobile border-crossing points.

The difficulties encountered by long-haul truckers as they attempt to get visas also contribute to the general problem.

1.6. Current Status of the Negotiating Process

Even though the negotiating process has been reenergised by the resumption of INSTC Coordination Council meetings, the **corridor is still in the "sleep" mode, and operates only in its Northern part and at certain sections of the Multimodal and Eastern Routes**.

However, despite the risks and missing transport infrastructure elements, **all prerequisites required for operationalisation of the INSTC along its entire length are in place**. An important role in that process is played by international inter-governmental and non-governmental organisations, international financial institutions, and development banks, which over the last several years have moved much closer to the heart of the negotiating process as regards further expansion of the corridor.

A key participant in the negotiating process is the United Nations Economic Commission for Europe (UNECE), which has been working hard to expand Eurasian transport ties since the turn of the century. Development of the transport routes comprising the INSTC became one of the key themes of the EATL Project. A roadmap designed to operationalise Eurasian routes and improve their functional efficiency (which is fully applicable to the INSTC) was proposed during the third stage of the project, which was completed in 2017 (United Nations, 2020). The UNECE is currently calling for the establishment, under the auspices of the Working Party on Transport Trends and Economics (WP.5), of an experimental transport corridors management team, which will focus on improving coordination among the EATL member states interested in the development of specific corridors or their sections (UNECE, 2021). One of the INSTC member states that has expressed its willingness to participate in that project is the Republic of Azerbaijan.

Another major contributor to efforts to build up Eurasian transport ties is the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), which conducted a number of surveys (UNESCAP, 2019), and arranged a series of multilateral meetings (UNESCAP, 2020), including on matters related to the development of the INSTC. In 2019–2020, UNESCAP prepared a plan to support continued development and commercialisation of the Kazakhstan–Turkmenistan–Iran (KTI) railway route, which is part of the Eastern INSTC Route.

The OSJD is working on comprehensive development plans for the Europe–Asia railway corridors (OSJD Corridors). OSJD Corridor No. 11 generally coincides with the main direction of the INSTC. The OSJD conducts annual analyses of the technical and operational indicators, assesses the state of repair of each corridor, and examines border crossing issues, making it possible to design integrated measures to develop the infrastructure and improve the quality of international railway freight services.

The Eurasian Economic Commission is the supranational governing body of the EAEU, which includes four INSTC Agreement member states (the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Russian Federation). **The INSTC is included in the list of Eurasian transport corridors** (EEC, 2019)**, and the list of EAEU priorities in the formation of a common transport space** (Vinokurov, 2017), creation of a common transport services market, and build-up of the Union's transit potential. The EEC is used as the venue for the establishment of FTAs with the Islamic Republic of Iran and India, which in the future should incentivise diversion to the INSTC of foreign freight traffic generated by the negotiating parties.

For many years, the International Union of Railways (UIC) has been promoting development of intercontinental railway freight transport. In 2015, the UIC's global team of experts (GTE) on international transport corridors prepared the Concept for the Development of International Transport Corridors (UIC, 2015), which can be used as a step-by-step guide for operationalisation of individual routes, and is fully relevant for the purposes of further development of the INSTC.

The International Road Transport Union (IRU) is instrumental in expanding international road freight traffic along the INSTC through the participation of all the countries in the TIR Convention. The use of TIR carnets enables unimpeded customs transit, which significantly simplifies border-crossing procedures. India acceded to the TIR Convention in 2017, getting the opportunity to use TIR carnets on all INSTC routes for international road freight purposes (IRU, 2018). A number of countries along the corridor are also involved in pilot projects for introduction of digital TIR carnets (eTIR). The first trip along the INSTC section between Iran and the Republic of Azerbaijan where eTIR carnets were used took place in June 2019 (IRU, 2019).

One of the objectives stipulated by the Charter of the Coordinating Council on Trans-Eurasian Transportation (CCTT) is to attract transit and foreign cargo to trans-Eurasian routes, including the East-West and North–South ITCs. The CCTT coordinates the activities of international freight carriers that use land and sea sections of the trans-Eurasian routes to ensure high-quality cargo delivery services, and expansion of economic ties among the countries of the APAC, Central Asia, the CIS, the Baltic, and Europe. For many years, the CCTT has been acting as the de facto coordinating body for the Transsib Eurasian Corridor. Now that the CCTT has been renamed and its scope of authority expanded, it can be used to arrange efficient freight transport along the INSTC.

Notably, during a meeting with Kazem Jalali, the Iranian Ambassador to Russia, in September 2021, the Russian side stated its intention to establish a single operator to deal with INSTC issues relevant for Iran, Russia, and India, and is making plans to pay official visits to Iran and India for that purpose (Gusev, 2021).

2. Unlocking the Potential of the INSTC through synergies

2.1. Foreign Economic and Transport Ties of Countries along the INSTC Routes

INSTC Participating Countries

Subject to current market conditions, freight rates, the regulatory framework governing international transport operations, etc., **the list of countries whose foreign trade benefits from using the INSTC routes includes**:

In the South:

- Countries that are directly interested in using the corridor, and are **parties to the INSTC Agreement**: Republic of Azerbaijan, Republic of Kazakhstan, India, Islamic Republic of Iran, Sultanate of Oman.
- Countries that are directly interested in using the corridor, but are **not parties to the INSTC Agreement**: Pakistan, Turkmenistan, Islamic Emirate of Afghanistan.
- Countries that are parties to the INSTC Agreement, but **have not yet used the corridor infrastructure** for political and economic reasons: Republic of Armenia, Syrian Arab Republic, Republic of Tajikistan.

In the North:

- Countries that are directly interested in using the corridor, and are **parties to the INSTC Agreement**: Republic of Belarus, Russian Federation.
- EU countries that could conduct foreign trade with the countries of the CIS, the Persian Gulf, and the Indian Ocean **using the corridor infrastructure**: Germany, Latvia, Lithuania, Poland, Finland, Sweden, Estonia.

Creation of conditions conducive to further development of INSTC transport operations (elimination of infrastructural bottlenecks, simplification of border-crossing procedures, alignment of rate policies, development of corridor management mechanisms, etc.) may result in **expansion of the list of interested countries**. It may include certain countries of the Persian Gulf, the Indian Ocean and East Africa; countries of Central Asia, such as Turkmenistan, the Kyrgyz Republic, and the Republic of Uzbekistan; China (to the extent of development of its bilateral trade with Iran); and some countries of Central and Eastern Europe.

The key feature uniting most countries in the groups under review is that their **foreign trade can be served both by the transport corridors running along the East–West axis, and by the INSTC**. Trade between Azerbaijan, Kazakhstan, and Turkmenistan on the one hand, and EU countries on the other, can develop especially, using the infrastructure of the TRACECA ITC and its branches. Accordingly, for those countries, there is a possibility of:

- Freight traffic to/from the EU countries, switching between the corridors depending on market conditions, rates, transport terms, and border-crossing procedures;

- Interactions between the North–South and East–West corridors, when cargoes can successively move along both corridors (for example, Iranian cargoes can move to Azerbaijan along the INSTC, and from Azerbaijan to the EU countries by the TRACECA corridor; Turkmen cargo can be transported via Kazakhstan in the direction of Russia along the INSTC, and subsequently switch to the Transsib Eurasian Corridor routes).

India

India — European Union

The bulk of the transcontinental (Eurasian) trade that might potentially be served by the INSTC relates to foreign trade between India and the European Union (see Appendix 4). In 2020, India accounted for more than 72% of total foreign trade of the Top Five EU trading partners situated in the southern part of the INSTC. Today, India is one of the main parties interested in the development of freight transport along the INSTC in order to realise its trade potential with the EU, the EAEU, and the Islamic Republic of Iran.

The European Union and India are currently expanding their strategic partnership. The EU is India's largest trading partner, and India is, in turn, the No. 9 trading partner for the EU. Over the last several years, EU–India foreign trade turnover has been steadily growing, and only in 2020 did the volume of their mutual trade decline, because of the COVID-19 pandemic. According to Eurostat, in 2020 EU–India foreign trade turnover was EUR 66.3 billion (2019: EUR 91.5 billion).

In 2020, **almost 6.4 million tonnes of cargo was transported between India and the seven EU countries along the INSTC** (Germany, Latvia, Lithuania, Poland, Finland, Sweden, Estonia), including 2.22 million tonnes from India to the EU, and 4.15 million tonnes from the EU to India. The key destination countries for Indian cargo are Germany and Poland: according to Eurostat, in 2020, freight traffic from India to Germany and from India to Poland was 1.3 million tonnes and 0.7 million tonnes, respectively. Generally, in 2015–2020, total freight traffic from India to the seven EU countries listed above increased by 16%, and only during the pandemic was there a slight decline: by 8.3% in 2020 vs. 2019.

Unlike China, whose freight traffic to the EU countries exceeds the reverse flow, **freight traffic from the EU countries to India is almost double that from India to the EU countries**. In 2020, a total of 4.1 million tonnes of cargo was transported from the aforementioned seven EU countries to India, with the bulk of that cargo also originating in Germany (2 million tonnes) and Poland (1.2 million tonnes). In 2015–2020, total freight traffic increased by 13%, primarily because of the growth of freight traffic from Germany and Poland.

India — EAEU

The Russian Federation is India's largest trading partner in the EAEU. According to the Federal Customs Service of Russia, in 2020, foreign trade turnover between the Russian Federation and India amounted to USD 9.3 billion, with Russian exports and imports accounting for USD 5.8 billion and USD 3.5 billion, respectively. The share of India in Russia's total trade turnover in 2020 was 1.6% (2015: 1.4%). In 2020, India occupied 16th place in the list of the largest trading partners of the Russian Federation (2015: 17th place). In 2020, Russia's trade balance with India traditionally remained positive and amounted to USD 2.4 billion, having declined by 29.4% (USD 3.3 billion) vs. 2015.

Cargo moving between Russia and India is carried by maritime transport, primarily through the Russian Azov–Black Sea ports and Far Eastern ports, and through the ports of neighbouring countries with subsequent delivery to the end user by railway and road transport. In 2020, total export cargo sent to India through Russian sea ports amounted to 13.2 million tonnes, a 2.2-fold increase vs. 2015. Coal and Coke accounted for almost 57% of all cargo exported to India in 2020, Bulk Oil for 10.5%, Chemical Cargoes and Mineral Fertilisers for 12.3%.

In 2015–2020, the **largest increase in the volume of cargo loaded in sea ports was recorded for Bulk Oil, Bulk Food Products (Vegetable Oil)**, and Other Dry Cargo. The volume of cargo imported from India to Russia and transhipped in Russian sea ports in 2020 was 26.7 thousand tonnes, a 63.6% decrease vs. 2015.

In 2015–2020, the volume of Other Dry Cargo imported through Russian sea ports decreased by 63.6%. **Because of the commodity structure of Russian–Indian trade, container freight traffic between the two countries is not significant**, and in 2020 it amounted to merely 146 thousand tonnes, i.e., less than 7,000 TEU. In 2015–2020, container freight traffic between the two countries declined by 60%. In 2020, transhipment in Russian sea ports of containers with Russian cargo exported to India decreased by 67.4% vs. 2015, and amounted to 98.6 thousand tonnes. In 2015–2020, container freight traffic from India to Russia decreased by 10.6%, and amounted to 47.4 thousand tonnes. Container transport between Russia and India was channelled primarily through the Russian Azov–Black Sea ports and Far Eastern ports.

Transport and economic ties between the other EAEU member states and India are currently expanding, with the relevant freight traffic using the infrastructure of the Russian Azov–Black Sea ports and, to a lesser extent, Far Eastern ports. The **Republic of Kazakhstan** supplies to India mostly Oil (using infrastructure of the Caspian Pipeline Consortium) and Petroleum Products (a total of about 5 million tonnes in 2020). The bulk of export cargo carried from the **Republic of Belarus** to India is represented by Mineral Fertilisers (about 1 million tonnes in 2020). Exports to India from the **Republic of Armenia and the Kyrgyz Republic** in 2019–2020 were insignificant. Most of the cargo imported from India to the EAEU member states in 2020 was represented by Food Products (7 thousand tonnes to Armenia, 20.2 thousand tonnes to the Republic of Belarus, 16.2 thousand tonnes to the Republic of Kazakhstan, and 1.1 thousand tonnes to the Kyrgyz Republic). Other product categories included Chemical Cargoes, Construction Materials, and, to a lesser extent, Metals and Metal Products.

Islamic Republic of Iran

Iran — European Union

The Islamic Republic of Iran is the main transit country of the INSTC. In addition to transit, there is also Iranian foreign trade, which has been greatly affected by international sanctions imposed on the country's oil and gas sector. Excluding Oil and Petroleum Products, in 2020 total international freight traffic between Iran and the European Union using all modes of transport was 2.6 million tonnes, or 43.5% less than in 2015 (see Appendix 5).

In 2020, 1.5 million tonnes of cargo was transported between the seven EU countries and Iran (more than 50% of total freight turnover between Iran and the EU), including 56.7 thousand tonnes from India to those EU countries, and 1.47 million tonnes from the EU to Iran. Excluding Oil and Petroleum Products, the transport and economic ties between Iran and the EU countries along the INSTC are characterised by a significant imbalance. Iran–EU traffic accounts for 3.7% of total cargo carried, all modes of transport; EU–Iran traffic for 96.3%, with more than 95% of total freight traffic represented by German goods supplied to Iran.

Transport and economic ties between Iran and most EU countries have tended to decline. In 2015–2020, Iranian exports to the seven EU countries decreased by 46.5%, imports from the EU to Iran by 22.6%.

Iran — EAEU

Economic and transport ties between Iran and the EAEU member states, primarily the Russian Federation, are much more extensive. According to the Federal Customs Service of Russia, in 2020, foreign trade turnover between the Russian Federation and the Islamic Republic of Iran amounted to USD 2.2 billion, with Russian exports and imports accounting for USD 1.4 billion and USD 0.8 billion, respectively. Russia's trade balance with Iran was positive, and amounted to USD 620.4 mln, having declined by 17.8% (USD 754.2 mln) vs. 2015.

Cargo is transported between Russia and Iran primarily by maritime transport through the Russian Azov–Black Sea ports and Caspian Sea ports, and through the ports of neighbouring countries (mostly Baltic countries), with subsequent delivery to the end user by railway and road transport.

In 2020, the volume of Russian cargo exported to Iran through Russian sea ports was 4.1 million tonnes, a 43.8% increase vs. 2015. In 2015–2020, there was an **increase in transhipment of Grain (by 60.4%), Chemical Products (6.2 times), and Food Products (23.8 times)**. The following products had the largest shares in total export freight traffic from Russia to Iran transhipped through Russian ports: Grain (63.1%), Timber (10.6%), and Food Products (24%). In 2015–2020, transhipment of Iranian imports to Russia through Russian ports increased by 79.8% to 559.6 thousand tonnes. During the same period, there was an increase in the volume of transhipped Construction Cargo (by 94.7%) and Other Dry Cargo (by 55.7%).

In 2020, transhipment in Russian sea ports of containers with Russian cargo exported to Iran decreased by 63.6% vs. 2015, and amounted to 6.6 thousand tonnes. In 2020, container freight traffic from Iran to Russia through Russian sea ports amounted to 16.2 thousand tonnes, a 29.3% decrease vs. 2015.

Transport and economic ties between the Islamic Republic of Iran and the other EAEU member states are currently expanding, with the relevant freight traffic using the infrastructure of the Caspian Sea ports, the Western INSTC route (Republic of Belarus), and the Eastern INSTC route (Republic of Kazakhstan and Kyrgyz Republic). Cargo moving between the Republic of Armenia and the Islamic Republic of Iran is carried through the automobile crossing points at the Armenian–Iranian border.

The bulk of cargoes delivered from the Republic of Kazakhstan to the Islamic Republic of Iran are Food Products (1.7 million tonnes in 2018, and 1.4 million tonnes in 2019), with Grain (barley) accounting for more than 95% of the total. Most Iranian export cargo goes to the Republic of Armenia (more than 1 million tonnes in 2018, and almost 1.3 million tonnes in 2019). Construction Materials and Petroleum Products dominate the freight traffic structure. Considerable volumes of Construction Materials are carried from the Islamic Republic of Iran to the Republic of Kazakhstan

(180 thousand tonnes in 2018, and 294 thousand tonnes in 2019). Freight traffic from Iran to the Republic of Belarus and the Kyrgyz Republic in 2018–2019 was insignificant.

Republic of Azerbaijan

Azerbaijan — European Union

Foreign trade of the Republic of Azerbaijan is characterised by a significant primary commodity bias of its exports (see Appendix 6). A considerable part of its extracted oil is delivered to the international markets by pipeline. Oil and Petroleum Products represent a significant share of foreign trade turnover and total freight traffic with the country's key partners, especially the European Union. According to Eurostat, in 2020, Oil and Petroleum Products accounted for 98.8% (20.2 million tonnes) of total freight traffic from Azerbaijan to the EU countries. All other cargoes amounted to 246.4 thousand tonnes.

In 2020, 2,346.6 thousand tonnes of cargo was transported between the seven EU countries and the Republic of Azerbaijan, including 2,214.4 thousand tonnes of Oil and Petroleum Products and merely 47.6 thousand tonnes of other cargoes that were carried from the Republic of Azerbaijan to those EU countries, and 95.6 thousand tonnes of cargo that was moved in the reverse direction.

During the period under review, the freight traffic from the EU to the Republic of Azerbaijan decreased, while Azerbaijani exports to the EU increased.

Azerbaijan — Russian Federation

The Republic of Azerbaijan has much more **extensive foreign economic and transport ties** with certain EAEU member states, primarily the **Russian Federation**. According to the Federal Customs Service of Russia, in 2020, foreign trade turnover between the Russian Federation and the Republic of Azerbaijan amounted to USD 2.9 billion, with Russian exports and imports accounting for USD 2.1 billion and USD 0.8 billion, respectively.

The share of Azerbaijan in Russia's total trade turnover in 2020 was 0.8% (2015: 0.5%). In 2020, Azerbaijan occupied the 36th position in the list of the largest trading partners of the Russian Federation (2015: 39th position). **In 2020, Russia's trade balance with Azerbaijan was positive, and amounted to USD 1,261.7 mln**, having declined by 29% (USD 1,769.5 mln) vs. 2015. In 2015–2020, exports to Azerbaijan declined by 9.3%.

In 2015–2020, freight traffic between Russia and Azerbaijan using all modes of traffic increased by 22.9%, and in 2020 amounted to 4.9 million tonnes. The share of Russian export cargoes in 2020 was 79.7% vs. 85.1% in 2015.

Cargo between Russia and Azerbaijan is carried by maritime transport through the Caspian Sea ports — Astrakhan and Olya. In 2020, total export cargo sent to Azerbaijan through Russian sea ports amounted to 12.4 thousand tonnes, a 41.6% decrease vs. 2015. The decline was attributable to the reduction by 32.5% in the volume of Other Dry Cargo transported in 2015–2020. The volume of cargo imported from Azerbaijan to Russia and transhipped in Russian sea ports in 2020 was 4.6 thousand tonnes, a 24.3% increase vs. 2019. During that period, imports of Chemical Cargoes increased by 16.7%, while imports of Other Dry Cargo quadrupled.

The bulk of Russian cargo exported to Azerbaijan goes through the port of Astrakhan. Foreign trade cargo carried between Russia and Azerbaijan by railway transport goes through the Samur–Yalama border-crossing point.

Islamic Republic of Pakistan

The Islamic Republic of Pakistan could become a major user of INSTC infrastructure for the purposes of foreign trade with the EU countries and the EAEU member states. According to Eurostat, in 2020, total Pakistan–EU freight traffic amounted to 4.8 million tonnes, including 1.5 million tonnes from Pakistan to the EU and 3.3 million tonnes from the EU to Pakistan (see Appendix 7). At this time, trade between Pakistan and the EU is almost entirely by sea.

In 2020, 1.6 million tonnes of cargo was transported between the seven EU countries and the Islamic Republic of Pakistan, including 0.3 million tonnes from Pakistan to the EU and 1.3 million tonnes in the reverse direction. In 2015–2020, freight traffic between those EU countries and Pakistan tended to increase. The most cargo is transported between Pakistan on the one hand, and Germany, Poland, and Sweden on the other.

There is significant international freight traffic between Pakistan and individual EAEU member states, notably the Russian Federation. According to the Eurasian Economic Commission, in 2020, the volume of cargo exported from Russia to Pakistan amounted to 2.6 million tonnes, with Food Cargoes (primarily Grain) and Fuel and Energy Cargoes accounting for 58.6% and 36.5%, respectively. Imports from Pakistan to the EAEU member states are dominated by various Food Cargoes and Textiles.

Currently almost all cargo moving between Pakistan and the EAEU member states is carried by the maritime transport (primarily through the ports of the Azov–Black Sea basin).

Sultanate of Oman

The Sultanate of Oman, an INSTC Agreement member state, **could become a major user of INSTC infrastructure** for the purposes of foreign trade with the EU countries and the EAEU member states. According to Eurostat, in 2020, total Oman–EU freight traffic amounted to 1.5 million tonnes, including 0.95 million tonnes from Oman to the EU and 0.5 million tonnes from the EU to Oman (see Appendix 8). At this time, virtually all trade between Oman and the EU goes by sea.

According to the Eurasian Economic Commission, the Russian Federation is the only EAEU member state that recorded significant foreign trade and international freight traffic with Oman.

In 2020, export freight traffic from Russia to Oman amounted to 745.1 thousand tonnes, with Food Cargoes (primarily Grain) and Fuel and Energy Cargoes accounting for 65.2% and 32.2%, respectively. In 2019–2020, there were no significant imports from Oman to Russia or other EAEU member states.

Currently almost all cargo moving between Oman and the Russian Federation are carried by maritime transport (primarily through the ports of the Azov–Black Sea basin).

2.2. INSTC Development Drivers and Opportunities

In the foreseeable future, development of the INSTC will be shaped by the following:

- Geopolitical drivers;
- Transport policy drivers;
- Trade and economic drivers;
- Infrastructural drivers;
- Multilateral climate change policy drivers;
- Transport diplomacy pursued by the countries of the region to realise the advantages of their national transport systems and carriers in the regional and global markets for transport services.

Development of trade and economic cooperation between the countries of Eurasia and the largest developing countries of the Persian Gulf and the Indian Ocean, primarily Iran, India, and Pakistan, can become a deep and long-term trend. Accession of India and Pakistan to the Shanghai Cooperation Organisation (SCO), and establishment by the EAEU of free trade areas with India and Iran, will facilitate cooperation in the production of goods and services, and promote emergence of new production facilities and creation of new manufacturing and logistical chains. That, in turn, may stimulate attraction to the INSTC routes of foreign trade freight traffic that will be economically different from the container transit traditionally perceived as the key source of freight traffic in the corridor.

The member states can regard development of the INSTC as **insurance that will secure uninterrupted trade between Asia and Europe** in the context of operational disruptions at the Suez Canal, including, for example, the stranding of the Ever Given container ship in March 2021. It is the positioning of the INSTC as an alternative to the deep-sea route through the Suez Canal that is the focus of the transport diplomacy of a number of countries of the region, primarily the Islamic Republic of Iran and Turkmenistan. Easing of the sanctions imposed on the Islamic Republic of Iran will facilitate implementation of that model.

The expansion of trade between the Islamic Republic of Iran and the PRC should become an important factor in development of the corridor. In this case, special significance will be attached to the Eastern Route of the corridor, traversing Turkmenistan and Kazakhstan, which will be positioned by the Chinese side as part of the Silk Road Economic Belt, within the framework of the OBOR (One Belt One Road) project.

The Eastern Route will become even more relevant upon establishment of the **trans-Afghan corridor** connecting the countries of Central Asia, Afghanistan, Iran, Pakistan, and India. That project is part of the international effort to restore peace in Afghanistan (RECCA).

Another crucial factor is **the development of five-sided cooperation among the countries of the Caspian region** that are traversed by the INSTC. One of the priority tasks listed in the final statements of the Caspian summits is the deepening of multilateral and bilateral cooperation among the coastal countries in certain areas, including transport. It is particularly expected that

INSTC international freight traffic will expand and its efficiency will increase, due to the ongoing improvement of international legal aspects of Caspian maritime transport (preparation of five-sided documents defining maritime navigation standards and practical regulation issues), and development of regular shipping routes, notably ferry services; coordination of efforts undertaken by the parties to expand road infrastructure and increase road traffic in the region; cooperation in railway transport development, including establishment of circum-Caspian railway service; promotion of innovations in the transport complex through the deployment of innovative technologies, materials, and technical solutions while implementing transport projects, and improving transport safety and reducing the deleterious impact of transport on the environment.

Regional economic and transport integration is a long-term driver determining the progress of relations among the countries that are both EAEU member states and INSTC participants. The EAEU member states are involved in the establishment of a Common Transport Space and of a Common Transport Services Market (Vinokurov, 2017). Other priorities, as stipulated by the Treaty on the Eurasian Economic Union signed in May 2014, include harmonisation of the regulatory framework and realisation of the transport potential of the member states. Participation in the EAEU enables the member states to take coordinated positions on INSTC development matters in their interactions with other international organisations. The negotiating stance formulated for the member states within the EAEU in their dealings with third countries is considerably more effective than a bilateral approach (Vinokurov, 2018).

Land transport equipment and technological innovations. In addition to the improvement of energy efficiency of locomotives and deployment of high-capacity rolling stock, a switch to advanced digital technologies is anticipated in the medium term, including the 5G Future Railway Mobile Communication System (FRMCS), which will reduce time intervals between freight trains (thus increasing the transport capacity of railway lines), improve traffic safety, and ultimately cut down railway freight costs.

The international climate agenda and progress towards zero-carbon transport are important factors in increasing the role of railway transport in freight operations. Transport of cargo by electrified lines using "green" power generated by RES is completely carbon-neutral. It is expected that GHG emissions-trading schemes will be implemented in the global transport sector in order to ensure carbon neutrality (by 2050 in the EU and Japan, by 2060 in China and the United States). One such system, CORSIA, has already been developed by the International Civil Aviation Organisation (ICAO) for airlines. Introduction of similar mechanisms for other modes of transport will make railway freight services more competitive, with freight traffic switching to railways from alternative routes.

Development of transport infrastructure, including **elimination of missing links and bottlenecks**, will enable attraction of additional cargoes, including containerised cargoes. The main missing link in the INSTC is the unfinished section between Rasht and Astara in the Islamic Republic of Iran — it prevents the use of the Western INSTC Route for regular container service. Cargo between Rasht and Astara is currently moved by road.

Development of the infrastructure used by railway and automobile crossing points will increase their capacity, and partially eliminate the corridor's bottlenecks at state borders. Work is currently under way to modernise the automobile and railway crossing points at the border between Russia and Azerbaijan.

2.3. INSTC Freight Transport Times and Costs

Price, along with speed and accuracy of delivery, is the main factor that determines the choice of a route by cargo owners, forwarders, and logistical companies and, accordingly, affects the potential and directions of development of any international transport corridor.

It takes 30–45 days to deliver cargo from Mumbai to Saint Petersburg by the traditional route through the Suez Canal, including the time needed to complete customs formalities (ERAI, 2020b). If that route is selected, cargoes also need to be transhipped in German or Dutch ports. The launch of the INSTC may significantly reduce this time compared to the existing sea route, subject to efficient administration and coordination between national agencies.

So far, there have been three dry runs to determine the cost and time of delivery of containerised cargo through the INSTC routes vs. the traditional sea route through the Suez Canal. That initiative also made it possible to identify transport infrastructure bottlenecks and constraints affecting further development of the INSTC.

In 2014, the Federation of Freight Forwarders' Associations in India (FFFAI) dispatched the first two containers along the following two INSTC routes:

- **Route 1.** Sea section: Nhava Sheva (India) — Bandar Abbas (Iran) (1,265 nautical miles); road section: Bandar Abbas — Baku (Azerbaijan) (1,250 km).
- **Route 2.** Sea section: Nhava Sheva (India) — Bandar Abbas (Iran) (1,265 nautical miles); road section: Bandar Abbas — Amirabad (Iran) (1,500 km); sea section (across the Caspian Sea): Amirabad — Astrakhan (Russia) (1,000 nautical miles).

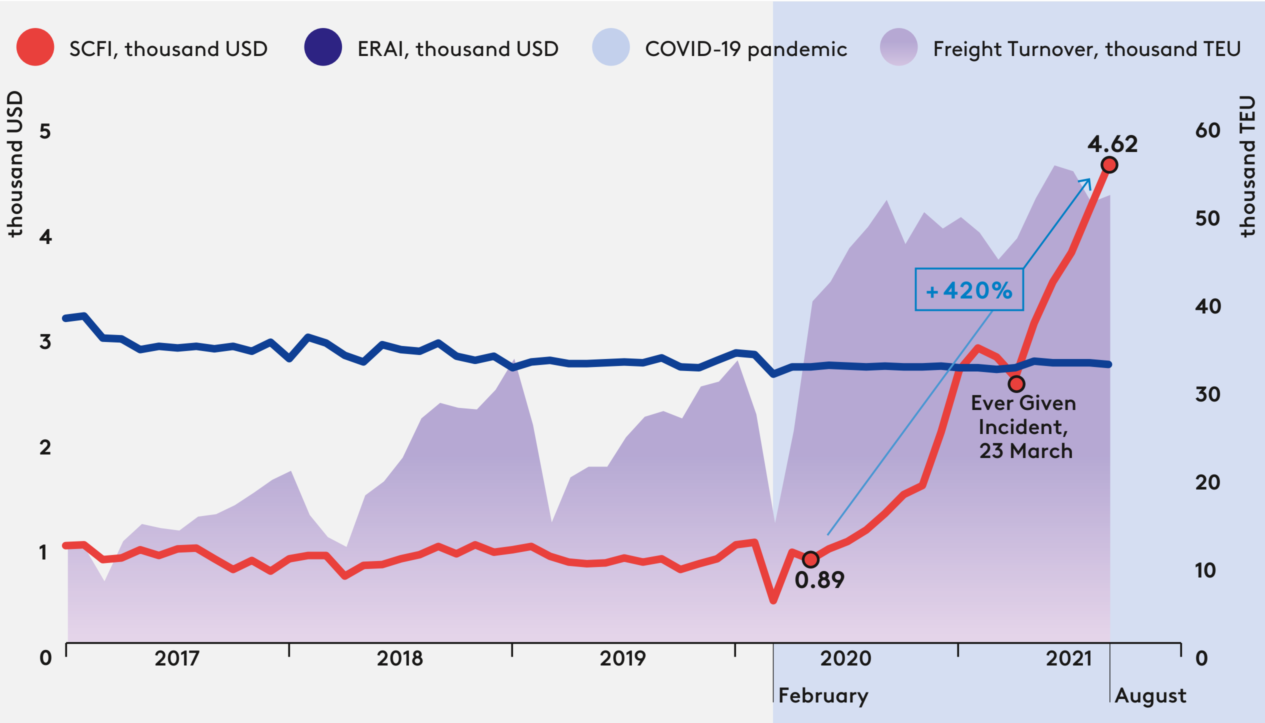
According to the FFFAI test report (2014), **Mumbai–Russia cargo delivery times may vary from 15 to 24 days depending on the route**. Specifically, delivery using Route 1 may take from 17 to 20 days, while delivery using Route 2 may take from 18 to 24 days. Using the railway running through Kazakhstan reduces the delivery time to 15–18 days.

Test delivery in 2016 of two twenty-foot equivalent units with industrial radiators along the INSTC route confirmed those delivery times. The cargo was dispatched from the sea port of Nhava Sheva (India) to Vorsino (Russia), and its delivery took 23 days (Dayal, 2019).

In June 2021, a test shipment of paper in 32 forty-foot equivalent units was dispatched from Finland to India along the INSTC (Tsots, 2021). The container train started from the Vuosaari station (Finland), and six days later the cargo was delivered to the Astara station (Azerbaijan) at the border with Iran. In Iran, the train was unloaded, and the containers were trucked to the port of Bandar Abbas and then by sea to the final destination, the port of Nhava Sheva (India). Time en route was 30 days. The cargo could have been delivered in 18 days (12 days were spent waiting for the cargo to be loaded onto the vessel at the port). For comparison, delivery of a cargo from Finland to India using the existing sea route can take 38–46 days (Shipa Freight, 2021).

Therefore, based on the outcomes of the three dry runs, it can be concluded that **the time of delivery of cargo through the INSTC routes can be half of that required for delivery by the traditional sea route through the Suez Canal**. Moreover, it is expected that the INSTC delivery times will become even shorter when the Astara–Rasht railway goes live in Iran.

Figure 5. SCFI and ERAI Values and Europe–China/China–Europe Railway Container Traffic



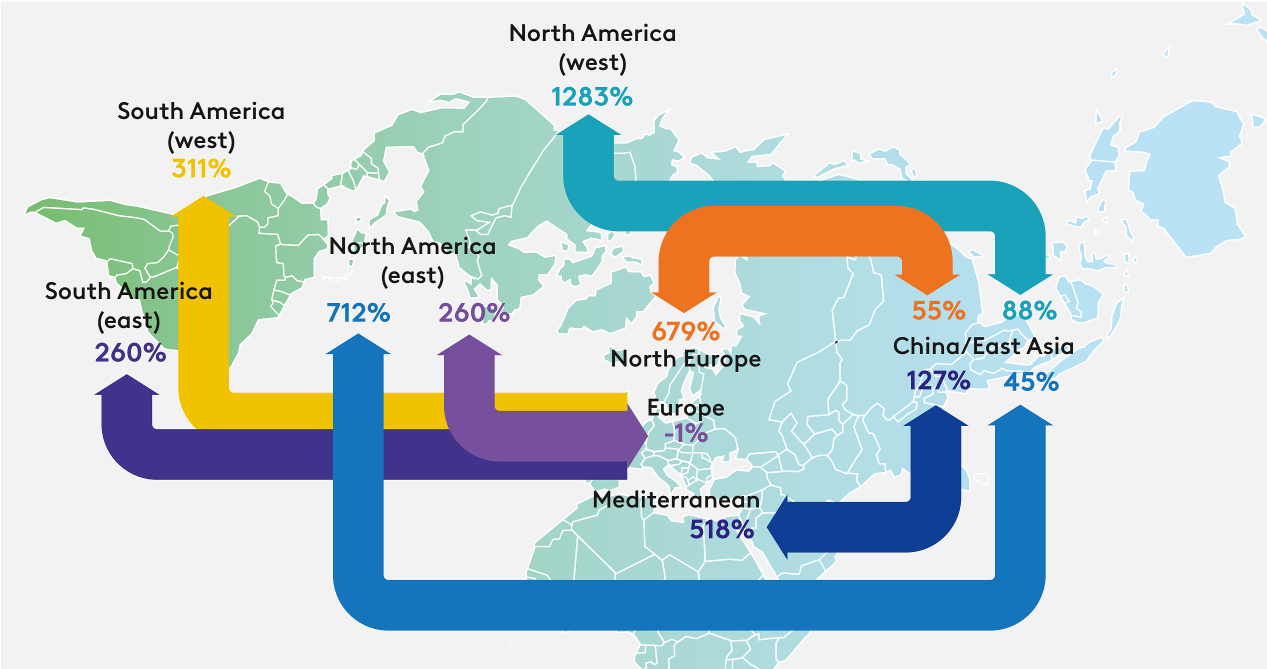
Note: *SCFI — Shanghai Containerised Freight Index; ** ERAI — Eurasian Rail Alliance Index.
Source: Thomson Reuters (2021), ERAI (2021).

While the use of the INSTC transport routes enables a reduction of cargo delivery times by at least 25%, the associated f**reight charges can hardly be described as a competitive advantage of that alternative route**, as they are relatively high despite the short time en route. The rate charged by RZhD Logistika for transportation of a twenty-foot equivalent unit using the INSTC route from the Indian port of Nhava Sheva to the village of Vorsino in Kaluga Region currently stands at USD 2,650 (assuming a round trip) (RZhD Logistika, 2021). By comparison, before the COVID-19 pandemic, maritime freight rates charged for delivery of similar cargo through the Suez Canal were about two times lower, ranging from USD 1,000 to USD 1,200.

However, **during the COVID-19 pandemic, a major supply chain disruption provoked extreme volatility of maritime freight rates in contrast to land freight rates**. Figure 5 shows the movement of the Shanghai Containerised Freight Index (SCFI) and the Eurasian Rail Alliance Index (ERAI). The SCFI is a composite index reflecting fluctuation of freight rates charged for the transportation of a TEU to 13 key destinations. The ERAI shows the cost of transit for railway container freight through the Eurasian corridor from China to Europe and from Europe to China. During the pandemic, the SCFI increased from USD 890 in March 2020 to USD 4,623 in August 2021, while the ERI decreased during the same period from USD 2,799 to USD 2,703 (ERAI, 2021). Therefore, the COVID-19 pandemic exposed the need for an additional freight traffic channel.

The attractive railway freight pricing combined with the significant increase of maritime freight rates during the pandemic resulted in a spike in railway freight traffic along the China–Europe/Europe–China route. This is confirmed by cargo turnover figures based on the data provided by JSC UTLC ERA, a company which accounts for 85% of total transit railway container

Figure 6. Global Changes in Maritime Freight Rates during the COVID-19 Pandemic



Note: according to Freightos Baltic Index.
Source: compiled by the authors using data provided by Thomson Reuters (2021).

traffic along the Europe–China/China–Europe route. Cargo turnover on these routes increased from 26,830 TEU in January 2020 to 52,440 TEU in August 2021.

It should be noted that the largest increase in maritime freight rates was recorded on the routes originating in Southeast Asia/China, primarily on the routes from China to Europe and North America, because of a shortage of containers (see Figure 6). That was attributable, among other things, to changes in consumer behaviour models and expansion of e-commerce caused by the pandemic.

In the future, the INSTC member states will implement **investment plans designed to improve transport infrastructure and transport support**, and engage in various institutional measures at the national and international levels. These measures may include, for example, establishment of a single operator, introduction of a single end-to-end freight rate, improvement of customs and border procedures, as well as other steps that will fuse an assembly of disparate logistical routes into a single system, and facilitate achievement of "seamless" transport routes along the entire length of the INSTC and, accordingly, further reduce delivery times and costs and improve accuracy of delivery. **The combined stability of end-to-end freight rates and short delivery times assure economic viability of the INSTC.**

2.4. INSTC Container Freight Potential

An integrated **three-stage** expert assessment was performed to measure the aggregate INSTC freight potential, including both containerised and non-containerisable cargoes.

At the first stage, we assessed the containerisation potential of both existing and possible freight traffic for all trading pairs of countries along the three INSTC routes. Scenario-based container freight traffic projections were prepared using foreign trade and cargo flow matrices designed for each pair of countries, including both the main INSTC Agreement member states and the countries along the INSTC routes[14]. The newly compiled general matrices broken down by cargo types were "cleared" down to the level of highly processed cargoes (containerisable cargoes), which are currently almost exclusively transported in containers, by subtracting cargoes requiring a different mode of transport from total freight traffic.

At the second stage, we assessed the potential container freight traffic generated by the trade between the corridor's main countries that can be attracted as the INSTC is connected to other transport corridors. Scenario-based projections of the interconnection potential are based on our understanding of the current configuration of the INSTC transport infrastructure, in terms of availability of possible active connections and hubs with the east–west Eurasian latitudinal transport corridors. Scheduled or ongoing investment projects that may be instrumental in creating new connections and corridors were not included in our calculations. The main focus was on synergies between INSTC and the TRACECA ITC (BTK, China–Kazakhstan OSJD Corridors, Lapis Lazuli Corridor) and the Transsib ITC, in particular OSJD Corridor No. 1, providing access to Europe via Belarus and then on to Lithuania, Poland, and Germany.

At the last stage, based on our assumptions regarding the evolution of international trade and the state of relevant sectors, we worked on projections for other commodity cargoes requiring other modes of transport: Grain and Other Food Cargoes, Metals, Mineral Fertilisers, Timber (including Paper), Machinery and Equipment, Oil and Petroleum Products. The overall vision of the INSTC freight potential until 2030 is shaped only on the basis of the integrated three-stage assessment.

The following factors were taken into consideration when preparing containerisable freight traffic projections: economic growth and foreign trade expansion prospects of the countries involved; global commodity and transport (freight) market prospects, including expert assessment of railway and maritime freight rates; **the global geopolitical situation, which is critical for the Islamic Republic of Iran and, consequently, for INSTC development prospects;** implementation of the key transport corridor-specific infrastructure projects envisaged by the relevant policy documents (for example, completion of construction by 2025 of the 40-km Rasht–Anzali railway and the 164-km Rasht–Astara railway in Iran).

The baseline INSTC development scenario envisages moderate growth of north–south/south–north freight traffic. That is attributable primarily to muted expectations regarding the pace of post-pandemic global economic recovery and the rate of subsequent economic growth and trade expansion in the countries forming the nucleus of the corridor and the countries along the INSTC. From the geopolitical perspective, we expect preservation or insignificant

[14] The northern zone of the INSTC includes EU countries (Finland, Germany, Poland, Latvia, Lithuania, and Estonia) and EAEU member states (Belarus, Kazakhstan, and Russia). The southern zone of the INSTC includes Azerbaijan, Turkmenistan, Iran, India, Pakistan, and Oman.

Table 2. Average Freight Rates for Container Deliveries

Direction	Maritime Transport		Railway Transport
	Before the Pandemic	During the Pandemic	
From India/Pakistan/Iran/Oman to Europe, USD per TEU	1,000–1,200	4,000–5,000	500* + 3,000** = 3,500
From Europe to India/Pakistan/Iran/Oman, USD per TEU	900–1,000	3,500–4,500	3,000** + 500* = 3,500

Note:
* Payment for delivery of the container by sea between Iranian and Indian/Pakistani ports;
** Average payment for railway delivery from Iran to Baltic/Nordic countries (expert assessment taking into account the fact that currently there is no direct railway service from the EAEU member states to Iranian ports).

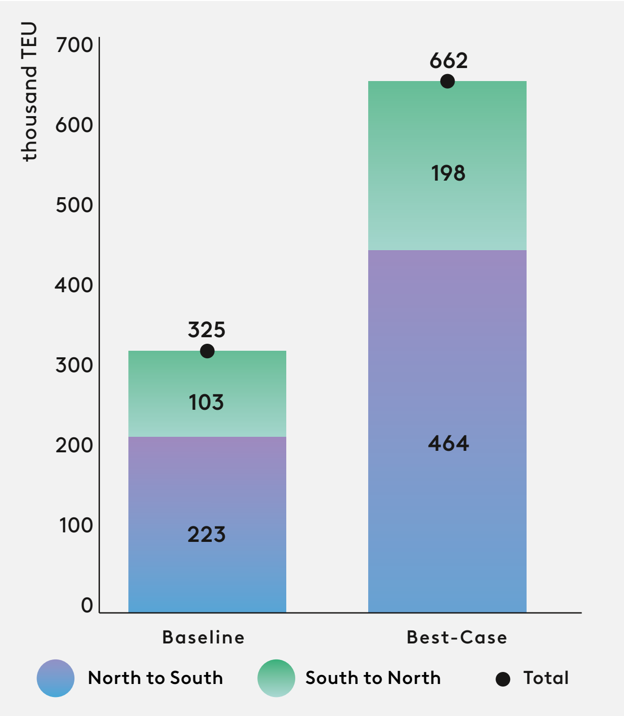
Source: EDB

relaxation of the sanctions imposed on the Islamic Republic of Iran. An important assumption used in this scenario is the post-2022 reduction of maritime freight rates to the "pre-pandemic" level — USD 1,000–USD 1,200 per TEU for Europe-bound routes originating in countries south of the transport corridor, such as India, Pakistan, Iran, and Oman, and USD 900–USD 1,000 per TEU for the reverse routes. The average railway freight rate for the same routes is fixed at USD 3,500 per TEU in both scenarios (see Table 2). It is also assumed that the rate of freight traffic containerisation (share of containerisable cargoes) will remain constant throughout the projected period.

The best-case scenario assumes faster growth of freight traffic between the countries in the north and south of the INSTC, and enables an assessment of the maximum potential container freight traffic. The use of higher growth rates in this scenario is related to the more favourable expectations with respect to the rate of recovery of the economy and foreign trade flows in the countries lying along the corridor, after the current crisis caused by the COVID-19 pandemic. The scenario also assumes a significant relaxation of the sanctions imposed on the Islamic Republic of Iran, which will make it possible not only to expand Iranian trade with the European countries, but also to increase the involvement of Iranian transport and forwarding companies in the generation of new ITC freight traffic. The full-scale accession of Iran to the SCO in September 2021 may also have a positive impact on development of the corridor, reducing Iran's international isolation and improving its trading relations with the key INSTC players — the Russian Federation, India, and China. Iran's accession could galvanise large infrastructural projects, including the north–south transport corridors in the SCO area, and promote emergence of new sources of growth in the region.

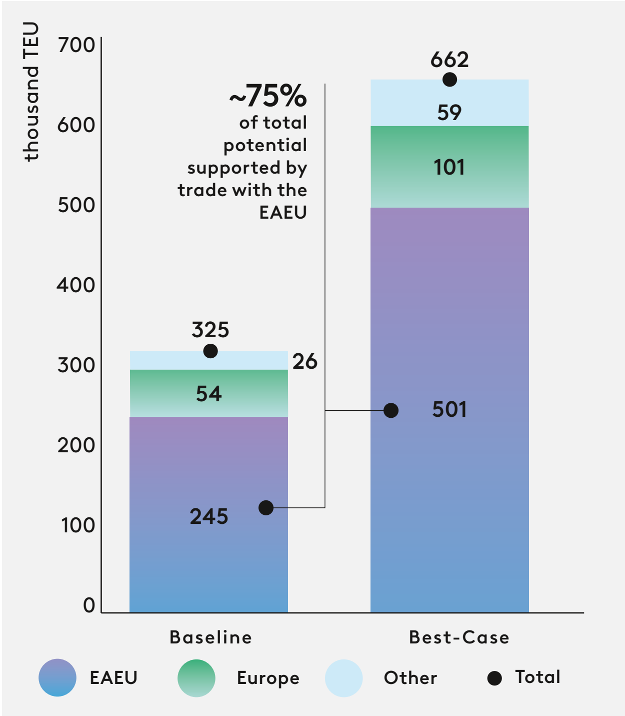
Under the best-case scenario, maritime container freight rates will also decline over the medium term, as the epidemiological situation in the world returns to normal. However, because of the anticipated intensification of foreign trade, the rates will be higher than before the pandemic, and exceed those used in the baseline scenario. Combined with the fixed railway freight rate, that will make INSTC pricing slightly more competitive. The rate for freight traffic containerisation (share of containerisable cargoes) will be growing throughout the projected period. The structure, balance, and directions of container transport will not undergo any material changes relative to the baseline scenario.

Figure 7. Potential Container Traffic on the Key INSTC Routes in 2030 (thousand TEU)



Source: Authors' calculations.

Figure 8. Potential Container Traffic of the EAEU and Europe with INSTC Southern Partners in 2030 (thousand TEU)



Source: Authors' calculations.

The aggregate potential INSTC container freight traffic, including all three main routes and taking into consideration the assumptions discussed above, may be as high as 325,000–662,000 TEU (5.9–11.9 million tonnes) by 2030, depending on the scenario (see Figure 7 and Table 3). Given the current geographical and commodity structure of foreign trade flows among the countries situated in the north and south of the transport corridor, an increase of north–south freight traffic appears to be more likely. That traffic may potentially reach 223–464 thousand TEU (about 70% of the total) by 2030. The reverse (south–north) traffic may be 103–198 thousand TEU (about 30% of the total). Accordingly, by 2030, railway container traffic is projected at 9–18 pairs of container trains per day[15].

Expansion of INSTC container freight traffic is of considerable interest to the EAEU member states (see Figure 8). Those states could generate freight traffic of 245–501 thousand TEU by 2030 (4.4–9 million tonnes, or 7–13 pairs of container trains per day), or about 75% of total potential container traffic. The existing structure of trade relations between the EAEU and the countries in the south of the transport corridor implies a significant surplus of the potential north–south freight traffic (182–370 thousand TEU) over the reverse south–north traffic (63–132 thousand TEU).

The main contribution to the potential container traffic is made by cargo flows between the EAEU on the one hand, and Azerbaijan, Iran, India, and Pakistan on the other (see Figure 9). Interlinking of the INSTC and the BTK latitudinal corridor can also have a significant favourable

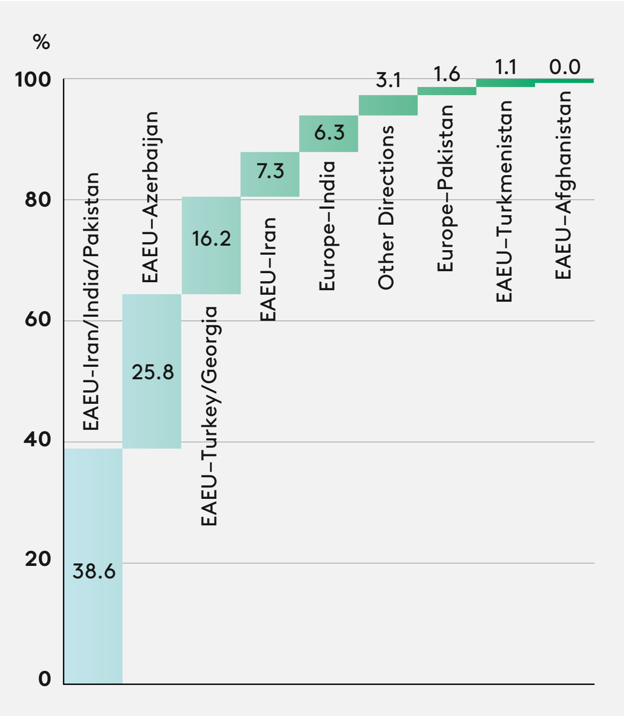
[15] The "cleared" freight traffic can be converted from metric tonnes to containers (TEU) by applying a conversion ratio (based on cargo volume/mass ratio), or by conducting an expert assessment. Projection calculations are based on the assumption that the average weight of the cargo in 1 TEU is 18 metric tonnes, and the number of containers transported by a conventional container train is 102 TEU (the number of conventional cars in such container trains assumed to be equal to 51).

Table 3. Projected INSTC Container Freight Traffic until 2025 and 2030, thousand TEU

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Kazakhstan–Iran	0.4	3.1	3.7	7.8	9.7
Russia–Iran	-	6.9	8.3	12.3	15.4
Kazakhstan/Russia–Turkmenistan	0.0	2.1	2.5	4.1	5.1
Kazakhstan/Russia–Afghanistan	0.0	0.1	0.1	0.2	0.3
Kazakhstan–India	0.1	2.9	3.5	4.4	5.6
Russia–India	-	7.1	8.5	14.5	18.1
Kazakhstan/Russia–Pakistan	0.0	4.2	5.1	9.8	12.3
Iran/India/Pakistan–Russia	0.4	6.6	7.9	15.5	19.4
Iran/India/Pakistan–Kazakhstan	0.4	7.2	8.6	17.1	21.3
Turkmenistan–Kazakhstan	0.0	1.6	1.9	2.9	3.6
Turkmenistan–Russia	0.0	3.6	4.3	5.9	7.8
Iran–China	-	2.3	2.8	5.2	6.9
China–Iran	0.0	12.3	16.3	28.1	34.6
Other Directions	0.0	0.1	0.1	0.2	0.2
Total for the Eastern Route	1.4	60.1	73.6	128.1	160.3
including North–South	0.5	38.8	48.0	81.2	101.0
including South–North	0.9	21.3	25.6	46.9	59.3
Multimodal (Trans-Caspian) Route of the INSTC					
Kazakhstan–Iran	0.4	2.2	2.7	5.4	6.8
Kazakhstan–India	0.0	1.1	1.3	2.8	3.5
Kazakhstan–Pakistan	0.0	0.2	0.3	6.9	8.7
Russia–Iran	0.4	19.2	23.0	32.1	40.2
Russia–India	0.0	7.6	9.2	14.5	18.1
Russia–Pakistan	0.9	5.9	7.0	8.1	10.1
Iran/India/Pakistan–Russia	0.9	6.4	7.7	9.0	11.3
Iran/India/Pakistan–Kazakhstan	0.2	3.2	3.8	7.3	9.1
Other Directions	0.0	0.8	0.9	0.9	1.1
Total for the Central Route	2.8	46.6	55.9	87.0	108.7
including North–South	1.7	36.2	43.5	69.8	87.3
including South–North	1.1	10.4	12.4	17.2	21.4
Western Route of the INSTC					
Russia/Belarus–Iran	0.7	2.7	3.3	21.6	26.9
Iran/India/Pakistan–Russia/Belarus	0.7	8.6	10.3	18.2	22.7
Russia/Belarus–Azerbaijan	10.9	47.8	57.4	75.1	93.9
Russia/Belarus–India	0.0	7.5	9.0	20.0	25.0
Russia/Belarus–Pakistan	0.0	0.8	1.0	1.9	2.3
EU Countries–India	0.0	9.5	14.0	24.6	34.2
EU Countries–Pakistan	0.0	2.4	3.6	5.3	7.5
Pakistan–EU Countries	0.0	10.7	13.4	16.2	20.2
India–EU Countries	0.0	18.0	23.0	31.1	39.4
Russia/Belarus–Turkey/Georgia	1.2	25.1	36.1	54.5	68.1
Turkey/Georgia–Russia/Belarus	2.7	14.9	17.8	28.7	35.1
Other Directions	0.6	6.3	6.8	14.7	17.5
Total for the Western Route	16.7	154.5	195.8	311.7	392.9
including North–South	13.4	102.2	131.2	217.5	275.4
including South–North	3.3	52.3	64.6	94.2	117.5
TOTAL for the INSTC	**20.9**	**261.2**	**325.4**	**526.7**	**661.9**

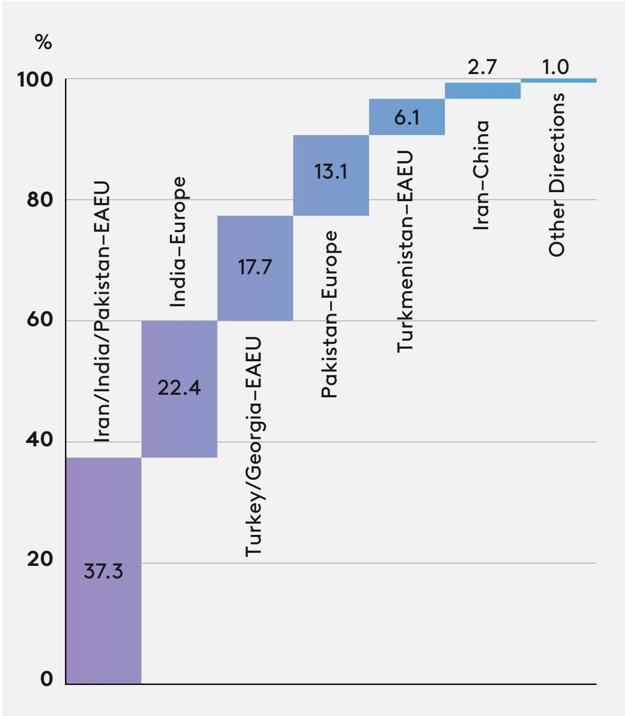
Source: Authors' calculations.

Figure 9. Structure of North–South Container Freight Traffic under the Baseline Scenario in 2030 (%)



Source: Authors' calculations.

Figure 10. Structure of South–North Container Freight Traffic under the Baseline Scenario in 2030 (%)



Source: Authors' calculations.

impact on the EAEU member states. Such a connection would enable expansion of container traffic between the EAEU, Georgia, and Turkey. Potential freight traffic between the EAEU on the one hand, and Afghanistan and Turkmenistan on the other, is currently estimated as insignificant.

Establishment of a connection between the INSTC and the TRACECA ITC through the BTK railway line and the launch of regular container service along that route will open up significant new opportunities, because so far there has been no direct railway line between Russia and Turkey. International road carriers encountered major difficulties as transit through Ukraine was terminated. That route is also potentially important for the Republic of Belarus.

A container train dry run between Turkey and the Russian Federation through the BTK and the INSTC was made on 9 February 2021. The train carried 15 containers with household appliances, specifically, gas stoves and dish-washing machines. The train started at the Turkish station of Marşandiz and went to the border station of Akhalkalaki (Georgia). There the containers were transhipped from flatbeds using the 1,435-mm track gauge to flatbeds using the 1,520-mm track gauge, and went on through Georgia and Azerbaijan to their final destination, the Russian station of Vorsino. The dispatch of the container train from Turkey to Russia was arranged by JSC RZhD Logistika (an OJSC Russian Railways subsidiary) and the Turkish logistical operator Pasifik Eurasia Logistics.

Trade between the Russian Federation and Turkey has a significant potential, as attested by the rapid expansion of mutual Russian–Turkish trading ties. According to the Federal Customs Service of Russia, in 2020, foreign trade turnover between the Russian Federation and the Republic of Turkey amounted to USD 21 billion, with Russian exports and imports accounting for USD 15.9 billion and USD 5.1 billion, respectively. The mutual goods turnover between those two countries exceeded the levels achieved between Russia and India and between Russia and Iran by a factor of 2.25 and almost by a factor of 10, respectively. The structure of trade is characterised by a greater extent of containerisation.

The high potential of INSTC container freight traffic among the EAEU member states can be attributed to two factors. First, that bloc of countries maintains close trade relations with all countries in the south of the corridor, and actively pursues a policy designed to expand those relations. Our analysis shows that **development of the INSTC will be considerably more beneficial from the economic standpoint if it assures full realisation of the regional trade potential** in the interests of the participating countries, including by linking them to the continental routes leading to the interior Eurasian regions. Second, **the EAEU is fully capable of supporting transit freight traffic** between the European countries and the southern countries of the corridor. Realisation of the transit potential resulting from improved transport connectivity in the Eurasian continent between Europe and India using various channels (in particular, by maximising revenues from exportation of transport services) will undoubtedly produce a salubrious effect on the economies of the participating countries.

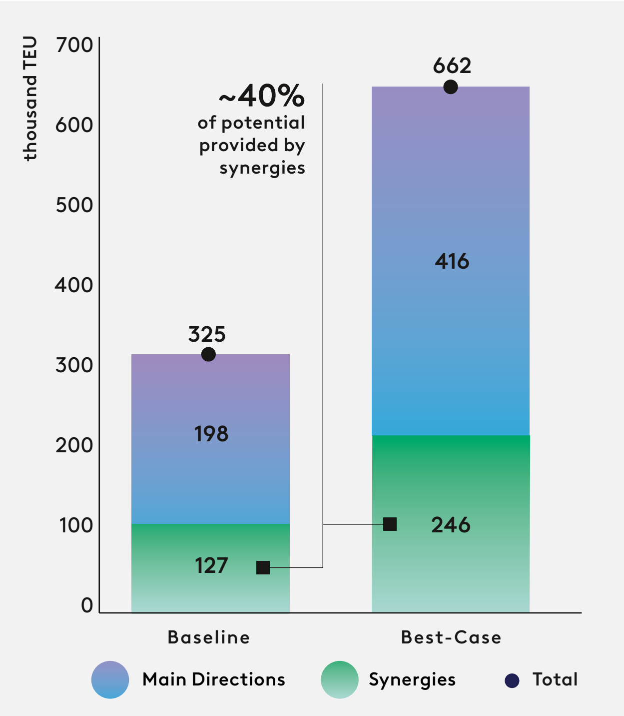
With the development of the INSTC, we can expect a switch of container freight traffic from the traditional sea route to land routes for trade between the seven countries of the European Union on the one hand, and India and Pakistan on the other. That freight traffic may potentially amount to 54–101 thousand TEU per year (1–3 pairs of container trains per day), or about 8% of total north–south traffic and more than 35% of the reverse south–north traffic. All in all, the aggregate freight traffic between those countries could potentially amount to 17% of the ITC's total container freight traffic by 2030.

Importantly, that **potential will be realised primarily by interlinking the INSTC in its northern part and the latitudinal Transsib ITC** through OSJD Corridor No. 1, providing access to Europe via Belarus and then on to Lithuania, Poland, and Germany. The existing direct INSTC access to Finland and Estonia cannot be regarded as the corridor's main access route to the European countries. Germany and Poland account for about 90% of total freight traffic generated by the European countries trade with the southern INSTC countries.

A significant contribution to expanding the existing cargo flows (about 88% of additional freight traffic) can be made by the north–south routes connecting the EAEU member states, in particular the Russian Federation, with Turkey, **as the INSTC and the TRACECA ITC are connected through the Baku–Tbilisi–Akhalkalaki–Kars (BTK) railway**. The BTK is the chief element connecting the European Union with Turkey, Azerbaijan, Georgia, and Central Asia. For the Russian Federation and the Republic of Belarus, that corridor will open up new opportunities if it is connected to the INSTC.

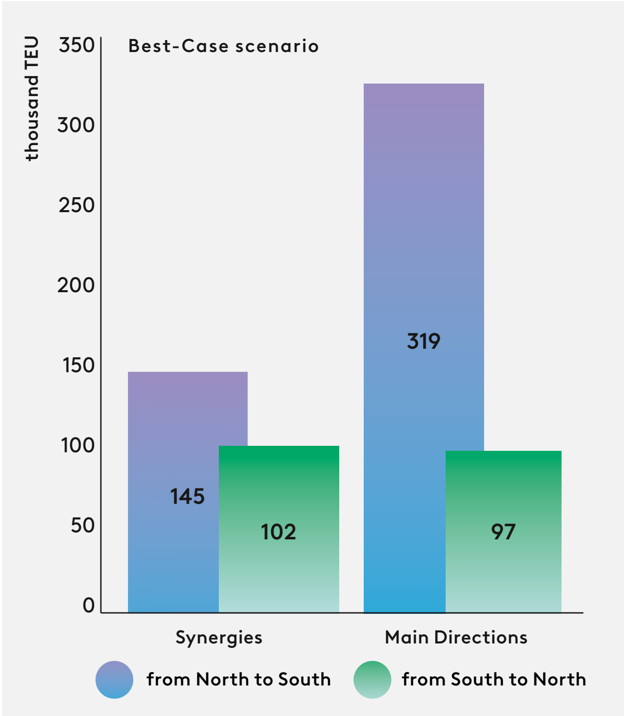
From the standpoint of container transport, **the effect of interlinking the INSTC and the latitudinal TRACECA ITC routes — the Lapis Lazuli Corridor and the China–Kazakhstan OSJD Corridor — may also encourage redirection of the existing traffic and generation of new traffic** through the expansion of trade with the southern countries using other transport corridors. For example, by 2030, potential container freight traffic between China and Iran using the corridor's infrastructure could amount to 19–42 thousand TEU (with most cargo carried from China to Iran).

Figure 11. Potential Synergies in the INSTC Container Traffic Structure in 2030 (thousand TEU)



Source: Authors' calculations.

Figure 12. Direction of Cargo Flows in the INSTC Container Traffic Structure in 2030 (thousand TEU)



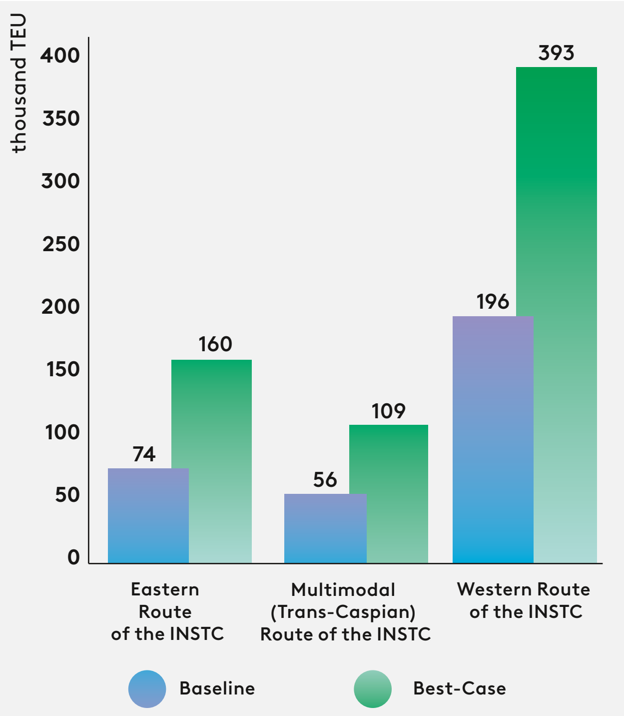
Source: Authors' calculations.

All in all, by 2030, **synergies between the INSTC and the Eurasian east–west latitudinal transport corridors could yield an additional 127–246 thousand TEU (2.3–4.4 million tonnes), or about 40% of total potential container freight traffic** (see Figure 11).

Over the long term, isolated development of the INSTC is unlikely. With the improvement of connecting transport infrastructure, mitigation of the restrictive influence of various barriers, and achievement of "seamlessness" along the transport corridors, economic rationality on the part of direct foreign trade participants (including logistical and forwarding companies) will encourage integration of the new routes in the existing network and engage all the main transport hubs of the corridor, thereby reinforcing the synergy effects. Even though at this time those effects appear to be relatively modest for the countries of Central Asia (excluding Kazakhstan), it is noteworthy that in the future, with the emergence of numerous combinations of connections between the INSTC and the latitudinal east–west corridors (see Section 1.4), the trade between the countries of Central Asia on the one hand, and India and the countries of the Persian Gulf on the other, will gain additional momentum. Certain extra potential can also be created by the establishment of direct routes from Russia and Kazakhstan to Afghanistan (Herat area).

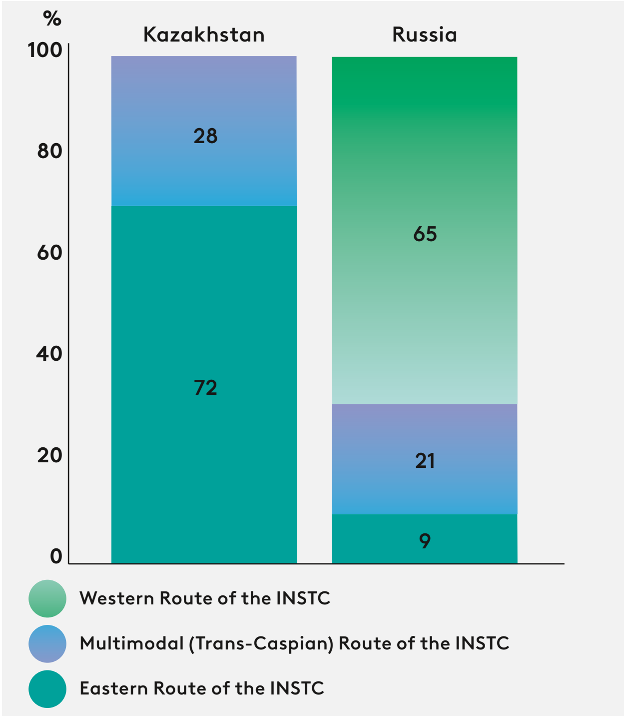
All three INSTC routes are important for expansion of the corridor's potential (see Figure 13). However, the most significant potential is associated with two railway routes — the Western Route and the Eastern Route. The share of these routes in total potential freight traffic is about 60% and 24%, respectively. The persistently important role of railway transport in INSTC development is illustrated by the "mono-modality" of the corridor, which can be currently observed in some of its sections. In particular, domestic and international railway freight traffic and the associated road freight traffic are actively expanding in the section from Finland to Azerbaijan. After

Figure 13. Projected INSTC Container Freight Traffic on the Main Routes in 2030 (Thousand TEU)



Source: Authors' calculations.

Figure 14. Direction of Cargo Flows in the RK and RF Container Traffic Structure (%)



Source: Authors' calculations.

the commissioning in December 2014 of the new Zhanaozen–Gyzylgaya–Bereket–Etrek–Gorgan railway line, running for more than 900 km, there has emerged lively freight traffic along the Eastern Route between Kazakhstan, Turkmenistan, and Iran, with the potential for attracting Russian cargo for delivery to Turkmenistan, Afghanistan, and Iran. As with the East–West Transport Corridor, development of the INSTC shows that railway freight traffic will be the key driver for expanding the transit potential of the Eurasian land route (Vinokurov, 2020).

The potential of the Western Route is largely determined by its geographical features. That route, with a total length of 5,100 km, runs from the Russian–Finnish border along the western coast of the Caspian Sea to the Iranian port of Bandar Abbas, and is connected to the key east–west latitudinal transport corridors: the BTK corridor and OSJD Corridor No. 1. That configuration makes it possible to effect economically viable deliveries within such significant corresponding countries as Russia–Azerbaijan, Russia/Belarus–Turkey, and Europe–India/Pakistan. It is these corresponding countries that make the Western Route different from the other two routes, and give it a considerable advantage in terms of freight traffic. The Western Route can also be used in trade between Russia and Belarus on the one hand, and India, Iran, and Pakistan on the other. However, the other two routes are apparently more attractive for those directions. Ultimately, the Western Route is the main route for the Russian Federation (see Figure 14) in terms of expansion of both regional trade and transit potential. All in all, it is capable of supporting about 65% of total potential Russian container freight traffic until 2030.

The Eastern Route has a total length of 6,100 km, and also runs from the Russian–Finnish border to the Iranian port of Bandar Abbas, but along the eastern coast of the Caspian

Sea, through Kazakhstan and Turkmenistan. **It is fundamentally different in that it plays a critical role for the development of trade and container freight traffic between the EAEU member states and the countries in the south of the INSTC: India, Iran, and Pakistan.** In terms of potential freight traffic, under certain scenarios this route is capable of supporting cargo flows between the EAEU member states and countries in the south of the INSTC that are twice as large as those carried through the Western Route. This direction certainly presents considerable interest for Kazakhstan (see Figure 14), and for the central regions of Russia. **Its important distinctive feature is that it is connected to the latitudinal TRACECA ITC routes — the Lapis Lazuli Corridor and the China–Kazakhstan OSJD Corridor** — which enable expansion of potential transit freight traffic in the corresponding pair China–Iran through the territory of the countries participating in the ITC, in particular Kazakhstan. Thus, the Eastern Route is capable of supporting 72% of the potential additional freight traffic from Kazakhstan that is expected to emerge as the INSTC continues to expand. In the future, this route (through its interlinkages with the CAREC corridors) may become an important driver that can be used to improve transport connectivity and expand the trade potential of all Central Asia.

The Multimodal (Trans-Caspian) Route of the INSTC involves the use of ferry and container lines crossing the Caspian Sea, and runs for approximately 4,900 km from the Russian–Finnish border to the Iranian port of Bandar Abbas. At this time, its development is hampered by the high cost and technical challenges associated with Caspian Sea multimodal traffic.

The future potential of this direction is associated primarily with trade flows connecting the EAEU with the countries lying in the south of the INSTC (India, Iran, and Pakistan), and with time it may acquire special significance. **One of the development objectives of the INSTC is its transformation into a fully functional multimodal corridor, where mono-modal sections are integrated with the sea lanes** connecting Iranian, Indian, Pakistani, and other ports. Another task is to increase the load of the Multimodal (Trans-Caspian) Route of the INSTC, thus enabling it to attract international freight traffic, including containerised traffic, to the Volga water transport route. In February 2020, the Government of the Russian Federation approved an Action Plan for the Development of INSTC Transit Potential in a number of diverse areas. Special emphasis was placed on the infrastructural development of the Caspian region, especially construction and modernisation of transport infrastructure facilities in the Caspian basin to correspond to current and anticipated ITC freight traffic.

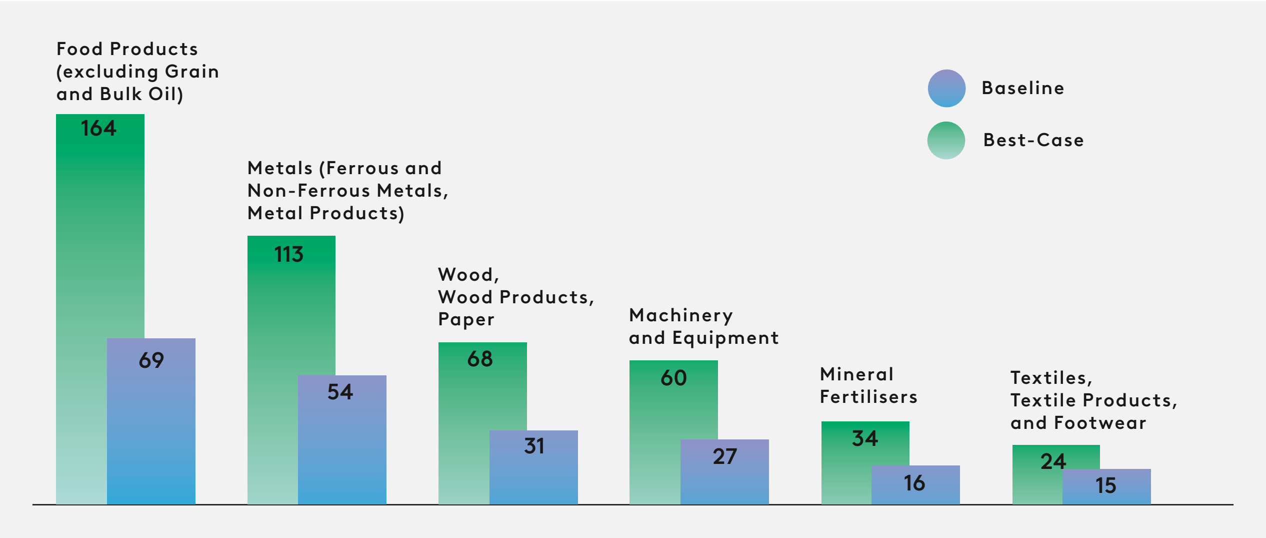
2.5. Commodity Structure of Projected INSTC Freight Traffic

Commodity Structure of Container Freight Traffic

The authors identified the types of commodities that could be dispatched in containers along the INSTC routes. **One of the special features of the INSTC is that it provides an opportunity to develop international carriage and transit not only of containerised cargoes, but also of cargoes transported by traditional rolling stock, including metals, fertilisers, and timber.** Currently the main product categories (see Figure 15 and Table 4) capable of containerisation in all trading pairs of the transport corridor, including nontraditional product categories, are as follows:

- **Food Products (excluding Grain and Bulk Oil)** with an aggregate potential of 69–164 thousand TEU in 2030, and a potential containerisation rate of up to 55%;

Figure 15. Commodity Structure of the Projected INSTC Container Traffic in 2030 (thousand TEU)



Source: Authors' calculations.

- **Metals (Ferrous and Non-Ferrous Metals, Metal Products)** with an aggregate potential of 54–113 thousand TEU in 2030, and a potential containerisation rate of up to 40%;
- **Wood, Wood Products, and Paper** with an aggregate potential of 31–68 thousand TEU in 2030, and a potential containerisation rate of up to 30%;
- **Machinery and Equipment** with an aggregate potential of 27–60 thousand TEU in 2030, and a potential containerisation rate of up to 55%;
- **Mineral Fertilisers** with an aggregate potential of 16–34 thousand TEU in 2030, and a potential containerisation rate of up to 40%;
- **Textiles, Textile Products, and Footwear** with an aggregate potential of 15–24 thousand TEU in 2030, and a potential containerisation rate of up to 100%.

Food will become one of the most widespread types of cargo that will be transported in the future in both the southern and northern directions of the INSTC (see Appendix 9). Notably, cargo in this group needs to be transported using specialised rolling stock (insulated railcars and refrigerated containers), as a significant part of food cargo is perishable. **According to the baseline scenario, up to 20% of total freight traffic may be attracted to the INSTC by 2025, with the containerisation rate ranging from 20% to 50%. By 2030, attracted freight traffic may increase to 25%, and the containerisation rate to 25–55%.** Even though all three INSTC routes will be employed to transport those products, and there is some container freight expansion potential in virtually all trading pairs, that potential is most evident on the Western Route, especially in the mutual trade of EAEU member states with Azerbaijan and Turkey.

In the course of assessment of the INSTC **metals freight traffic**, due attention was paid to the ongoing containerisation of a significant share of these cargoes (see Appendix 10). The Republic of Kazakhstan and Russia are classified as countries exporting Metals and Metal Products using INSTC infrastructure. Azerbaijan, Turkmenistan, Iran, India, and Pakistan,

Table 4. INSTC Container Freight Traffic Range under the Baseline and Best-Case Scenarios by Main Product Categories in 2030 (thousand TEU)

	Eastern Route of the INSTC	Multimodal (Trans-Caspian) Route of the INSTC	Western Route of the INSTC
Food Products (excluding Grain and Bulk Oil)	11–28	14–26	44–110
Metals (Ferrous and Non-Ferrous Metals, Metal Products)	22–48	13–31	19–33
Wood, Wood Products, Paper	1–2	9–18	21–48
Machinery and Equipment	1–3	1–2	25–56
Mineral Fertilisers	5–9	5–8	7–17
Textiles, Textile Products, and Footwear	9–15	2–3	4–7

Source: Authors' calculations.

all situated in the south of the corridor, are classified as importer countries. If the INSTC and the TRACECA Corridor are interlinked, it may be possible to attract some of the Metal Products freight traffic (mostly containerised) from China to Iran, and from Russia to Turkey. **The baseline scenario assumes that 20% of containerised Metals freight traffic between the countries along the INSTC may be attracted by 2025, and up to 40% by 2030.** We assume that all three INSTC routes will be engaged in realisation of the potential presented by that product category in approximately equal proportions.

Russia and certain EU countries (Germany, Latvia, Lithuania, Poland, Finland) are classified as countries exporting **Wood** using INSTC infrastructure (see Appendix 11). Azerbaijan, Iran, India, and Pakistan, all situated in the south of the corridor, are classified as importer countries. India will remain the key importer of Wood and Paper manufactured in the EAEU member states and in the European Union. If the INSTC and the TRACECA Corridor are interlinked, it may be possible to attract some of the Wood and Paper freight traffic (mostly containerised) from Russia to Turkey (along the Western Route of the corridor). **The baseline scenario assumes that 20% of containerised Wood freight traffic (including Paper) between the countries along the INSTC may be attracted by 2025, and up to 30% by 2030.** Products in that category will be transported primarily along the Western Route with respect to supplies from Russia to Azerbaijan and India. The Central Route may also be employed to carry cargoes from Russia to Iran and India. The Eastern Route will not play any significant role in the transport of those products.

Unlike other cargoes, given the existing and future transport and economic ties, **Machinery and Equipment** can be transported in both the southern and northern directions (see Appendix 12). In the EAEU, the main manufacturers and exporters of Machinery and Equipment are in the Republic of Belarus and the Russian Federation; in the EU they are in Poland and Germany. In the southern part of the INSTC, Machinery and Equipment are manufactured in, and exported from, India and Pakistan. Under certain circumstances, it may be possible to attract to the INSTC some of the Machinery and Equipment freight traffic from China to Iran. **According to the baseline scenario, up to 25% of total freight traffic may be attracted to the INSTC by 2025, with a containerisation rate of up to 50%. By**

2030, attracted freight traffic may increase to 35%, and the containerisation rate to 55%. The entire potential container freight traffic in this category is concentrated in the Western Route, and in the following three pairs: Russia–Iran, Russia–Azerbaijan, and Europe–India.

The Republic of Belarus, Russia, and certain EU countries (Germany, Poland) are classified as countries exporting Mineral Fertilisers using INSTC infrastructure (see Appendix 13). Azerbaijan, Iran, India, and Pakistan, all situated in the south of the corridor and are classified as importer countries. India will remain the key importer of Mineral Fertilisers manufactured in the EAEU member states and in the European Union. Opportunities for exporting Mineral Fertilisers to Iran and Pakistan are limited because those two countries have their own fertiliser production facilities. If the INSTC and the TRACECA Corridor are interlinked, it may be possible to attract some of the Mineral Fertilisers freight traffic (mostly containerised) from China to Iran (along the Eastern Route of the corridor), and from Belarus and Russia to Turkey (along the Western Route of the corridor). All three INSTC routes will be employed to transport products in that category.

Most of the potential containerised **Textiles, Textile Products, and Footwear** freight traffic using INSTC infrastructure is concentrated in the Eastern Route, and associated with the pairs EAEU–Turkmenistan and China–Iran.

Given that the key advantage of the INSTC relative to the other routes, including the sea route through the Suez Canal, is its significant reduction of delivery times, this route can also be used for the transportation of **goods with inelastic demand and expensive goods**. These notably include electronic equipment (computers, 3D printers), engineering products (industrial robots), and certain consumer goods and staples. Development of the global e-commerce market can also give an additional impetus to freight traffic growth, as that sector prizes rapid delivery of goods to buyers.

Non-Containerisable Products

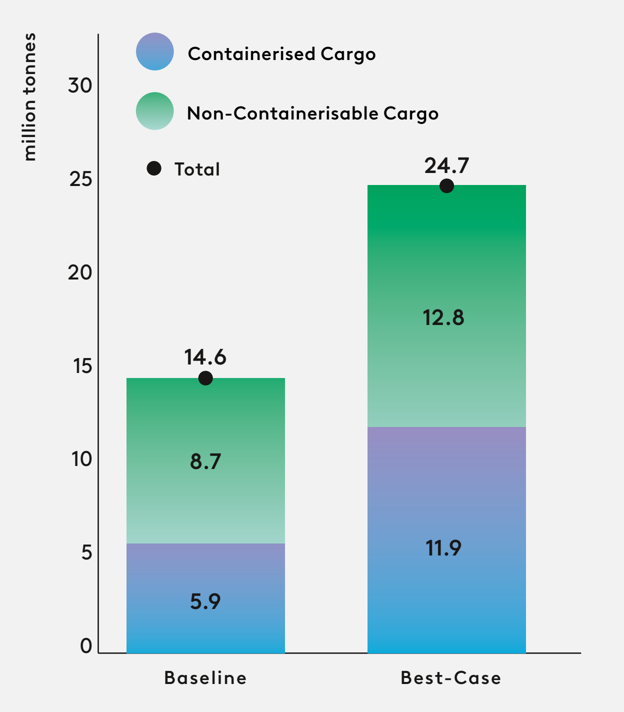
Certain significant product categories have not been included in the assessment of potential INSTC container freight traffic at this time. Those categories include: **Oil and Petroleum Products, Coal, Coke, and Grain**. Transportation of some of these products is subject to a number of restrictions making the use of the INSTC impossible.

Transportation of Oil and Petroleum Products (except where tank containers are used) is impossible because of the need for a break of gauge at the Turkmenistan–Iran and Azerbaijan–Iran borders, and the impossibility to rearrange the bogies under the tanks because of transportation safety requirements. Unlike with Grain, no swaps can be used because of the differences between oil grades, as well as the sanctions imposed on Iran.

Transportation of Coal and Coke, as well as other "cheap" cargoes, is unprofitable because of numerous transhipments (from one mode of transport to another, and at railway junctures where a line of one track gauge meets a line of a different gauge).

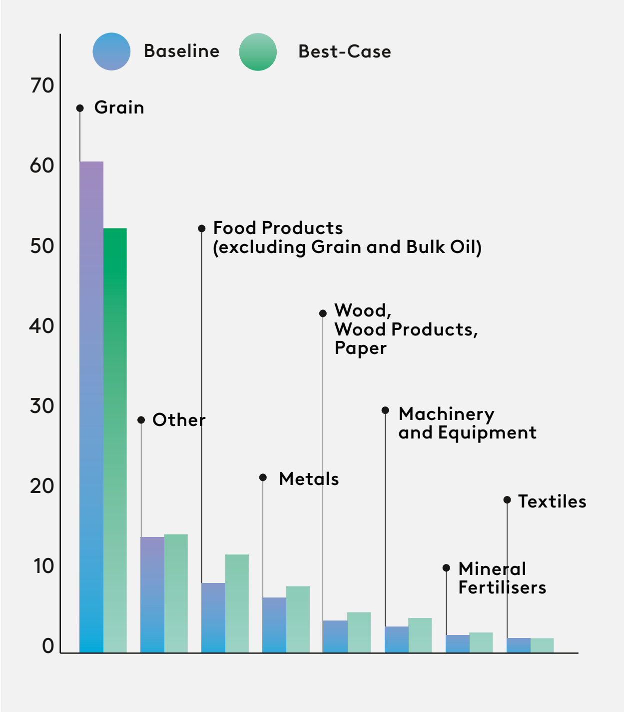
Grain stands apart in that list of products. In terms of freight traffic (expressed in millions of tonnes), Grain is currently considered the main product transported along the INSTC. In the future, expansion of the INSTC may have a beneficial effect on Grain traffic. For example, the corridor may open new windows of opportunity for export of grain from Kazakhstan

Figure 16. Total Potential Freight Traffic on the INSTC Routes (million tonnes)



Source: Authors' calculations.

Figure 17. Commodity Structure of the Total Potential Freight Traffic on the INSTC Routes (%)



Source: Authors' calculations.

and Russia to the countries of the Middle East, West Africa, and the Indian Ocean, including the use of swaps, where grain from Kazakhstan and Russia is supplied to Iran, and Iran re-exports it further south (in fact, sells its own grain and exports it through its sea ports in the Persian Gulf).

It is projected that INSTC Grain traffic may reach 6.6–9.9 million tonnes by 2025, and 8.7–12.8 million tonnes by 2030. By 2030, Grain traffic under the baseline and best-case scenarios will exceed total potential railway container freight traffic, which was estimated at 5.9–11.9 million tonnes. All told, subject to the potential of both types of product categories, by 2030 aggregate potential INSTC freight traffic, including all routes and all modes of transport (railway, road, and maritime), is expected to reach 14.6–24.7 million tonnes (see Figure 16, Figure 17, and Figure 18).

Projections of potential INSTC Grain freight traffic are based on the actual data on harvested Grain (wheat, barley, maize) and Grain exports between the countries along the corridor. The forecast covers only transport of bulk cargoes (by vessels and hopper cars), while grain and flour transported in containers are included in the relevant INSTC container freight traffic projections under "Food Cargoes".

The Republic of Kazakhstan and Russia are classified as countries exporting Grain using INSTC infrastructure. Azerbaijan, Turkmenistan, Iran, India, and Pakistan, all situated in the south of the corridor, are classified as importer countries.

The Grain traffic during the period under review is projected to expand mostly in the direction from north to south (see Table 5):

Table 5. Projected INSTC Grain Freight Traffic until 2025 and 2030, million tonnes

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Kazakhstan–Iran	0.9	1.0	1.2	1.3	1.5
Kazakhstan–Turkmenistan	0.3	0.3	0.4	0.4	0.5
Kazakhstan–Afghanistan	0.1	0.1	0.1	0.2	0.3
Russia–Iran	0.0	0.2	0.4	0.5	0.7
Russia–Turkmenistan	0.0	0.1	0.1	0.2	0.3
Russia–Afghanistan	0.0	0.0	0.1	0.1	0.2
Total for the Eastern Route	1.3	1.7	2.3	2.7	3.5
Multimodal (Trans-Caspian) Route of the INSTC					
Kazakhstan–Iran	0.6	0.8	1.0	1.0	1.2
Kazakhstan–India	0.0	0.0	0.1	0.1	0.2
Kazakhstan–Pakistan	0.1	0.1	0.2	0.2	0.3
Russia–Iran	1.4	1.5	1.7	1.8	2.0
Russia–India	0.0	0.1	0.2	0.2	0.3
Russia–Pakistan	0.1	0.2	0.3	0.4	0.5
Other Directions	0.5	0.6	0.7	0.8	1.0
Total for the Central Route	2.7	3.3	4.2	4.5	5.5
Western Route of the INSTC					
Russia–Iran	0.1	0.2	0.4	0.5	0.7
Russia–Azerbaijan	0.6	0.8	1.0	1.0	1.3
Russia–Turkey	0.0	0.5	0.7	1.0	1.5
Other Directions	0.0	0.1	0.1	0.2	0.3
Total for the Western Route	0.7	1.6	2.2	2.7	3.8
TOTAL for the INSTC	**4.7**	**6.6**	**8.7**	**9.9**	**12.8**

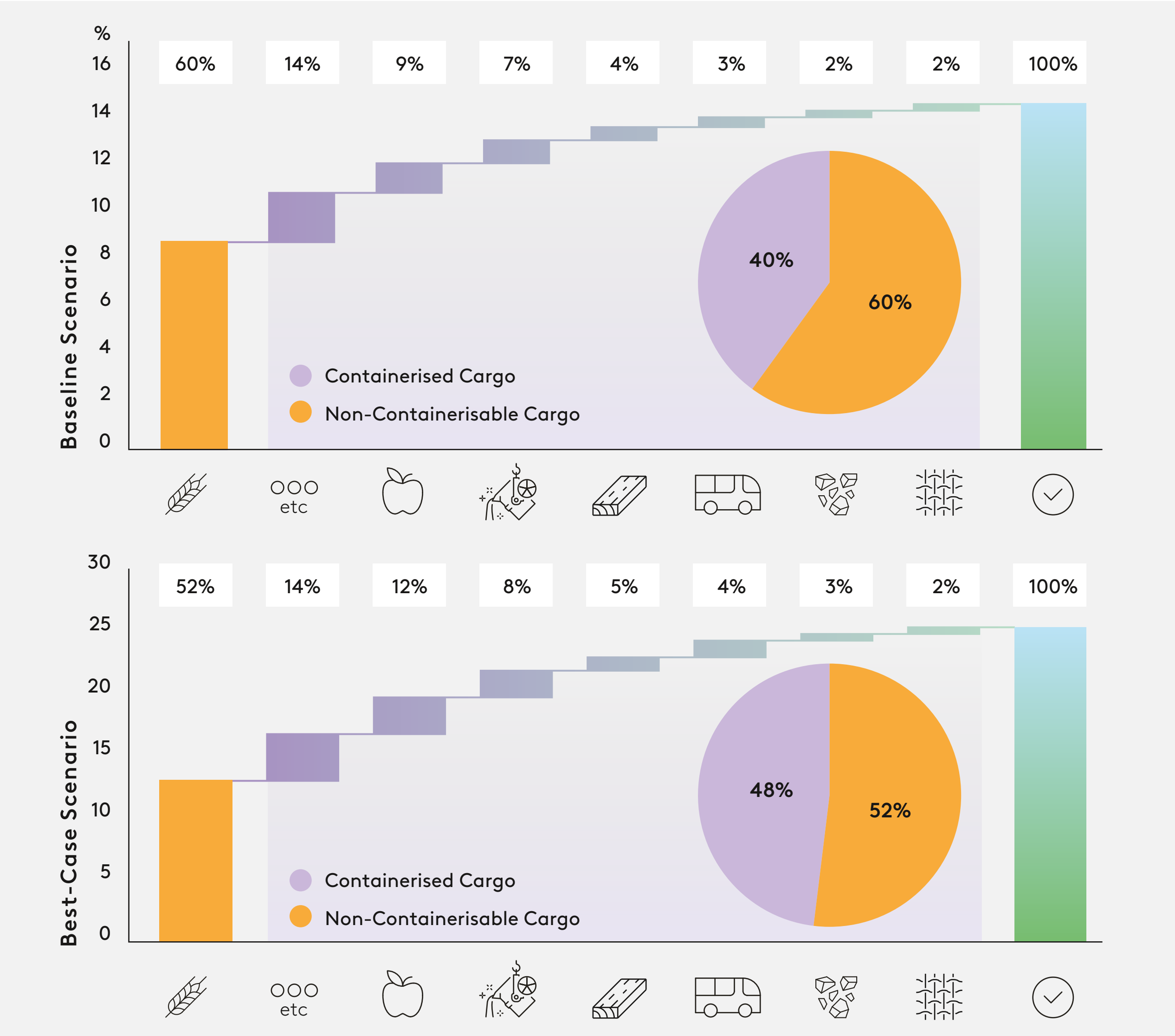
Source: Authors' calculations.

- **Eastern Route of the ITC:** from Kazakhstan and, partially, Russia to Iran and Turkmenistan;
- **Western Route of the ITC:** from Russia to Azerbaijan and Iran;
- **Multimodal (Trans-Caspian) Route:** from Kazakhstan and Russia to Iran, India, Pakistan Oman, and other countries.

Additional Grain traffic may be attracted to the INSTC if it is interlinked with the **TRACECA Corridor routes**:

- Kazakhstan/Russia–Afghanistan (Lapis Lazuli Corridor);
- Russia–Turkey (BTK Route: Baku–Tbilisi–Kars).

Figure 18. Commodity Structure of the Total Potential Freight Traffic on the INSTC Routes under the Baseline and Best-Case Scenarios (%)



Source: Authors' calculations.

Iran and Turkey were selected as the key recipients of Grain through the INSTC because of long-standing swap practices, whereby grain supplied from Russia and Kazakhstan is subsequently re-exported by Iran and Turkey to third countries (i.e., grain from Russia and Kazakhstan is consumed in Iran and Turkey and/or processed into flour, while Iranian and Turkish grain from their southern regions is exported through the southern ports of those countries to third countries).

Potential freight traffic was projected using the scenario approach (baseline and best-case scenarios), forecast horizons: 2025 and 2030. **The baseline scenario assumes moderate Grain production growth due to cyclical and other crop yield fluctuations** in accordance with national agricultural forecasts. In addition, the baseline scenario assumes an intensive switch of the preferable grain transportation method from bulk to container (accordingly, additional containerised grain traffic is covered by the best-case scenario for INSTC container freight traffic). The best-case scenario **assumes that grain traffic will be increasing in the direction**

from north to south in line with the grain export expansion strategies adopted by the Republic of Kazakhstan and the Russian Federation.

The scenario assuming redirection of Russia–Turkey grain traffic envisages that a portion of current supplies (5–10% under the baseline scenario, 15–20% under the best-case scenario) will switch from the traditional routes running through the ports of the Azov–Black Sea basin to the INSTC, subject to availability of favourable railway rates, and taking into consideration the logistical challenges associated with the delivery of grain to the northeast of Turkey.

The Multimodal INSTC Route with transhipment in the Caspian ports remains the main grain transport direction. The main Western INSTC Route will specialise in container transport; however, if it is interlinked with the BTK railway route (TRACECA Corridor), there may be a substantial increase in the Russia–Turkey grain traffic.

Transport of grain is special in that the reverse direction is underutilised, with grain carriers and hopper cars traveling from the south to the north returning empty.

2.6. Development Potential of Other Types of International Transport in the INSTC

Road Transport

Road freight traffic along the INSTC covers a vast space from Europe to Iran. Its legal framework consists of a series of bilateral inter-governmental international road transport agreements executed by pairs of countries participating in the corridor (see Box 2). The agreements define all terms that govern provision of transport services, requirements that apply to specific types of vehicles, permit systems, etc.

The Islamic Republic of Iran is the key INSTC country in terms of expansion of international road freight traffic. It can transport not only cargo related to bilateral trade (in particular, trade between Iran and Kazakhstan, Iran and Russia, Iran and Turkmenistan), but also cargo that arrives from third countries through the Iranian sea trading ports on the Persian Gulf. In addition, two countries (Kazakhstan and Turkmenistan) have effective bilateral agreements with the Islamic Republic of Iran.

However, so far freight traffic from third countries through Iran to the EAEU member states has been insignificant, and to the EU countries — non-existent.

Road freight traffic between Belarus, Russia, Kazakhstan, and Turkmenistan on the one hand, and Iran on the other, is extremely asymmetric, with freight traffic from north to south (to Iran) exceeding freight traffic from south to north (from Iran) by an order of magnitude.

About 120 thousand tonnes of cargo (which is equivalent to approximately 7 thousand TEU) is carried by road transport along the INSTC from Russia to Iran, and only 10 thousand tonnes (0.6 thousand TEU) in the reverse direction.

Russian carriers account for about 70% of the market, Iranian and third-country (mostly Azerbaijani) carriers for 10% and 20%, respectively.

Box 2. Bilateral inter-governmental international road transport agreements executed by the INSTC member states (effective dates in parentheses)

- Azerbaijan–Belarus (14 November 1994);
- Azerbaijan–Russia (30 March 2001);
- Azerbaijan–Latvia (1 February 2002);
- Azerbaijan–Iran (2 July 2002);
- Belarus–Iran (27 February 2000);
- Belarus–Turkmenistan (19 May 2010);
- Kazakhstan–Iran (12 October 2015);
- Kazakhstan–Pakistan (28 November 1995);
- Kazakhstan–Turkmenistan (29 January 1999);
- Russia–Iran (7 August 1992);
- Russia–Turkmenistan (19 January 1999);
- Turkmenistan–Iran (24 October 1993);
- Turkmenistan–Afghanistan (5 July 2007);
- Turkmenistan–Pakistan (14 May 1996).

The structure of Russia–Iran road freight traffic is dominated by Machinery and Equipment (about 70% of total traffic), Metals (about 15%), and Chemical Products (about 8%). Food Products and, to a lesser extent, Textiles and Textile Products are among the top products moved in the reverse direction.

Road transport is extremely important for SMEs interested in delivery of small cargoes. In addition, road transport plays an important feeder role in the delivery of cargoes to the Caspian Sea ports on the multimodal Trans-Caspian route. The role of road transport is irreplaceable in a multimodal (rail and road) corridor.

The international road transport development potential of the INSTC depends on the transport capacity of border-crossing points, cost and duration of border control procedures, cost of motor fuel, requirements that apply to motor vehicles (their environmental class), and other factors.

All told, road transport will be able to carry **up to 600–700 thousand tonnes of cargo by 2025, and 800–900 thousand tonnes by 2030 along all INSTC routes** (with a 3:1 ratio in favour of the Western Route), which is equivalent to 30–40 thousand TEU and 45–50 thousand TEU, respectively.

Requirements related to GHG emission limits and vehicle environmental classes may become a major constraint that could hamper expansion of international road freight traffic.

Inland Water Transport

Inland water transport could potentially contribute to the expansion of INSTC international freight traffic, in particular, through the Unified Deep Water System of the Russian Federation, connecting the Caspian Sea via the Volga to the Azov, Black, Baltic, and North Sea basins.

International cargoes traditionally carried along the Volga include Construction Materials, Grain, and Timber, but in the future it will be necessary to consider the use of inland water transport for the carriage of container cargo from the European part of Russia and the ports of the Baltic basin to the Caspian ports in Iran, Kazakhstan, Turkmenistan, and Azerbaijan. Combined river-sea navigation vessels can be used for transhipment-free water carriage.

The key advantages of inland water transport are **low transport costs and a relatively small carbon footprint** (in that respect, inland water transport is second only to railway transport).

On the other hand, the use of inland water transport is constrained by the following factors:

- Limited navigation period (which is somewhat longer for upstream navigation along the Volga);
- Accumulation of sediment at the bottom of the Volga-Caspian Sea Shipping Canal, which necessitates regular dredging and reduces the canal's transport capacity;
- Narrow stretches at hydropower facilities;
- Insufficient deadweight of existing fleet vessels that could be used for container transport.

Potential inland water transport freight traffic from Iranian and/or Russian ports on the Caspian Sea is estimated at 5–10 thousand TEU by 2025, and 10–20 thousand TEU by 2030.

3. INSTC "Seamlessness" and the Environmental Agenda

3.1. Trade Effects of Transport Infrastructure Development

The quality of transport infrastructure is one of the key trade development drivers. This Section describes the outcomes of a gravity-model assessment of the effect that the quality of various types of transport infrastructure has on trade flows in the countries along the INSTC routes. For a detailed description of the gravity model, see Appendix 14.

There is a positive correlation between the quality of transport infrastructure and trade, as shown by the ascending trend in Figure 19. Azerbaijan and the Sultanate of Oman have the highest levels of transport infrastructure quality and trade volume, expressed as a percentage of GDP (gross domestic product), among all INSTC Agreement member states.

The econometric model used four control variables (see Appendix 15): GDP of exporters, GDP of importers, distance between capital cities, and availability of a common language. Coefficients of the variables "GDP of exporters" and "GDP of importers" indicating the size of the market are positive and statistically significant, which implies that **trade flows between the countries with large markets are more intensive**. Large distance between the countries has a negative effect on their mutual trade due to higher transaction costs, as confirmed by economic literature. On the other hand, availability of a common language has a positive and statistically significant effect on mutual trade, as it considerably reduces information costs.

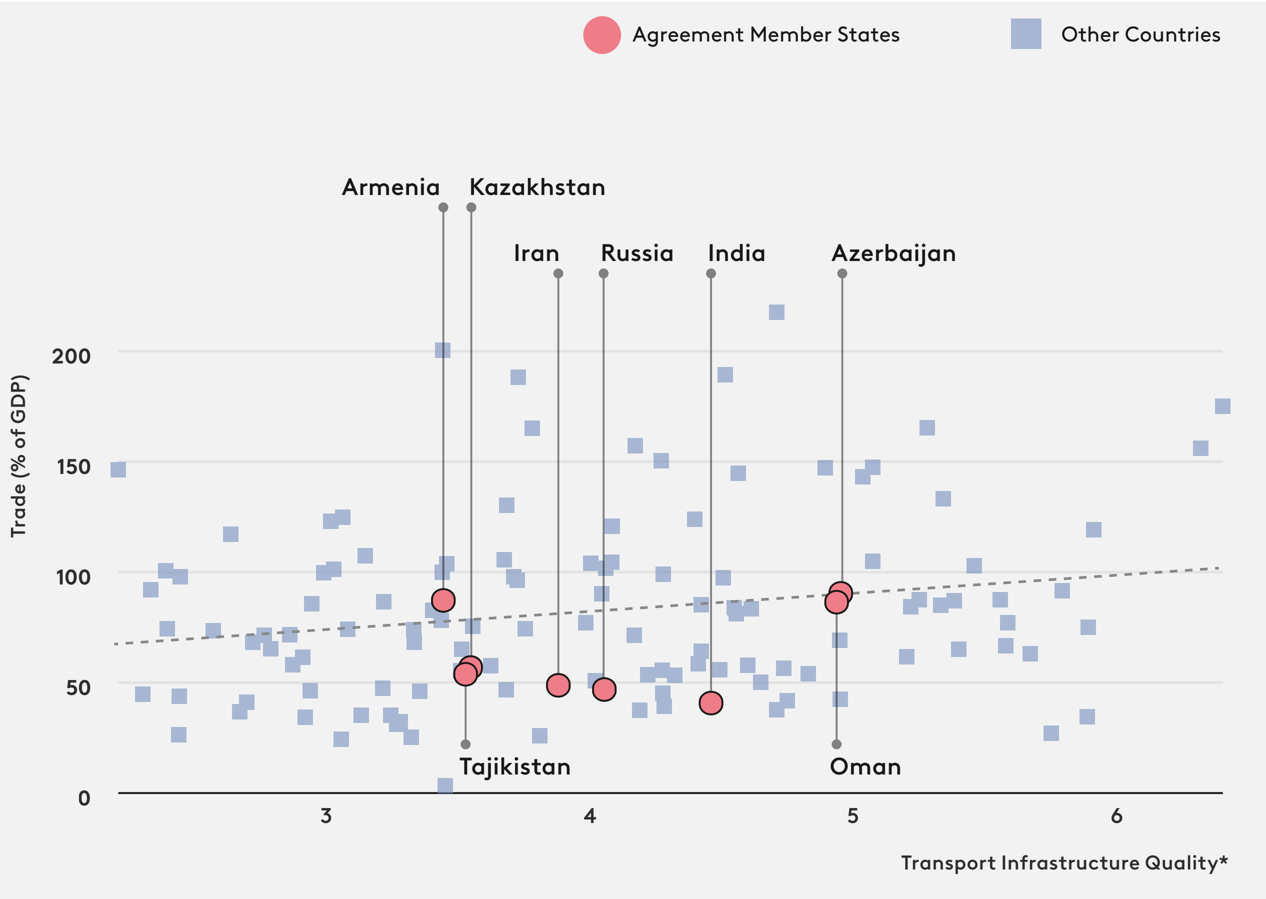
The qualitative indicators for all types of transport infrastructure (railway, road, air, and maritime) were taken from Global Competitiveness Index Reports published by the World Economic Forum (WEF) (WEF, 2018). That organisation conducts annual surveys of entrepreneurs from more than 140 countries; the respondents assess, among other things, the quality of their country's transport infrastructure on a scale from 1 to 7, where the rating of "1" indicates that the transport infrastructure is one of the worst in the world, while the rating of "7" is assigned to countries with the most developed infrastructure.

Descriptive statistical indicators related to the quality of transport infrastructure show that **in 2017, entrepreneurs from the INSTC member states[16] were most satisfied with the quality of air transport infrastructure**. The average value of the indicator is 4.56 points out of 7. Compared to road infrastructure (4.31)[17] and railway infrastructure (4.01), the respondents were least satisfied with the quality of port infrastructure (3.72). Entrepreneurs from the countries of the European Union scored the highest satisfaction ratings with respect to all types of transport infrastructure. **Significant backlogs were recorded for port infrastructure (1.12 points), air transport infrastructure (0.58 points), and road transport infrastructure (0.46 points).** At the same time, the score assigned to railway transport infrastructure was lower by merely 0.27 points.

The level of **satisfaction with transport infrastructure in the EAEU member states was considerably lower**. While the quality of railway transport infrastructure and road transport infrastructure was rated at 3.49 points and 3.44 points, respectively, the average port

[16] With the exception of the Republic of Belarus and the Syrian Arab Republic, which do not participate in WEF GCI surveys.
[17] Road infrastructure data presented for 2019.

Figure 19. Correlation between Trade Volume and Transport Infrastructure Quality



Note: * average value for all modes of transport.
Source: World Bank, World Economic Forum, authors' calculations.

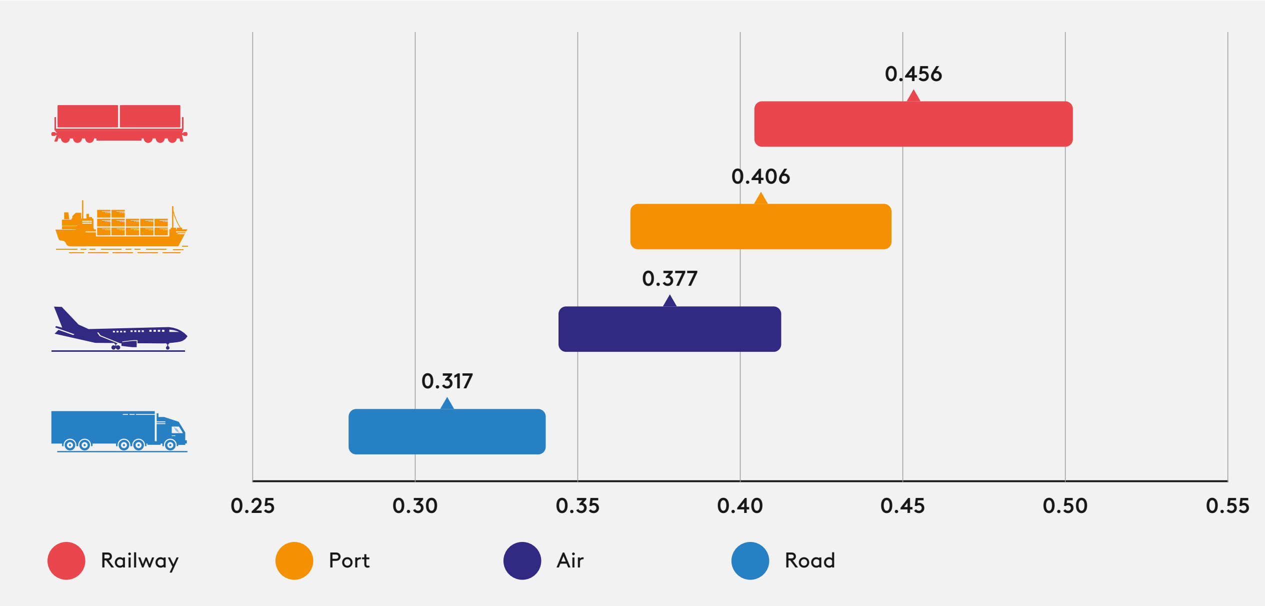
infrastructure quality score was only 2.8 points. These data point to a need to join forces in order to improve the efficiency of transport infrastructure in the region.

The gravity model outcomes demonstrated a positive and statistically significant correlation between qualitative transport infrastructure indicators and trade. Thus, it is expected that, if the quality of port infrastructure is improved by 0.1 points, the average trade volume in exporter countries will increase by 5%, provided that all other factors remain unchanged. **The impact of enhancement of railway infrastructure on promoting trade** between the countries that could potentially benefit from the international North–South transport corridor is the **highest** relative to the other modes of transport (see Figure 20). Thus, it is expected that, if the quality of railway infrastructure is improved by 0.1 points, the average increase in foreign trade will be 5.8%[18], all other things being equal.

The main areas for improvement of the quality of transport infrastructure are construction and modernisation of infrastructure facilities, and acquisition of modern vehicles. Wear and tear on plant and equipment have been noted for all types of transport infrastructure in the INSTC Agreement member states. For example, in 2019 the degree of wear and tear

[18] $((e^{0.456}-1)\cdot 100\%)/10=5.8\%$

Figure 20. Gravity Model Coefficients for Transport Infrastructure Types



Source: Authors' calculations.

on freight assets used in the Russian Federation by railway transport, road transport, and maritime transport was 38.7%, 48.5%, and 36.6%, respectively (Rosstat, 2020). The standard service lives of numerous technical vehicles still in operation have expired. The poor state of repair of transport infrastructure and its noncompliance with technical standards impair the quality and reduce the capacity of the transport system, and increase operating costs and the number of accidents on transport routes.

As regards the INSTC, **development of the Western and Eastern Routes, which primarily use railway transport, must be a priority**, as improvement of the railway infrastructure has the greatest impact on expansion of trade. An ESCAP report (ESCAP, 2019) contains a similar conclusion to the effect that railway transport has the best chances of success in terms of cargo freight between Iran and the Russian Federation and beyond. Conversely, the multimodal corridor running across the Caspian Sea is rated as the least viable option because of low freight traffic, disruptions in port services, need for additional transhipment of cargo, longer transit times, and higher costs. Nevertheless, Figure 20 shows that, for countries along the INSTC, maritime transport has a significant foreign trade expansion potential, second only to that of railway transport.

In addition to qualitative indicators, the report also uses certain quantitative indicators describing transport infrastructure, specifically, the time and cost needed to border compliances. Figure 21 and Figure 22 show the medians of those indicators for the INSTC Agreement member states, as well as for the EAEU member states and the European Union countries.

In the INSTC Agreement member states, **the median and average costs to export related to retrieval, preparation, and submission of border and customs documents are about USD 296.15 and USD 376.12, respectively**. In the EAEU member states, those indicators are considerably lower, following simplification of a number of border and customs procedures.

Figure 21. Cost to Export in Dollars Related to Border and Customs Formalities by Groups of Countries, 2019

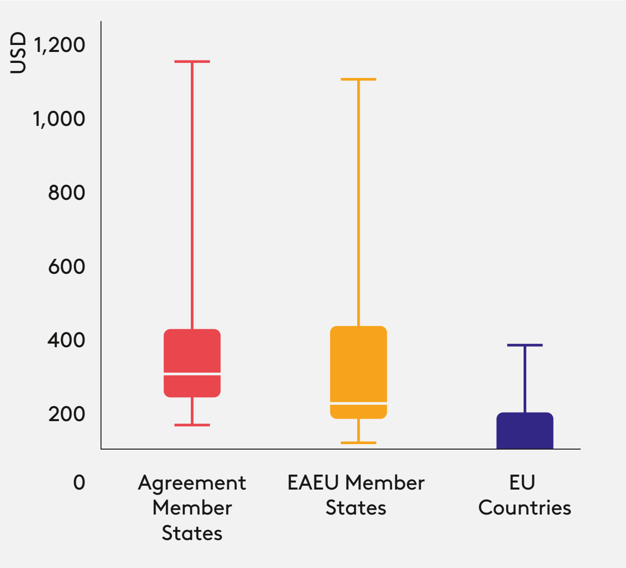
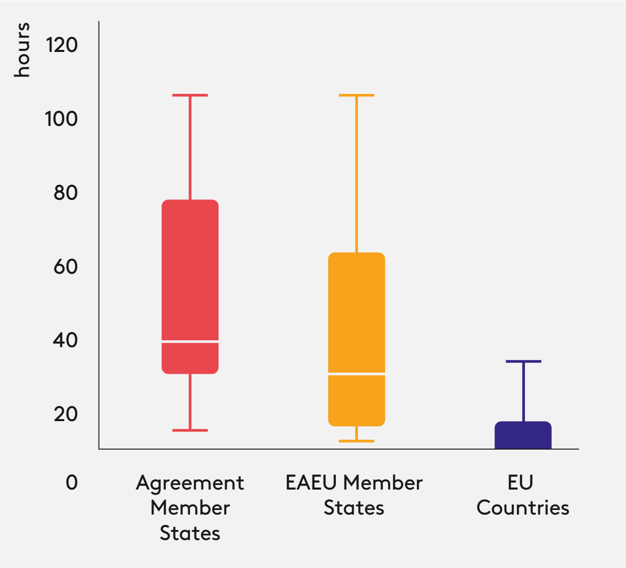


Figure 22. Time Export Costs in Hours Related to Border and Customs Formalities by Groups of Countries, 2019



Source: World Bank Doing Business reports.

At the same time, entrepreneurs from the European Union bear lower financial costs associated with the export of goods and services. Notably, according to Doing Business reports, no such costs are reported in 19 European countries.

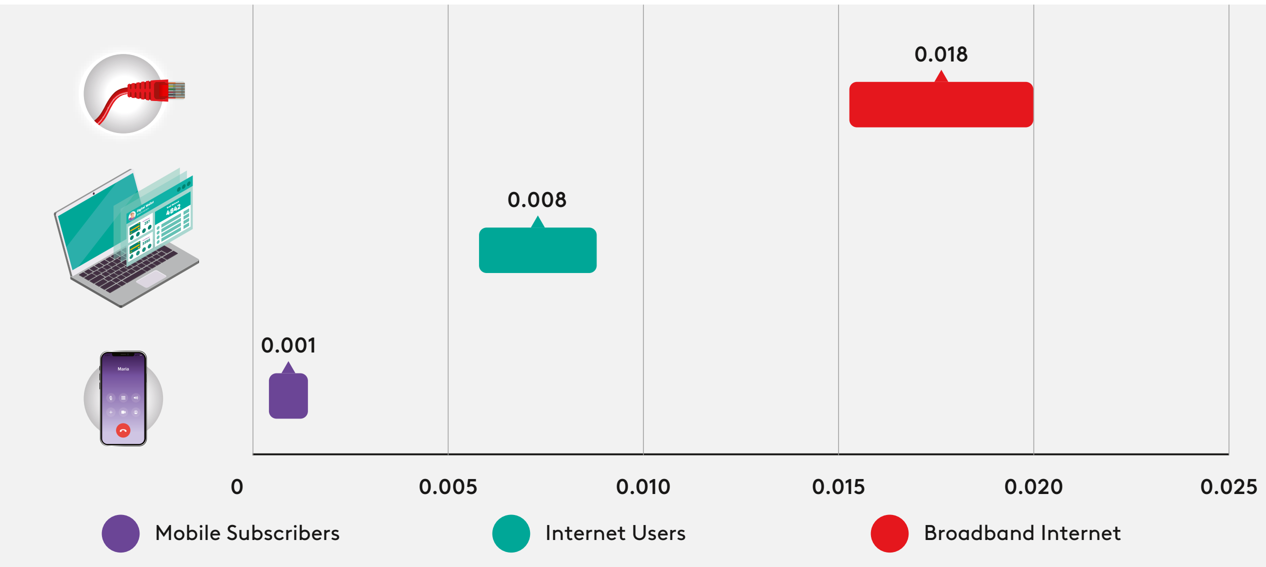
Time related to completion of border and customs formalities are higher in the INSTC Agreement member states. The median and average values of that indicator are 39.8 hours and 51.33 hours, respectively. In the EU countries, the median value is 0 hours, as there are no time restrictions at all on export of goods in 14 EU countries.

The gravity model outputs also indicate that time and costs have a negative and statistically significant effect on international trade. For example, an increase in export costs by USD 100 results in an average decline of trade flows in the countries along the INSTC by 2%, all other things being equal. Therefore, if the costs to export in the INSTC Agreement member states are reduced to the average EU level (USD 79.65), mutual trade in those countries may increase by 5.9% vs. 2019, or by USD 59.08 billion[19].

If the time spent on customs clearance and completion of border and customs formalities increases by one hour, it results in an average decline of foreign trade by 1.2%, all other things being equal. If that indicator were reduced to the European average (7.48 hours), mutual trade in the countries under review might increase by 52.6% (or by USD 526 billion) vs. 2019. It is important to note that our data are consistent with the findings of a survey conducted by the ADB for Asian countries, where reduction of time costs by 10% was expected to increase the volume of trade by 5% (Ismail and Mahyideen, 2015). Therefore, **the INSTC Agreement member states have huge foreign trade expansion potential, provided that they harmonise their international shipping standards and border-crossing procedures.**

[19] Data for Syria and Tajikistan are not included, as they are not in the UN COMTRADE database.

Figure 23. Gravity Model Coefficients for Digitisation Indicators



Source: Authors' calculations.

3.2. INSTC Digitisation

One of the ways to reduce time and costs to export associated with the use of the INSTC is to digitise the transport corridor. Accordingly, the gravity model was also used to assess the impact that creation of digital infrastructure could have on foreign trade (see Appendix 16). The following key indicators were used as digital infrastructure proxies: number of fixed broadband subscribers per 100 residents, number of mobile cellular subscribers per 100 residents, and percentage of the population using the Internet.

According to the outcomes produced by the econometric model and illustrated in the relevant appendix, all ICT infrastructure variables are statistically significant, and have a positive impact on bilateral trade flows. For example, it is expected that if the number of broadband Internet subscribers increases by one person per 100 inhabitants, the average trade volume will increase by 1.8%, all other things being equal (see Figure 23). Those outcomes are comparable with the conclusions drawn by Fink et al. (2005) and Ismail and Mahyideen (2015), who point out that ICT infrastructure has a positive impact on international trade.

Digitisation of transport and logistical processes on the INSTC routes implies a need to implement a series of projects using the following digital technologies: digital twins and digital modelling, artificial intelligence, big data, distributed ledgers (blockchain), cloud technologies, digital platforms, automated identification and tracking of cargo, etc. A switch to advanced digital technologies is anticipated in the medium term, including the 5G Future Railway Mobile Communication System (FRMCS), which will reduce time intervals between freight trains (thus increasing the overall transport capacity of railway lines), improve traffic safety, and ultimately cut down railway freight costs. Similarly, there are plans to deploy autonomous driving systems and self-driving vehicles.

It should be noted that **the INSTC member states announce their priorities for the expanded use of digital technologies primarily with respect to the routes within critical transport cor-**

ridors. Currently all INSTC freight transport records are maintained in the form of paper documents in all member states. At the same time, the conditions have been created for the deployment of digital technologies across railway and road transport systems. For example, customs stations in Azerbaijan and Iran are working on implementation of a new International Road Transport electronic system, the so-called eTIR carnets.

An eTIR carnet guarantees that the cargo is transported in full compliance with all customs transit requirements applicable to road transport. A pilot trip from the Islamic Republic of Iran to Azerbaijan using eTIR carnets was made on 18 June 2019. However, it proved difficult to replicate that experience in subsequent trips between the two countries, as transit procedures in Iran turned out to be more complicated (UNECE, 2020). The State Customs Committee of the Republic of Azerbaijan is considering a number of alternative routes for pilot application of eTIR procedures in other international transport corridors running through Azerbaijan.

The eTIR international electronic system (whose regulatory framework came into force in May 2021) has a number of significant advantages. First, the eTIR system reduces time and costs incurred during border crossing due to simplification of customs procedures. Second, inasmuch as the eTIR system implies that the country of departure has completed all customs formalities that are legitimate in the transit countries and the country of destination, there is no need to conduct any additional physical examination at the border except for visual inspection of the integrity of the seals (IRU, 2021). That reduces the price of the product to the end consumer, and accelerates delivery. Third, digitisation of the TIR system will reduce to the minimum the number of documents used in transit freight transport, and accelerate assessment and analysis of risks by enabling electronic exchange of information between national customs bodies. As a result, the use of the eTIR system helps to reduce delivery times and transport costs by 80% and 38%, respectively (IRU, 2021).

In that context, **the use of intelligent transport systems and of digitisation of international multimodal transport and logistics opens up new opportunities for simplification** of border-crossing procedures and reduction of INSTC delivery times. One of the promising areas of application of digital tools is **the implementation of e-CIM/CMGS electronic railway waybills and electronic data exchange systems in international railway freight transport, and e-CMR electronic waybills in international road freight transport**. Creation of a shared logistical cloud ecosystem by integrating electronic waybills will improve data accuracy and decrease administrative burden, as data input and verification tasks are reduced to a minimum. For example, the European Union is implementing the AEOLIX project, which will enable countries to exchange logistical information and manage information flows in real time (EEC, 2020). The digital format of waybills can be used in addition to other services, such as preparation of customs declarations and truck fleet management.

The use in Japan of the **NACCS automated system** presents special interest in connection with the need to minimise time and costs associated with export of goods (EEC, 2020). That digital platform links customs stations, customs brokers, exporters, and other stakeholders, considerably increasing the speed of data exchange during cargo registration, and thereby reducing costs.

To ensure **successful operation of the INSTC routes, it is necessary to maximise the transparency of the entire transportation process through a management and monitoring system**. That is contingent upon successful implementation of container position detection systems that use electronic navigation seals and global satellite navigation systems (GLONASS, GPS, and BeiDou). Such systems not only track container and vehicle movements, but also ensure high reliability and continuity of supply chains. At the same time, all data collected by these systems, including route passability data, can be used to analyse and plan optimal routes, and set fuel consumption norms.

3.3. INSTC Environmental Agenda

The international climate agenda and progress towards zero-carbon transport are important factors that are transforming the international freight transport competitive landscape in favour of railway transport.

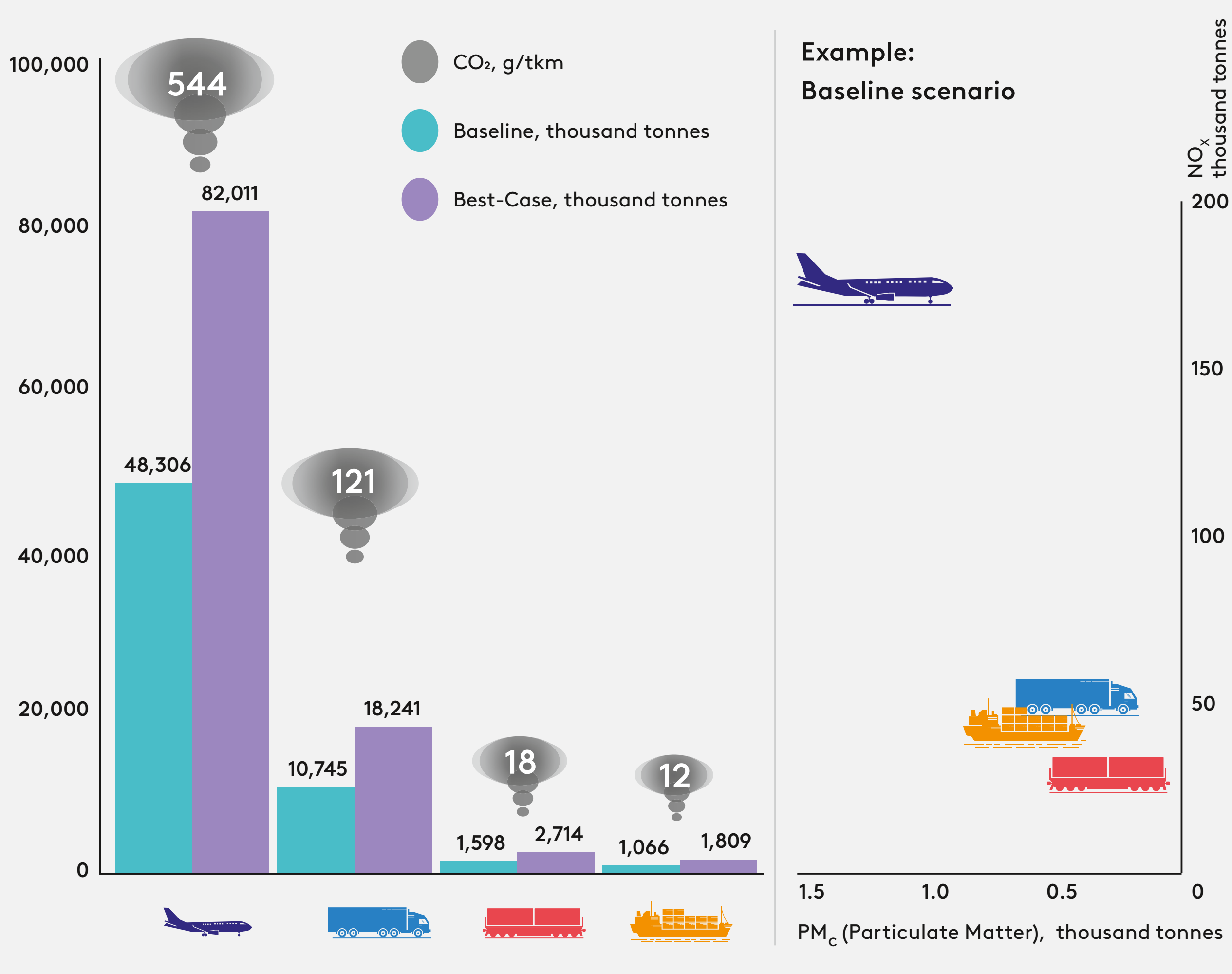
The key advantage of railway transport is that it is the most environmentally friendly mode of transport (see Table 6). Thus, the average level of direct and indirect GHG emissions generated by railway transport is 18 g/tkm, which is only marginally higher than that of the transport used for long-distance maritime freight (12 g/tkm). Railway transport produces two times less emissions than inland water transport, seven times less than road transport, and 30 times less than air transport. If we take into account emissions not only of greenhouse gases, but also of particulate matter and nitrogen oxides, which also have deleterious effect on the environment and human health, then railway transport can be safely described as the undisputed leader in environmental performance.

Total emissions of greenhouse gases, particulate matter, and nitrogen oxides that may be produced by railway transport while moving the potential amount of cargo identified for the INSTC (from 14.6 million tonnes under the baseline scenario to 24.7 million tonnes under the best-case scenario) **may range from 1,598 thousand tonnes to 2,714 thousand tonnes of CO_2, depending on the scenario**. An assessment of emissions that may be produced while moving the same amount of cargo for the same distance by other modes of transport shows that **railway transport is considerably more environmentally friendly than air transport and road transport, and is comparable to deep-sea transport** (see Figure 24).

Our provisional calculations are based on **the total potential amount of INSTC cargo identified for the two scenarios**; in addition, we assumed a maximum route length of 6,100 km (Eastern Route), and used representative emission coefficients for each mode of transport. The average weighted emission coefficient for railway transport reflects the shares of emissions produced by electric and diesel locomotives (73% and 27%, respectively). That ratio is generally consistent with the energy balance of the INSTC railways, as most of them are in Russia and are, therefore, electrified.

According to the International Energy Agency and the International Union of Railways, **Russia is the absolute leader in energy efficiency of railway freight transport**, and one of the Top Five countries in energy efficiency of railway passenger transport. Pursuant to the OJSC Russian Railways Environment Strategy 2030, aligned with the UN Sustainable Development Goals, over the long term the holding company intends to achieve carbon-neutrality (net zero carbon balance). OJSC Russian Railways plans to improve its energy performance by using hydrogen-powered locomotives and mainline locomotives powered by electrochemical hydrogen fuel cells and lithium ion batteries. The project envisaging

Figure 24. Possible Emissions of Greenhouse Gases, Particulate Matter, and Nitrogen Monoxides by Various INSTC Modes of Transport (thousand tonnes)



Source: Authors' calculations based on coefficients published by Klein et al. (2021).

electrification of railways for a total length of more than 1,400 km is scheduled for completion by 2024.

Electrification projects are also being implemented in priority passenger and freight corridors in the southern part of the INSTC, notably in Iran. As regards diesel-powered locomotives, it is important to note that their CO_2 emissions are in any event merely one-tenth of those produced by road transport.

Certain trends, including the implementation of multilateral, regional, and national transport policies designed to combat climate change, including by deployment of compensation mechanisms such as emissions-trading schemes and additional environmental fees, and by the possible transition to cross-border carbon regulation of transport services, may, in the long run, encourage the switch of freight traffic to railway transport and to the ITC sections using railway transport. **Transport of cargo by electrified lines using "green" power generated by RES is completely carbon-neutral.** It is expected that GHG emissions-trading schemes will be implemented in the global transport sector in order to ensure carbon

Table 6. Representative GHG Emission Coefficients for Each Mode of Transport (Container Freight)

Mode of Transport	Vehicle/vessel	CO_2 (g/tkm) (WTW*)	PM_C*** (g/tkm) (TTW**)	NO_X**** (g/tkm) (TTW**)
Road	**Tractor-semitrailer heavy (2 TEU)**	**121**	**0.003**	**0.3**
Rail	**Long train (electric 73%; diesel 27%)**	**18**	**0.0018**	**0.08**
Inland shipping	**Average value**	**42**	**0.016**	**0.445**
	Vessel carrying 96 TEU	52	0.019	0.55
	Vessel carrying 208 TEU	32	0.013	0.34
Maritime shipping	**Average value**	**22**	**0.009**	**0.4**
	1,000–1,999 TEU container ship (Short Sea)	32	0.013	0.57
	8,000–11,999 TEU container ship (Deep Sea)	12	0.005	0.23
Aviation	**Long-haul (average)**	**544**	**0.015**	**1.98**

Notes: * WTW (well-to-wheel) — direct and indirect emissions produced by combustion of fossil fuel and related freight transport activities. The calculations cover all types of greenhouse gases: CO_2 (carbon dioxide); CH_4 (methane) and N_2O (nitrous oxide) are expressed in CO_2 equivalent.
** TTW (tank-to-wheel) — direct emissions produced by combustion of fossil fuel by a vehicle.
*** PM_C — emissions of PM10 (deleterious inhalable particulate matter with a diameter of <10 microns) produced by combustion of fuel.
**** NO_X — general term for nitrogen oxides (NO, NO_2, and NO_3); nitrogen oxide emissions produce smog, acidify the environment, and damage respiratory organs.

Source: Klein et al., 2021.

neutrality (by 2050 in the EU and Japan, by 2060 in China and the U.S.). One such system (CORSIA) has already been developed by ICAO for airline companies[20].

The penetration of the environmental agenda, primarily with respect to carbon regulation, and deployment of CORSIA-like mechanisms for other modes of transport, are reshaping the competitive landscape of freight transport in favour of railway transport (ERAI, 2020a) and will ultimately lead to freight traffic switching to railways from the other modes of transport. The minimal carbon footprint of railway transport is one of the long-term competitive strengths of the Eastern and Western INSTC Routes, which are as environmentally friendly as deep-sea transport, and significantly better than all other routes, in particular multimodal road-sea routes, which are used for delivery of cargo between South Asia, the Middle East, and Europe.

[20] Air transport was included in the European Union Emissions Trading System in 2016. However, because of the implementation of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) by the International Civil Aviation Organisation, the system covered only flights inside the European Economic Area, while international flights were excluded. The effective period of that exception will expire in 2023, after which airline companies will need to purchase carbon offsets at auction (ERAI, 2020a).

Conclusion

The central theme of this report is the assessment of INSTC freight potential in the context of increasingly active interaction between the EAEU on the one hand, and India, Iran, and other countries of South Asia and the Persian Gulf on the other; significant opportunities that may emerge from synergies between the transport corridor and global and regional latitudinal transport routes; expansion of digitisation processes; and a marked increase of the climate agenda in the field of freight transport.

Accordingly, **we performed a comprehensive review of current trade relations among all countries along the INSTC, identified two main commodity groups (containerisable and non-containerisable goods)**, and examined freight transport geography. Based on available research, expert assessments, reports on dry runs, and operator proposals, we determined INSTC freight transport times and costs, and looked at how they compare to the traditional route through the Suez Canal.

Finally, taking into account the prospects of development of international markets and economies of the main countries forming the basis of freight transport along the route, possible geopolitical developments, especially concerning the Islamic Republic of Iran, and the impact of synergies with the latitudinal Eurasian transport corridors, **we prepared scenario-based freight traffic estimates for all modes of transport and all transport corridor routes:** Western, Multimodal (Trans-Caspian), and Eastern.

Our **main conclusions** are as follows:

- **The key factors in increasing the importance of transport routes** along the North–South axis over the last several years have been **the active interaction of the EAEU with India, Iran, and other countries** in the southern part of the corridor in implementation of the Greater Eurasia concept, as well as the increasingly intensive involvement of Azerbaijan, Kazakhstan, Turkmenistan, and other countries along the INSTC in the expansion of transit and multimodal corridors in the Caspian region.

- **Delivery times along the INSTC Mumbai–Russia land route may vary from 15 to 24 days.** Using the Eastern Route of the corridor running through Kazakhstan and Turkmenistan reduces this to 15–18 days, while it takes 30 to 45 days to deliver cargo from Mumbai to Saint Petersburg by the traditional route through the Suez Canal.

- **INSTC freight costs remain relatively high, despite the expeditious delivery.** The average railway freight rate charged for delivery of cargo from India/Pakistan/Iran/Oman to Europe is USD 3,500. By comparison, before the COVID-19 pandemic, maritime freight rates charged for delivery of similar cargoes through the Suez Canal were about two times lower, ranging from USD 1,000 to USD 1,200.

- **Aggregate potential INSTC container freight traffic**, including all three main routes, **might be as high as 325,000–662,000 TEU (5.9–11.9 million tonnes) by 2030**, depending on the scenario. The synergy between the INSTC and Eurasian east-west latitudinal transport corridors is equivalent to 127–246 thousand TEU (2.3–4.4 million tonnes), or **about 40% of total potential freight traffic**.

- Aggregate **railway container traffic** along the INSTC **is projected at 9–18 pairs of container trains per day by 2030**. That is consistent with the transport capacity of the corridor's single-track railway lines (up to 24 pairs per day).

- **Expansion of INSTC container freight traffic is of considerable interest to the EAEU member states.** By 2030, incremental freight traffic between them and the countries of South Asia and the Persian Gulf could amount to 245–501 thousand TEU (4.4–9.0 million tonnes), or about **75% of total potential railway container traffic**. The main contribution to potential container traffic could be provided by freight flows between the EAEU on the one hand, and Azerbaijan, Iran, India, and Pakistan on the other.

- **Grain is classified under a separate category** and, in terms of freight traffic, is the main product currently transported through the INSTC, especially through its Eastern Route. It is projected that **by 2030, INSTC grain cargo traffic may reach 8.7–12.8 million tonnes**, and will continue to exceed potential container freight traffic generated by all other product categories combined (5.9–11.9 million tonnes).

- **By 2030, total potential INSTC container traffic**, including the two product categories (containerisable and non-containerisable goods), is expected to reach **14.6–24.7 million tonnes**.

- **All three INSTC container freight routes are important** for realisation of the transit transport potential. However, **most of that potential is associated with two railway routes — the Western Route and the Eastern Route**. Their shares in total potential freight traffic are about 60% and 24%, respectively.

- INSTC **potential road and inland water freight traffic** is much **less than the potential railway freight traffic**, and is expected to reach 45–50 thousand TEU (0.8–0.9 million tonnes) and 10–20 thousand TEU (0.2–0.4 million tonnes), respectively, by 2030, depending on the scenario.

- **The great importance of railway transport** in development of the INSTC **is illustrated by the "mono-modality" of the corridor, which can currently be observed** in some of its sections. Its efficiency is supported by gravity model outputs showing that the effect of the railway infrastructure enhancement on promoting trade between the countries along the international North–South transport corridor is the highest relative to all other modes of transport.

- **The INSTC is only one of several transport corridors connecting Europe and Asia**. Its unique direction enables connection to the other global and regional east-west transport corridors and, accordingly, creation of a single "Eurasian transport framework".

The significant potential of INSTC development hinges on expansion not only of the corridor's "hard" infrastructure, but also of its **"soft" infrastructure**. The Report describes the outcomes of a gravity model assessment of the effect that the quality of various types of transport infrastructure and digitisation have on trade flows in the countries along the INSTC routes.

The gravity model outputs show that:

- **Reduction of the costs to export related to border compliance** in the INSTC Agreement member states, from the current USD 376.12 to USD 79.65 (European average) may result in their foreign trade increasing by 5.9% (or by USD 59.08 billion) vs. 2019;

- **Reduction of the time** required for customs clearance and completion of border and customs formalities in the INSTC Agreement member states from the current 51.33 hours to 7.48 hours (the European average) may result in **their foreign trade increasing by 52.6%** (or by USD 526 billion) vs. 2019;

- **Introduction of intelligent transport systems and digitisation of international multimodal transport and logistics** using CIM/CMGS and CMR electronic waybills, eTIR carnets, and satellite navigation systems has a beneficial impact on foreign trade in the INSTC Agreement member states, and can **open up new opportunities** for simplifying border-crossing procedures, reducing cargo delivery times, and improving the INSTC safety record.

In addition, in response to the climate agenda, the Report provides an **assessment of direct and indirect greenhouse gas emissions** produced by railway transport compared to the other modes of transport.

- Total **emissions of greenhouse gases**, particulate matter, and nitrogen oxides that **may be produced by railway transport** while moving the potential amount of cargo identified for the INSTC **may range from 1,598 thousand tonnes to 2,714 thousand tonnes of CO_2** depending on the scenario.

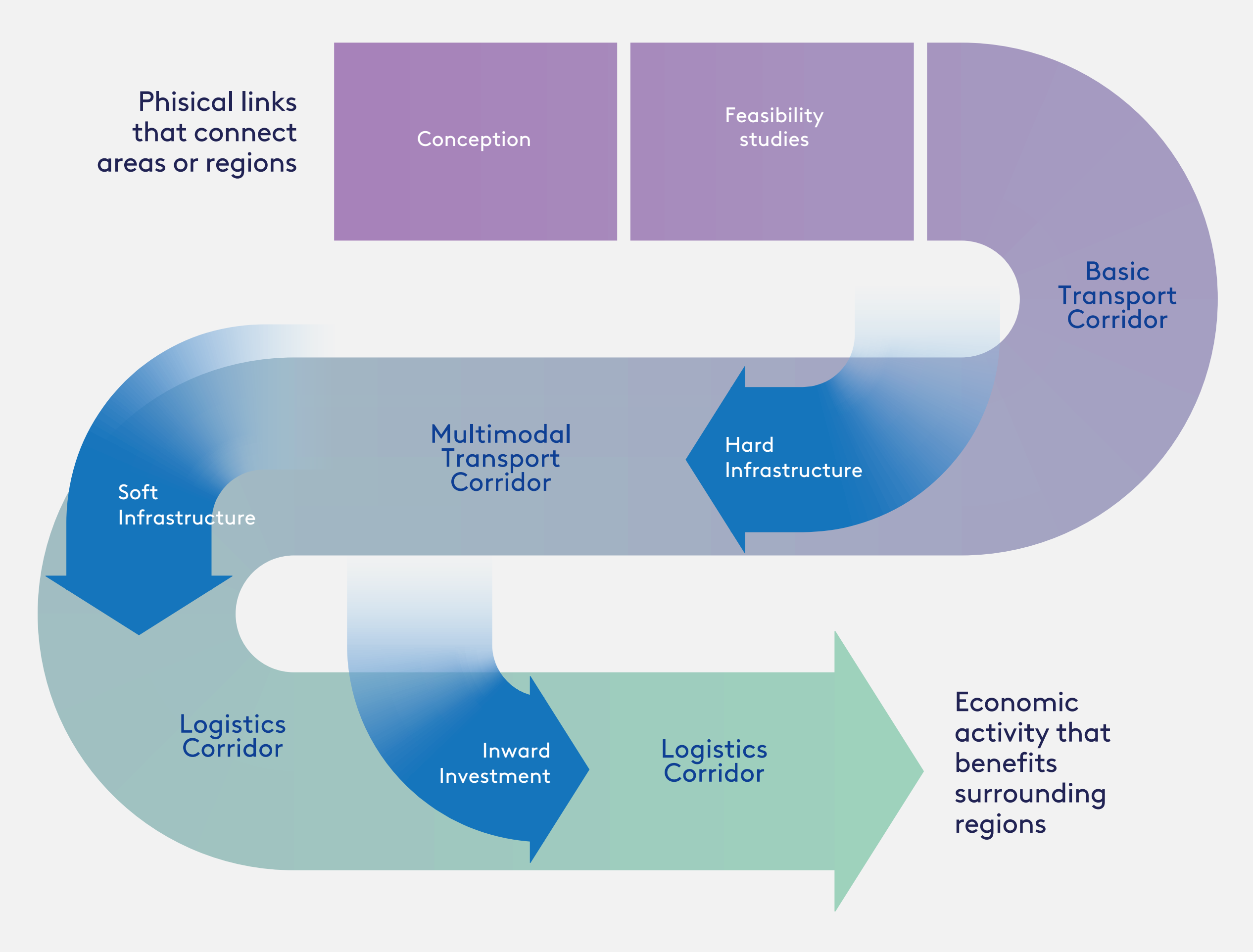
- **Railway transport is considerably more environmentally friendly** than air transport and road transport, and is comparable to deep-sea transport. The average level of direct and indirect GHG emissions generated by railway transport is 18 g/tkm, which is only marginally higher than that of maritime transport used for long-distance freight (12 g/tkm). Compared to the other modes of transport, railway transport produces two times less emissions than inland water transport, seven times less than road transport, and 30 times less than air transport.

- If we take into account emissions not only of greenhouse gases, but also of particulate matter and nitrogen oxides, which also have a deleterious effect on the natural environment and human health, then **railway transport can be safely described as the undisputed leader in environmental performance**.

In conclusion, we would like to draw the readers' attention to **two critical issues** that, in our opinion, will determine the **future development of the INSTC, and indicate important areas of further research**.

First, the gravity model outcomes point to a significant **potential for trade interactions** between the countries along the INSTC in **expansion of "soft" infrastructure and reduction of the negative impact produced by non-tariff barriers**. In the future, it will be important to implement investment plans designed to improve transport infrastructure and transport support, including elimination of missing links and bottlenecks, and enhancement of the infrastructure facilities used by railway and road border-crossing points and sea ports (for an analysis of barriers and recommenced investment targets, see, for example, Vinokurov et al., 2018a). However, realisation of various institutional activities at the national and international levels may prove to be more pertinent for the purposes of using existing INSTC freight traffic and expanding potential future INSTC traffic. Those activities may include, for example, establishment of a single operator, introduction of a single end-to-end freight rate, improvement of customs and border procedures, as well as other steps that will fuse an assembly of disparate logistical routes into a single system, and facilitate achievement

Figure 25. Evolutionary Stages of the Economic Development Corridor



Source: Hope and Cox (2015).

of "seamless" transport routes along the entire length of the INSTC and, accordingly, further reduce delivery times and costs and improve the accuracy of delivery.

Second, in the future, the INSTC may be transformed from a transport corridor into an EAEU economic development corridor (see Figure 25). Implementation of large-scale transport infrastructure projects and achievement of "seamlessness" will not only build up the "Eurasian transport framework" and reduce time in transit and vehicle operation costs, but also indirectly promote sustainable development of the entire Eurasian region. In addition to expanding trade, development of ITCs particularly promotes construction of industrial parks and special economic zones along transit routes, facilitates cooperation in production of goods and services, and accelerates creation of new manufacturing and logistical chains between the EAEU member states and the large developing countries of the Persian Gulf and Indian Ocean, including Iran, India, and Pakistan. This, in turn, helps to create new jobs, improves economic growth prospects, and increases the well-being of the local population. Efficient operation of the transport corridor encourages economic activity that stimulates investment processes, and the transport corridor is ultimately transformed into an economic development corridor (Hope and Cox, 2015).

Appendices

1. Alignment of Certain INSTC Railway Sections with Other Important Eurasian Railway Routes and Networks, Pan-European Transport Corridors, and OSJD Corridors

INSTC Section	International Corridors and Routes	International Networks	Countries Traversed by the Section
Tehran — Qom — Meybod — Yazd — Bafq — Kerman — Zahedan — Mirjaveh — Koh-e-Taftan (border with Pakistan)	Route 4c EATL	TAR	Iran
Luzhayka (border between Russia and Finland) — Buslovskaya — Saint Petersburg (port) — Volgograd — Astrakhan (port) — Olya (port) — Anzali (port) — Qazvin — Tehran — Qom — Meybod — Bafq — Bandar Abbas (port)	Route 5 EATL PETC 9 OSJD 11	E10 CE10, C10/2, E99 E50 CE23 CE40 CE32 CE30 TAR	Russia, Iran
Astrakhan (port) — Olya (port) — Amirabad (port) — Garmsar — Tehran	Route 5a EATL	TAR	Russia, Iran
Astrakhan (port) — Samur — Yalama — Baku — Astara (Azerbaijan) — Astara (Iran) — Rasht	Route 5b EATL OSJD 11	E60, E694 TAR	Russia, Azerbaijan, Iran
Astrakhan (port) — Aksarayskaya — Ganyushkino — Makat — Beyneu	Route 5c EATL TRACECA	E50, E597 TAR	Russia, Kazakhstan
Olya (port) — Aktau (port) — Beyneu	Route 5d EATL	E597, TAR	Russia, Kazakhstan
Tehran — Qom — Arak — Ahvaz — Bandar-e Emam Khomeyni (port)	Route 5e EATL	TAR	Iran
Bafq — Kerman — Fahraj — Chabahar (port) (Fahraj–Chabahar under construction)	Route 5g EATL	TAR	Iran

Source: UNECE (2012).

2. Alignment of the INSTC Highway Sections with the Most Important Eurasian Highway Routes and Networks, and Pan-European Transport Corridors

INSTC Section	International Corridors and Routes	International Networks	Countries Traversed by the Section
Rostov-on-Don — Armavir — Mineralnye Vody — Vladikavkaz — Makhachkala (port) — Aktau (port) — Beyneu	Route 3d EATL	E50, E121, AH70, AH8, AH63, AH5	Russia, Kazakhstan
Tehran — (Saveh — Salafchegan) — Qom — Yazd — Anar — Kerman — Zahedan — Mirjaveh — Pakistan border	Route 5a EATL	NA	Iran, Pakistan
Mashhad — Sarakhs — Tejen	Route 5e EATL	AH75	Iran, Turkmenistan
Border between Russia and Finland — Buslovskaya — Torfyanovka — Saint Petersburg — Moscow — Volgograd — Astrakhan/Olya (port) — Anzali (port) — Qazvin — Tehran — Bandar Abbas (port)	Route 6 EATC	E105, E119,E40, AH8, AH1, AH2, AH70	Finland, Russia, Azerbaijan, Iran
Astrakhan (port) — Olya (port) — Samur — Yalama — Baku (port) — Astara (Azerbaijan) — Astara (Iran) — Qazvin — Tehran	Route 6a EATL	E119	Russia, Azerbaijan, Iran
Astrakhan (port) — Amirabad (port) — Sari	Route 6b EATL	NA	Russia, Iran
Astrakhan (port) — Olya (port) — Aktau (port) — Beyneu	Route 6c EATL	E121	Russia, Kazakhstan
Qazvin — Saveh — Ahvaz — Bandar-e Emam Khomeyni (port)	Route 6d EATL	NA	Iran
Serdar — Gudurolum — Incheboron — Gorgan — Sari — Semnan — Damghan — Yazd — Anar — Bandar Abbas (port)	Route 6f EATL	E121	Turkmenistan, Iran
Astrakhan — Atyrau (port) — Makat — Beyneu — Aktau (port) — Türkmenbasy (port) — Ashgabat — Tejen — Saras — Sarakhs — Mashhad — Birjand — Nehbandan — Dastak — Zahedan — Chabahar (port)	Route 6g EATL	E40, E121, E60	Russia, Kazakhstan, Turkmenistan, Iran

Source: UNECE (2012).

3. Comparative Description of the Main INSTC Caspian Sea Trading Ports

Port	Country	Specialisation	Handling Capacity, million tonnes per year	Future Development Projects
Aktau	Kazakhstan	Bulk oil cargo, dry cargo (grain, metals, etc.), ferry cargo	Maximum: oil terminals — 18.5 million tonnes; dry cargo terminals — 2 million tonnes; grain terminal — 0.6 million tonnes; ferry terminal — 2 million tonnes	
Alat, new Baku International Sea Trade Port (BISTP)	Azerbaijan	All types of liquid and dry bulk cargo, general cargo, ferry cargo (roll-on/roll-off ferry terminal opened in 2018)	17 million tonnes of cargo and 150,000 containers; there are 14 active terminals	Long-term plan: 25 million tonnes of cargo and 1 million containers (Construction Project Stage 3)
Amirabad	Iran	All types of liquid and dry bulk cargo, general cargo, ferry cargo, containers	Maximum: up to 10 million tonnes, 10 berths, including 8 multipurpose terminals, 1 grain terminal, 1 ferry terminal. Construction of three new berths was completed in 2014.	
Anzali	Iran	All types of liquid and dry bulk cargo, general cargo, ferry cargo, containers	14 berths, 17 million tonnes (2020)	
Astrakhan Olya	Russia	All types of liquid and dry bulk cargo, general cargo, ferry cargo, containers	Maximum: 11 million tonnes, 26 berths	
Kuryk	Kazakhstan	Liquid bulk cargo	4.1 million tonnes per year, ferry complex, ship repair yard	
Makhachkala	Russia	All types of liquid and dry bulk cargo, general cargo	Maximum: 8.3 million tonnes	
Nowshahr	Iran	All types of dry bulk cargo and general cargo, containers	Maximum: 5 million tonnes. The development of the eastern part of the port was completed in 2014.	
Türkmenbasy	Turkmenistan	All types of dry bulk cargo and general cargo, containers	Total length of berths exceeds 1,800 m (number of concurrently moored vessels: 17) 300,000 passengers, 75,000 trucks, 400,000 containers per year. Total transport capacity of the port: 17 million tonnes of cargo (excluding petroleum products)	New Türkmenbasy sea trading port was opened on 3 May 2018

Source: EDB.

4. Statistical Data on Foreign Trade between India and Its Main INSTC Partners

Table 1. Changes in Foreign Economic Ties of India, the Islamic Republic of Iran, the Republic of Azerbaijan, Pakistan, and Oman in 2015–2020, USD billions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
India–EU	43.7	43.3	49.5	54.1	53.8	38.4	87.9
EU–India	41.4	41.0	46.1	52.7	47.5	35.0	84.5
Pakistan–EU	6.7	7	7.5	8.1	8.4	6.4	95.5
EU–Pakistan	4.8	5.8	6.8	6.6	6.2	4.3	89.6
Azerbaijan–EU	11.9	8.4	10.6	13.6	12	7.3	61.3
EU–Azerbaijan	3.8	2.1	1.9	3.2	4.5	1.7	44.7
Oman–EU	1.7	0.4	0.4	0.9	0.7	0.4	23.5
EU–Oman	5	4.5	6.3	5.3	4.3	3.4	68.0
Iran–EU	1.4	6.1	11.4	11.2	0.8	0.8	57.1
EU–Iran	7.1	9.1	12.1	10.3	4.9	4.1	57.7
Total for the North–South Direction	62.1	62.5	73.2	78.1	67.4	48.5	78.1
Total for the South–North Direction	65.4	65.2	79.4	87.9	75.7	53.3	81.5
TOTAL	**127.5**	**127.7**	**152.6**	**166.0**	**143.1**	**101.8**	**79.8**

Source: Comtrade Database.

Table 2. Changes in International Freight Traffic from India to Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	1,232.8	1,276.6	1,553.7	1,539.8	1,507.5	1,293.1	104.9
Latvia	13.5	25.7	58.7	57.6	34.2	35.0	258.2
Lithuania	46.4	32.6	25.3	21.1	27.6	25.5	54.9
Poland	393.0	490.1	585.0	629.4	644.9	652.1	165.9
Sweden	131.2	134.2	148.1	134.3	138.3	135.9	103.6
Finland	82.7	96.5	62.9	66.7	58.5	68.9	83.3
Estonia	12.4	13.0	11.5	14.1	12.1	10.4	83.5
Total	**1,911.9**	**2,068.7**	**2,445.2**	**2,462.9**	**2,422.9**	**2,220.7**	**116.1**

Source: Eurostat.

Table 3. Changes in International Freight Traffic to India from Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015. %
Germany	2,231.2	2,180.0	2,203.3	2,256.9	2,226.8	2,026.4	90.8
Latvia	42.4	60.2	30.6	51.3	57.9	26.0	61.4
Lithuania	114.1	243.2	146.2	119.1	37.4	75.3	66.0
Poland	517.5	925.6	997.6	1,029.0	908.6	1,215.2	234.8
Sweden	417.1	480.2	431.8	444.1	526.0	420.0	100.7
Finland	258.5	291.2	347.5	283.3	266.4	297.6	115.1
Estonia	86.2	107.6	56.6	137.9	75.8	84.5	98.1
Total	**3,666.9**	**4,288.1**	**4,213.7**	**4,321.7**	**4,099.0**	**4,145.0**	**113.0**

Source: Eurostat.

Table 4. Changes and Commodity Structure of Exports by the Russian Federation to the Republic of India in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	64.2	77.1	226.1	66.6	232.6	397.6	619.1
Mineral Raw Materials	0.0	0.0	10.6	0.0	0.6	0.2	0.0
Fuel and Energy Goods	311.3	406.9	1516.2	1,855.3	2,197.8	1,059.4	340.3
Chemical Products and Rubber	469.3	434.5	423.2	596.1	545.1	484.4	103.2
Fertilisers	636.6	344.4	302.3	310.0	344.5	521.7	81.9
Wood and Pulp Products	265.3	282.3	384.2	396.7	446.0	243.8	91.9
Textiles, Textile Products, and Footwear	8.2	9.8	11.2	22.4	15.4	5.4	65.5
Construction Materials	75.7	74.8	74.5	74.2	93.5	75.0	99.1
Metals and Metal Products	363.0	384.9	286.2	315.7	302.6	352.9	97.2
Machinery, Equipment and Vehicles	976.0	1,048.3	1,778.7	1,842.7	1,253.1	861.3	88.2
Other Goods	2,401.4	2,250.1	1,442.4	2,272.6	1,876.7	1,797.1	74.8
Total	**5,571.0**	**5,313.0**	**6,455.5**	**7,752.3**	**7,308.1**	**5,798.6**	**104.1**

Source: foreign trade statistics published by the FCS of Russia.

Table 5. Changes and Commodity Structure of Imports by the Russian Federation from the Republic of India in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	460.7	502.8	585.3	614.2	644.3	576.7	125.2
Mineral Raw Materials	2.6	6.8	0.3	0.2	13.3	4.6	173.8
Fuel and Energy Goods	6.5	6.7	6.7	7.7	6.6	5.3	82.4
Chemical Products and Rubber	755.0	781.7	991.5	988.2	1,197.8	1,151.4	152.5
Fertilisers	0.0	0.0	0.0	0.0	0.0	0.0	-
Wood and Pulp Products	5.5	4.3	4.2	5.7	13.7	12.6	228.1
Textiles, Textile Products, and Footwear	313.1	327.5	377.6	360.8	331.7	278.8	89.0
Construction Materials	30.3	45.5	46.0	40.1	37.3	62.6	206.7
Metals and Metal Products	124.7	126.4	180.0	189.9	226.3	240.7	193.1
Machinery, Equipment and Vehicles	344.5	384.9	512.5	778.8	1,191.8	892.3	259.0
Other Goods	215.1	210.4	198.3	239.0	259.0	233.2	108.4
Total	**2,258.0**	**2,397.0**	**2,902.4**	**3,224.6**	**3,921.8**	**3,458.1**	**153.1**

Source: foreign trade statistics published by the FCS of Russia.

Table 6. Export Freight Traffic from the Russian Federation to the Republic of India in 2015–2020, All Modes of Transport, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	153.5	210.6	665.0	236.6	460.6	582.6	379.5
Mineral Raw Materials	0.0	0.0	667.0	0.0	0.5	0.0	-
Fuel and Energy Goods	3,944.7	5,020.1	7,133.7	7,496.8	11,764.5	9,693.5	245.7
Chemical Products and Rubber	282.4	346.1	426.6	711.3	606.6	715.6	253.4
Fertilisers	2,216.6	1,657.7	1,492.9	1,302.9	1,310.3	2,453.7	110.7
Wood and Pulp Products	419.5	497.8	574.2	556.4	663.1	454.9	108.4
Textiles, Textile Products, and Footwear	5.2	5.5	4.6	5.4	4.5	2.1	40.3
Construction Materials	182.5	224.9	235.7	252.9	292.0	205.8	112.8
Metals and Metal Products	394.7	338	166.2	153.0	128.5	131.2	33.2
Machinery, Equipment and Vehicles	27.1	37.6	28.4	10.7	30.8	37.7	139.3
Other Goods	2.8	4.5	5.4	5.2	3.2	2.4	85.7
Total	**7,628.9**	**8,342.8**	**11,399.7**	**10,731.2**	**15,264.5**	**14,279.5**	**187.2**

Source: foreign trade statistics published by the FCS of Russia.

Table 7. Import Freight Traffic to the Russian Federation from the Republic of India in 2015–2020, All Modes of Transport, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	294.1	294.7	337.4	344.6	361.7	379.5	129.0
Mineral Raw Materials	19.3	59.1	1.3	0.4	10.6	11.1	57.6
Fuel and Energy Goods	6.1	8.0	7.5	7.1	6.3	5.5	90.0
Chemical Products and Rubber	89.5	107.4	154.4	132.4	142.5	138.4	154.6
Fertilisers	0.0	0.0	0	0.0	0.0	0.0	-
Wood and Pulp Products	1.9	1.5	1.3	1.6	3.4	3.1	164.9
Textiles, Textile Products, and Footwear	38.7	43.9	50.3	48.9	44.4	46.6	120.5
Construction Materials	46.8	62.7	59.8	48.2	56.1	123.0	262.8
Metals and Metal Products	40.6	45.2	58.7	53.3	63.9	80.6	198.5
Machinery, Equipment and Vehicles	32.7	36	53.6	64.6	68.7	66.4	202.9
Other Goods	7.3	31.3	25.1	25.7	24.6	20.1	276.0
Total	**576.8**	**689.8**	**749.4**	**726.8**	**782.2**	**874.3**	**151.6**

Source: FCS of Russia.

Table 8. Types of Cargo Dispatched from Russian Sea Ports to the Republic of India in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Grain	57.0	48.0	348.6	75.9	0.0	0.0	-
Coal, Coke	3,612	4,277.1	4,287.8	5,342.3	8,339.0	7,505.1	207.8
Machinery, Equipment and Metal Products	38.5	13.1	14.7	18.2	15.2	4.6	11.8
Metals	390	318	72.5	68.6	102.3	0.0	-
Scrap Metal	0.0	6.5	0.0	0.0	31.5	2.8	-
Bulk Oil	145	483	1,275.5	2,230.5	2,765.8	1,382.9	953.7
Liquid Bulk Food Products	0.0	0.0	110.6	32.3	291.9	904.9	-
Other Liquid Bulk Cargo	305.9	8.4	32.1	3.4	4.2	0.0	-
Other Dry Cargo	1.2	1168.3	127.8	369.1	334.4	150.5	125x
Chemical Cargo and Mineral Fertilisers	1,579.8	1,433.9	1,241.2	1,208.8	1,302.5	1,628.1	103.1
Liquid Bulk Petroleum Products	0.0	0.0	0.0	363.2	555	1609.5	-
Total	**6,129.4**	**7,756.3**	**7,510.8**	**9,712.3**	**13,741.8**	**13,188.39**	**215.2**

Source: Federal Agency for Maritime and River Transport of Russia (Rosmorrechflot).

Table 9. Types of Import Cargo Delivered from India to Russian Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Grain	10.2	-	-	-	-	-	-
Machinery, Equipment and Metal Products	0.2	-	1.8	-	0.5	-	-
Other Dry Cargo	63	78	91.7	59.7	61.0	26.7	47.1
Total	**73.4**	**78.0**	**93.5**	**59.7**	**61.5**	**26.7**	**36.4**

Source: Rosmorrechflot Statistical Form M-3 (PRR).

Table 10. Transhipment of Containerised Cargo Involved in Trade between India and Russia in Russian Sea Trading Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
From Russia to India (exports)	307.1	516.9	82.9	306.7	289.9	98.6	32.6
From India to Russia (imports)	63.0	78	91.7	58.2	56.5	47.4	89.4
Total	**370.1**	**594.9**	**174.6**	**364.9**	**346.4**	**146.0**	**39.4**

Source: Rosmorrechflot Forms M-3 (PRR).

Table 11. Export Freight Traffic from the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic to India in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic	
	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	0.0	0.0	0.1	0.0	0.0	0.2	1.8	0.1
Mineral Raw Materials	-	-	-	-	-	-	-	-
Fuel and Energy Goods	-	0.0	-	0.0	2,846.8	4,923.1	1.6	2.4
Chemical Products and Rubber	0.0	0.0	6.2	0.0	6.2	4.0	1.6	10.3
Fertilisers	-	-	844.1	927.7	-	-	-	-
Wood and Pulp Products	-	0.2	0.9	1.1	0.0	0.0	0.0	0.0
Textiles, Textile Products, and Footwear	-	0.0	0.0	7.9	0.0	0.0	0.0	0.0
Construction Materials	-	0.0	0.0	0.0	70.1	0.0	0.0	0.0
Metals and Metal Products	11.5	0.1	0.1	0.1	23.2	36.7	0.0	0.0
Machinery, Equipment and Vehicles	0.0	0.0	0.0	61.8	0.0	0.1	-	0.0
Other Goods	0.0	0.0	0.0	0.0	0.0	0.3	-	0.0
Total	**11.5**	**0.2**	**851.4**	**998.6**	**2,946.4**	**4,964.4**	**5.1**	**12.8**

Source: Eurasian Economic Commission.

Table 12. Import Freight Traffic from India to the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic	
	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	6.6	7.0	16.0	20.2	20.4	16.2	0.8	1.1
Mineral Raw Materials	-	-	-	0.0	-	-	-	-
Fuel and Energy Goods	0.0	0.0	0.5	0.4	0.2	0.0	-	-
Chemical Products and Rubber	4.4	5.9	7.4	7.0	5.8	6.8	2.6	2.5
Fertilisers	0.0	-	0.0	0.0	-	-	-	-
Wood and Pulp Products	0.5	0.7	0.0	0.0	0.0	0.1	0.5	0.0
Textiles, Textile Products, and Footwear	2.0	1.3	2.3	1.4	0.9	0.6	0.5	0.3
Construction Materials	2.1	3.1	3.3	4.3	2.5	7.9	0.4	0.6
Metals and Metal Products	0.0	0.5	3.2	2.3	2.2	1.9	0.1	0.0
Machinery, Equipment and Vehicles	0.7	0.6	1.5	1.2	7.4	10.7	0.4	0.1
Other Goods	6.1	4.1	0.5	0.4	0.8	0.9	0.1	0.0
Total	**22.4**	**23.3**	**34.8**	**37.3**	**40.2**	**45.0**	**5.5**	**4.7**

Source: Eurasian Economic Commission.

5. Statistical Data on Foreign Trade between Iran and Its Main INSTC Partners

Table 1. Changes in International Freight Traffic from the Islamic Republic of Iran to Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	88.7	34.9	388.3	360.9	29.2	34.5	38.9
Excluding Oil and Petroleum Products	88.7	34.9	34.5	88.1	29.2	34.5	88.7
Latvia	0.2	0.1	0.1	0.1	0.6	0.4	198.5
Excluding Oil and Petroleum Products	0.2	0.1	0.1	0.1	0.6	0.4	198.5
Lithuania	0.8	1.3	1.9	2.0	1.4	2.3	306.1
Excluding Oil and Petroleum Products	0.8	1.3	1.9	2.0	1.4	2.3	306.1
Poland	5.8	329.2	155.2	337.6	8.4	7.6	131.5
Excluding Oil and Petroleum Products	5.8	42.6	25.1	83.4	8.4	7.6	131.5
Sweden	2.9	3.3	3.2	5.1	3.6	4.0	138.5
Excluding Oil and Petroleum Products	2.9	3.3	3.2	5.1	3.6	4.0	138.5
Finland	0.1	0.2	0.3	0.2	0.3	0.3	244.4
Excluding Oil and Petroleum Products	0.1	0.2	0.3	0.2	0.3	0.3	244.4
Estonia	5.8	329.2	155.2	337.6	8.4	7.6	131.5
Excluding Oil and Petroleum Products	5.8	329.2	155.2	337.6	8.4	7.6	131.5
Total	**104.2**	**698.1**	**704.1**	**1,043.5**	**51.8**	**56.7**	**54.4**
Excluding Oil and Petroleum Products	**104.2**	**411.3**	**220.3**	**516.4**	**51.8**	**56.7**	**54.4**

Source: Eurostat.

Table 2. Changes in International Freight Traffic to the Islamic Republic of Iran from Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	1,558.8	1,265.6	577.1	277.8	664.7	1,455.6	93.4
Latvia	25.4	1.2	1.6	23.1	1.4	0.6	2.3
Lithuania	208.2	67.9	2.1	1.3	1.2	0.7	0.3
Poland	6.0	15.4	22.9	14.3	6.4	5.0	83.8
Sweden	14.9	26.8	55.1	29.0	2.9	2.3	15.2
Finland	10.1	51.9	81.7	47.2	1.2	0.6	5.9
Estonia	71.2	65.7	3.9	2.9	2.3	1.8	2.6
Total	**1,894.6**	**1,494.5**	**744.5**	**395.7**	**680.0**	**1,466.6**	**77.4**

Source: Eurostat.

Table 3. Changes and Commodity Structure of Exports by the Russian Federation to the Islamic Republic of Iran in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	473.4	428.1	549.8	791.4	1208.7	1157.4	244.5
Mineral Raw Materials	-	-	4.7	-	-	-	-
Fuel and Energy Goods	9.8	1.6	4	3.0	3.2	3.2	33.0
Chemical Products and Rubber	30.6	28.9	46.7	32.0	46.0	29.4	96.0
Fertilisers	-	-	-	0.1	-	-	-
Wood and Pulp Products	174.4	143.3	184.6	165.6	121.5	104.9	60.2
Textiles, Textile Products, and Footwear	1.2	2.8	4.7	4.9	11.8	10.2	846.9
Construction Materials	0.1	1.3	0.6	1.0	0.7	0.3	320.4
Metals and Metal Products	209.5	282.1	290.3	79.6	23.2	7.3	3.5
Machinery, Equipment and Vehicles	105.4	668.7	216.5	113.0	85.9	84.2	79.9
Other Goods	13	325	12.9	17.2	15.6	19.3	148.8
Total	**1,017.4**	**1,881.8**	**1,314.8**	**1,207.8**	**1,516.4**	**1,416.3**	**139.5**

Source: foreign trade statistics published by the FCS of Russia.

Table 4. Changes and Commodity Structure of Imports by the Russian Federation from the Islamic Republic of Iran in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	210.5	231.4	271.9	395.3	644.3	712.1	338.3
Mineral Raw Materials	0.3	0.1	5.1	0.1	0.2	0.2	69.3
Fuel and Energy Goods	0.1	0.8	4.8	1.1	0.8	0.9	851.6
Chemical Products and Rubber	23	48.6	39.4	33.8	60.8	21.5	93.5
Fertilisers	-	-	-	-	-	-	-
Wood and Pulp Products	0.1	0.0	0.0	0.0	0.0	0.3	273.0
Textiles, Textile Products, and Footwear	1.9	2.8	2.7	6.5	11.9	10.2	534.9
Construction Materials	15.7	6.4	13.5	16.6	22.7	25.2	160.3
Metals and Metal Products	1.3	1.2	43.3	62.3	21.9	14.4	1,107.5
Machinery, Equipment and Vehicles	9.1	8.3	8.0	14.7	9.9	9.8	107.3
Other Goods	1.4	2.9	3.5	2.6	3.2	1.5	108.2
Total	**263.4**	**302.5**	**392.2**	**533.1**	**775.6**	**795.9**	**302.2**

Source: foreign trade statistics published by the FCS of Russia.

Table 5. Transhipment of Export Cargo from Russia to Iran in Russian Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Grain	1,629.0	1,306.9	1,126.0	1,572.9	1,741.9	2,612.9	160.4
Mixed Feed	-	-	8.7	-	-	0.0	-
Coal	7.4	4.1	-	-	-	-	-
Metals	782.4	922.6	689.1	193	13	0.6	0.1
Machinery and Equipment	-	-	-	-	0.5	-	-
Ores	-	-	0.2	0.7	0.4	0.6	-
Chemical Cargo	3.1	0.7	2.7	4	8.4	19.3	623.2
Fertilisers	-	-	1.2	-	-	-	-
Timber and Paper	344.2	394.3	418	359.2	393.3	440.5	128.0
Food Products	41.7	81.6	62.2	228	523.1	992.4	2379.9
Construction Materials	10.9	35.6	23	6.8	3.2	1.9	17.6
Other Dry Cargo	61.9	53.5	52.6	37.4	58.2	65.2	105.3
Other Liquid Bulk Cargo	-	23.2	79.6	79.9	17.9	8.3	-
Total	**2,880.6**	**2,822.5**	**2,463.3**	**2,481.9**	**2,759.9**	**4,141.7**	**143.8**

Source: foreign trade statistics published by the FCS of Russia.

Table 6. Transhipment of Import Cargo from Iran to Russia in Russian Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Metals	-	-	6.8	6	5.9	4.9	-
Machinery and Equipment		0.7	0.1	0.1	-	0.2	-
Ores	-	-	82	39.7	-	-	-
Coal	-	-	7.8	-	-	-	-
Food Products	13.1	16.2	27.3	13.8	5.7	4.7	35.9
Construction Cargo and Cement	172.3	58.3	78.3	74.9	223.6	335.4	194.7
Chemical Cargo	-	1.5	0.8	6	13.4	18.4	0.0
Other Dry Cargo	125.6	73.3	67.2	107.8	160.6	195.6	155.7
Total	**311.0**	**150.0**	**270.3**	**248.3**	**409.2**	**559.2**	**179.8**

Source: Rosmorrechflot Forms M-3 (PRR).

Table 7. Transhipment of Containerised Cargo Involved in Trade between Russia and Iran in Russian Sea Trading Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
From Russia to Iran (exports)	10.4	15.9	18.6	12.3	12.3	6.6	63.6
From Iran to Russia (imports)	22.9	24.0	21.5	17.1	17.1	16.2	70.7
Total	**33.3**	**39.9**	**40.1**	**29.4**	**29.4**	**22.8**	**68.5**

Source: Rosmorrechflot Forms M-3 (PRR).

Table 8. Export Freight Traffic from the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic to the Islamic Republic of Iran in 2018–2019, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic	
	2018	2019	2018	2019	2018	2019	2018	2019
Food Products	3.4	1.9	0.3	0.7	1,739.9	1,426.9	20.6	22.2
Mineral Raw Materials	0.2	0.7	-	-	0.9	0.1	-	-
Fuel and Energy Goods	0.3	2.9	0.0	0.0	0.1	0.0	0.2	0.0
Chemical Products and Rubber	0.1	0.2	3.2	0.6	0.1	0.0	0.0	0.0
Fertilisers	0.0	0.0	-	-	16.7	-	-	-
Wood and Pulp Products	1.4	1.6	15.2	18.8	0.0	0.2	-	-
Textiles, Textile Products, and Footwear	0.0	0.0	6.6	0.0	0.0	0.0	0.1	0.5
Construction Materials	0.3	0.4	0.0	0.0	0.0	0.0	0.0	-
Metals and Metal Products	0.9	13.5	0.0	0.0	165.4	8.6	0.2	0.1
Machinery, Equipment and Vehicles	2.7	5.3	0.4	0.1	0.1	0.1	0.0	0.0
Other Goods	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3
Total	**9.3**	**26.4**	**25.7**	**20.2**	**1,923.4**	**1,436.0**	**21.0**	**23.2**

Source: Eurasian Economic Commission.

Table 9. Food Products Freight Traffic from the Republic of Kazakhstan to the Islamic Republic of Iran in 2018–2019, All Modes of Transport, thousand tonnes

	2018	2019
Fresh or Chilled Beef	-	1.2
Mutton or Goat Meat	2.4	1.2
Dried Pulses	4.7	9.2
Wheat	51.9	4.7
Barley	1,558.0	1,373.1
Oats	0.2	0.0
Buckwheat, Millet, and Other Grain Crops	1.1	0.1
Wheat or Meslin Flour	0.1	0.0
Flax Seeds	6.3	0.5
Rape Seeds	41.2	20.9
Sunflower Seeds	11.5	0.0
Rape Oil	0.3	1.2
Grain or Pulse By-Products	13.9	2.6
Waste from Starch, Sugar, and Beer Production	1.5	0.9
Waste from Extraction of Other Vegetable Oils	38.5	3.8
Animal Feed	8.1	6.7
Other Food Products	0.1	0.6
Total	**1,739.9**	**1,426.9**

Source: Eurasian Economic Commission.

Table 10. Import Freight Traffic from the Islamic Republic of Iran to the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic in 2018–2019, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic	
	2018	2019	2018	2019	2018	2019	2018	2019
Food Products	42.7	26.9	8.0	5.6	39.6	34.1	5.8	4.4
Mineral Raw Materials	0.1	0.1	-	-	0.0	0.0	0.0	2.3
Fuel and Energy Goods	417.8	381.0	-	-	0.0	0.0	0.3	0.2
Chemical Products and Rubber	49.2	57.9	0.0	0.0	22.1	22.9	6.7	5.8
Fertilisers	3.9	58.1	-	-	0.3	0.1	-	-
Wood and Pulp Products	2.5	1.3	0.0	0.0	0.4	0.2	0.0	0.1
Textiles, Textile Products, and Footwear	1.8	4.3	0.7	2.1	1.9	2.6	1.9	0.8
Construction Materials	463.7	663.9	0.4	0.5	179.7	294.2	6.1	4.6
Metals and Metal Products	42.9	88.6	0.0	0.0	1.2	1.6	0.2	0.3
Machinery, Equipment and Vehicles	0.8	1.2	0.0	0.0	1.7	1.0	0.3	0.4
Other Goods	0.4	1.8	0.0	0.0	0.3	0.4	0.0	0.0
Total	**1,025.9**	**1,285.2**	**9.1**	**8.2**	**247.1**	**357.1**	**21.2**	**18.9**

Source: Eurasian Economic Commission.

6. Statistical Data on Foreign Trade between the Republic of Azerbaijan and Its Main INSTC Partners

Table 1. Changes in International Freight Traffic from the Republic of Azerbaijan to Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	5,475.6	5,251.2	2,475.2	2,961.7	2,980.5	2,218.4	40.5
Excluding Oil and Petroleum Products	4.9	4.9	5.7	4.1	4.1	4.1	83.5
Latvia	0.3	0.6	0.8	0.2	0.3	2.3	704.8
Lithuania	88.2	1.4	0.7	0.9	0.6	0.7	0.8
Excluding Oil and Petroleum Products	0.3	1.4	0.7	0.9	0.6	0.7	220.2
Poland	14.7	96.1	13.4	20.3	16.2	19.5	132.8
Excluding Oil and Petroleum Products	14.7	12.3	13.4	20.3	16.2	19.5	132.8
Sweden	0.1	0.2	0.2	0.2	0.2	0.3	347.5
Finland	0.1	0.2	0.4	0.3	0.3	0.2	128.4
Estonia	14.7	96.1	13.4	20.3	16.2	19.5	132.8
Total	**5,593.8**	**5,445.9**	**2,504.0**	**3,004.1**	**3,014.3**	**2,261.0**	**40.4**
Excluding Oil and Petroleum Products	**35.2**	**115.8**	**34.5**	**46.4**	**37.8**	**46.6**	**132.6**

Source: Eurostat.

Table 2. Changes in International Freight Traffic to the Republic of Azerbaijan from Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	86.3	41.0	45.6	57.1	70.5	50.5	58.5
Latvia	11.0	15.2	17.2	6.1	4.9	4.9	45.1
Lithuania	10.9	6.6	7.5	6.1	9.1	8.4	77.4
Poland	32.7	22.8	22.4	24.7	27.3	25.2	77.2
Sweden	4.8	3.6	2.9	2.7	2.8	2.2	46.0
Finland	6.7	3.0	4.2	4.2	10.6	3.0	45.0
Estonia	3.1	0.7	1.1	1.2	1.2	1.4	44.1
Total	**155.4**	**92.8**	**100.8**	**102.0**	**126.4**	**95.6**	**61.5**

Source: Eurostat.

Table 3. Changes and Commodity Structure of Exports by the Russian Federation to the Republic of Azerbaijan in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	489	432.3	537	409.7	611.9	374.0	76.5
Mineral Raw Materials	0.6	0.4	0.0	0.5	0.6	0.5	77.8
Fuel and Energy Goods	31.2	69.3	52	75.0	228.9	83.2	266.7
Chemical Products and Rubber	100.6	104.5	126	147.2	173.3	194.5	193.4
Fertilisers	33.4	34.5	36.0	50.7	109.8	76.1	228.0
Wood and Pulp Products	165.4	147.8	181.0	238.0	255.5	232.3	140.5
Textiles, Textile Products, and Footwear	5.4	4.9	6.0	7.0	7.5	8.2	151.0
Construction Materials	38.8	43.3	51.0	54.0	57.9	52.9	136.3
Metals and Metal Products	287.6	197.3	249.0	315.8	321.0	278.0	96.7
Machinery, Equipment and Vehicles	771.1	151.6	499.0	323.6	407.5	370.7	48.1
Other Goods	364	322.2	198.1	91.8	139.1	405.0	111.3
Total	**2,287.1**	**1,508.1**	**1,935.1**	**1,713.4**	**2,312.8**	**2,075.4**	**90.7**

Source: foreign trade statistics published by the FCS of Russia.

Table 4. Changes and Commodity Structure of Imports by the Russian Federation from the Republic of Azerbaijan in 2015–2020, USD millions

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	268.9	322	444.0	539.3	569.0	563.1	209.4
Mineral Raw Materials	-	-	-	-	-	-	-
Fuel and Energy Goods	49.1	50.1	62.0	94.1	104.6	45.0	91.6
Chemical Products and Rubber	9.6	9.7	14.0	13.4	35.5	48.5	505.3
Fertilisers	-	-	-	-	-	-	-
Wood and Pulp Products	0.1	1.3	1.0	1.0	1.0	1.1	1101.1
Textiles, Textile Products, and Footwear	25.4	23.5	27.0	35.9	16.1	27.2	107.1
Construction Materials	3.5	3.4	10.0	9.6	12.4	11.4	325.5
Metals and Metal Products	15.1	17.7	44.0	33.3	27.2	28.4	188.2
Machinery, Equipment and Vehicles	2.9	5.3	36.0	7.9	7.7	27.4	945.7
Other Goods	142.9	13.3	54.0	38.8	83.5	61.6	43.1
Total	**517.5**	**446.3**	**692.0**	**773.3**	**856.9**	**813.7**	**157.2**

Source: foreign trade statistics published by the FCS of Russia.

Table 5. Export Freight Traffic from the Russian Federation to the Republic of Azerbaijan in 2015–2020, All Modes of Transport, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	1,709.9	1,566.8	1,798.9	1,085.2	1,869.2	1,668.3	97.6
Mineral Raw Materials	14.0	9.8	7.6	9.0	6.0	5.1	36.4
Fuel and Energy Goods	84.8	197.6	119	117.0	433.1	224.5	264.7
Chemical Products and Rubber	83.0	87.9	89.8	103.6	108.6	127.7	153.8
Fertilisers	125.9	155.9	161.6	192.9	353.6	297.2	236.1
Wood and Pulp Products	596.9	617.3	722.5	836.5	875.1	885.1	148.3
Textiles, Textile Products, and Footwear	1.3	1.1	1.1	1.4	1.9	1.6	125.0
Construction Materials	175	183.2	188.2	210.3	228.8	245.8	140.4
Metals and Metal Products	489.5	376	406.2	409.7	419.9	415.1	84.8
Machinery, Equipment and Vehicles	120.7	33.9	58.0	45.0	50.2	50.5	41.8
Other Goods	10.4	10.0	6.8	6.2	6.0	6.0	57.7
Total	**3,411.4**	**3,239.4**	**3,559.7**	**3,016.8**	**4,351.9**	**3,926.8**	**115.1**

Source: foreign trade statistics published by the FCS of Russia.

Table 6. Import Freight Traffic to the Russian Federation from the Republic of Azerbaijan in 2015–2020, All Modes of Transport, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Food Products	289.1	359.9	497.6	557.0	562.7	546.1	188.9
Mineral Raw Materials	-	0.2	-	-	-	-	-
Fuel and Energy Goods	205.4	199.3	240.6	248.7	274.3	181.7	88.4
Chemical Products and Rubber	17.4	16.8	15.4	14.4	34.7	49.2	282.6
Fertilisers	-	-	-	-	-	-	-
Wood and Pulp Products	0.1	1.4	0.8	0.1	0.1	1.6	1,563.3
Textiles, Textile Products, and Footwear	11.7	10.7	9.6	12.6	6.1	9.2	78.3
Construction Materials	59.3	54.1	174.3	147.5	175.4	163.1	275.1
Metals and Metal Products	10.9	9.2	33.2	22.6	14.2	23.2	213.1
Machinery, Equipment and Vehicles	0.6	4.1	12.8	3.3	6.3	21.9	3,643.4
Other Goods	0.6	0.9	2.1	1.9	3.8	2.3	383.3
Total	**595.2**	**656.6**	**986.4**	**1,007.9**	**925.2**	**998.2**	**167.7**

Source: foreign trade statistics published by the FCS of Russia.

Table 7. Transhipment of Export Cargo Involved in Trade between Russia and Azerbaijan in Russian Ports in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Machinery	4	11	-	-	-	-	0
Oil and Petroleum Products	-	-	-	-	-	-	-
Metals	13.6	11.7	16.6	38.9	33.1	8.5	67.5
Grain	-	1.1	-	-	-	-	-
Other Dry Cargo	3.6	0.9	0.9	0.6		3.9	108.3
Total	**21.2**	**24.7**	**17.5**	**39.5**	**33.1**	**12.4**	**58.4**

Source: Rosmorrechflot Forms M-3 (PRR).

Table 8. Transhipment of Import Cargo Involved in Trade between Russia and Azerbaijan in Russian Ports in 2019–2020, thousand tonnes

	2019	2020	2020/2019, %
Chemical Cargo	3.6	4.2	116.7
Other Dry Cargo	0.1	0.4	400.0
Total	**3.7**	**4.6**	**124.3**

Source: Rosmorrechflot Forms M-3 (PRR).

7. Statistical Data on Foreign Trade between the Islamic Republic of Pakistan and Its Main INSTC Partners

Table 1. Changes in International Freight Traffic from the Islamic Republic of Pakistan to Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	161.6	173.7	172.1	181.9	191.9	193.0	119.4
Latvia	0.9	1.3	1.4	1.5	1.7	2.1	237.0
Lithuania	4.9	5.9	5.9	7.2	6.4	7.4	151.9
Poland	33.4	30.3	30.5	34.8	48.0	52.9	158.4
Sweden	14.5	16.2	17.0	18.2	22.3	21.9	151.0
Finland	2.6	2.5	3.4	2.8	3.3	3.2	121.2
Estonia	33.4	30.3	30.5	34.8	48.0	52.9	158.4
Total	**251.2**	**260.4**	**260.9**	**281.2**	**321.7**	**333.3**	**132.7**

Source: Eurostat.

Table 2. Changes in International Freight Traffic to the Islamic Republic of Pakistan from Individual EU Countries along the INSTC in 2015–2020, thousand tonnes

	2015	2016	2017	2018	2019	2020	2020/ 2015, %
Germany	319.2	404.3	383.0	466.9	434.6	706.2	221.3
Latvia	61.1	44.7	54.7	59.2	40.4	65.7	107.4
Lithuania	9.3	23.3	13.7	11.6	17.7	22.6	243.6
Poland	118.1	194.5	173.9	158.2	177.0	223.4	189.2
Sweden	206.7	241.9	228.9	267.8	207.7	230.2	111.3
Finland	48.3	51.9	52.2	89.1	66.4	67.6	139.9
Estonia	11.2	8.6	9.3	4.8	5.3	9.4	83.8
Total	**774.0**	**969.2**	**915.7**	**1,057.6**	**949.1**	**1,325.2**	**171.2**

Source: Eurostat.

Table 3. Export Freight Traffic from the EAEU Member States to Pakistan in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic		Russian Federation	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	-	0.0	0.5	0.7	0.7	0.9	4.8	5.3	281.0	1490.6
Mineral Raw Materials	-	-	-	-	-	-	-	-	-	-
Fuel and Energy Goods	-	-	-	-	-	-	0.2	0.5	56.6	930.5
Chemical Products and Rubber	-	-	1.0	0.7	0.0	0.0	-	0.0	23.1	18.2
Fertilisers	-	-	20.0	15.3	-	-	-	-	0.9	10.8
Wood and Pulp Products	-	-	0.8	0.4	0.0	0.0	-	0.0	46.7	38.4
Textiles, Textile Products, and Footwear	-	-	1.6	1.3	0.0	0.0	-	0.0	0.5	0.3
Construction Materials	-	-	0.0	0.0		0.0	-	0.0	2.0	1.2
Metals and Metal Products	0.4		0.0	0.1	6.6	18.7	0.0	0.0	46.3	35.4
Machinery, Equipment and Vehicles	0.0	0.0	5.0	0.3	0.0	0.0	0.0	0.0	0.7	0.8
Other Goods	0.0	0.0	0.0	0.1	0.1	18.7	0.1	0.0	0.0	35.4
Total	**0.4**	**0.0**	**28.9**	**19.0**	**7.4**	**38.3**	**5.1**	**5.8**	**457.9**	**2,561.7**

Source: Eurasian Economic Commission.

Table 4. Import Freight Traffic from Pakistan to the EAEU Member States in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic		Russian Federation	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	3.8	3.5	9.9	11.0	13.1	19.3	1.1	1.2	133.9	118.6
Mineral Raw Materials	-	-	-	-	-	-	-	-	0.5	3.4
Fuel and Energy Goods	-	-	-	-	-	-	0.0	0.0	0.0	0.0
Chemical Products and Rubber	0.2	0.2	0.0	0.0	1.4	1.9	0.2	0.2	2.6	3.6
Fertilisers	-	-	-	-	-	-	-	-	-	-
Wood and Pulp Products	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Textiles, Textile Products, and Footwear	0.4	0.4	2.6	2.0	0.5	0.3	0.1	0.3	33.2	38.6
Construction Materials	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	4.8	6.6
Metals and Metal Products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Machinery, Equipment and Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Goods	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	3.9	3.0
Total	**4.5**	**4.3**	**12.8**	**13.2**	**15.0**	**22.1**	**1.7**	**1.9**	**179.3**	**173.9**

Source: Eurasian Economic Commission.

8. Statistical Data on Foreign Trade between the Sultanate of Oman and Its Main INSTC Partners

Table 1. Export Freight Traffic from the EAEU Member States to Oman in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic		Russian Federation	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	0.0	-	0.1	-	0.0	0.0	0.0	0.0	403.9	485.6
Mineral Raw Materials	-	-	-	-	-	-	-	-	2.7	1.0
Fuel and Energy Goods	-	-	-	-	-	-	-	-	288.2	239.7
Chemical Products and Rubber	-	-	0.0	-	0.0	0.1	0.0	0.1	2.9	3.7
Fertilisers	-	-	4.4	-	-	-	-	-	9.3	10.7
Wood and Pulp Products	0.0	-	0.0	-	-	0.0	-	-	7.1	3.6
Textiles, Textile Products, and Footwear	-	-	-	-	-	-	-	-	-	0.0
Construction Materials	-	-	-	-	-	-	-	-	1.4	0.2
Metals and Metal Products	0.0	-	-	-	0.0	0.0	-	0.0	3.0	0.2
Machinery, Equipment and Vehicles	0.0	-	-	-	0.0	0.1	0.0	0.1	0.4	0.3
Other Goods	-	-	0.0	-	0.0	-	-	-	0.1	0.1
Total	**0.0**	**-**	**4.6**	**-**	**0.0**	**0.3**	**0.0**	**0.3**	**719.0**	**745.1**

Source: Eurasian Economic Commission.

Table 2. Import Freight Traffic from Oman to the EAEU Member States in 2019–2020, All Modes of Transport, thousand tonnes

	Republic of Armenia		Republic of Belarus		Republic of Kazakhstan		Kyrgyz Republic		Russian Federation	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Food Products	0.0	-	0.0	-	-	-	-	-	-	0.0
Mineral Raw Materials	-	-	-	-	-	-	-	-	-	-
Fuel and Energy Goods	-	-	-	-	-	-	-	-	-	-
Chemical Products and Rubber	0.2	0.3	0.2	0.0	-	-	-	-	0.3	0.5
Fertilisers	-	-	-	-	-	-	-	-	-	-
Wood and Pulp Products	-	-	0.2	-	-	-	-	-	-	-
Textiles, Textile Products, and Footwear	-	-	-	0.0	-	-	-	-	-	0.1
Construction Materials	0.0	0.1	-	-	-	-	-	-	1.2	0.8
Metals and Metal Products	-	-	0.1	-	0.0	-	-	-	0.0	-
Machinery, Equipment and Vehicles	-	-	-	-	-	-	-	-	0.0	0.0
Other Goods	-	-	0.0	0.0	-	-	-	-	-	-
Total	**0.2**	**0.4**	**0.5**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**1.6**	**1.4**

Source: Eurasian Economic Commission.

9. Projected INSTC Containerised Food Traffic until 2025 and 2030, thousand TEU

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Kazakhstan–Iran	0.2	1.1	1.3	3.3	4.2
Iran–Kazakhstan	0.1	2.2	2.7	5.0	6.3
Kazakhstan–Turkmenistan	0.0	1.1	1.3	2.5	3.1
India–Kazakhstan	0.1	1.7	2.0	4.2	5.2
Pakistan–Kazakhstan	0.2	2.2	2.7	5.0	6.3
Russia–Iran	-	1.1	1.3	3.3	4.2
Iran–Russia	-	1.1	1.3	2.5	3.1
Russia–India	-	1.1	1.3	3.3	4.2
India–Russia	-	2.2	2.7	5.0	6.3
Russia–Pakistan	-	0.1	0.1	0.2	0.2
Pakistan–Russia	-	0.1	0.1	0.2	0.2
Iran–China	-	0.3	0.3	0.7	0.9
Other Directions	0.0	0.1	0.1	0.2	0.2
Total for the Eastern Route	0.6	8.8	10.6	22.7	28.4
Multimodal (Trans-Caspian) Route of the INSTC					
Kazakhstan–Iran	0.3	1.1	1.3	3.3	4.2
Iran–Kazakhstan	0.2	1.7	2.0	3.3	4.2
India–Kazakhstan	-	0.6	0.7	1.3	1.7
Pakistan–Kazakhstan	-	0.6	0.7	1.7	2.1
Russia–Iran	0.3	6.1	7.3	10.8	13.5
Iran–Russia	0.9	2.2	2.7	4.2	5.2
Russia–India	-	1.1	1.3	2.5	3.1
India–Russia	-	1.1	1.3	2.5	3.1
Russia–Pakistan	-	0.1	0.1	0.2	0.2
Pakistan–Russia	-	2.2	2.7	0.7	0.8
Other Directions	0.0	0.1	0.1	0.2	0.2
Total for the Central Route	0.6	11.9	14.3	20.7	25.8
Western Route of the INSTC					
Russia/Belarus–Iran	0.7	0.1	0.1	3.5	4.4
Iran–Russia/Belarus	0.7	3.3	4.0	5.8	7.3
Russia/Belarus–Azerbaijan	6.4	15.0	18.0	25.0	31.3
Russia/Belarus–India	-	2.2	2.7	6.7	8.3
India–Russia/Belarus	-	2.2	2.7	5.0	6.3
Russia/Belarus–Pakistan	-	0.1	0.1	0.3	0.4
Pakistan–Russia/Belarus	-	0.3	0.4	0.8	1.0
EU Countries–India	-	0.5	0.6	1.8	2.3
EU Countries–Pakistan	-	0.0	0.1	0.2	0.2
Pakistan–EU countries	-	0.0	0.0	0.1	0.1
India–EU Countries	-	0.7	0.8	2.6	3.3
Russia/Belarus–Turkey/Georgia	1.2	3.3	3.9	10.0	12.5
Turkey/Georgia–Russia/Belarus	2.7	4.2	5.0	12.5	15.6
Other Directions	0.6	5.0	6.0	13.3	16.7
Total for the Western Route	12.24	37.05	44.46	87.71	109.64
TOTAL for the INSTC	**13.43**	**57.75**	**69.30**	**131.11**	**163.89**

Source: Authors' calculations.

10. Projected INSTC Containerised Metals and Metal Products Traffic until 2025 and 2030, thousand TEU

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Kazakhstan–Iran	0.2	1.9	2.3	4.4	5.6
Kazakhstan–Turkmenistan	-	1.0	1.2	1.6	1.9
Kazakhstan–India	0.1	2.9	3.5	4.4	5.6
Kazakhstan–Pakistan	0.0	0.4	0.5	1.1	1.4
Russia–Iran	-	5.8	7.0	8.9	11.1
Russia–India	-	1.6	1.9	3.3	4.2
Russia–Pakistan	-	0.2	0.2	0.4	0.6
China–Iran	-	3.5	4.2	10.2	12.8
Iran/India/Pakistan–EAEU Member States*	-	1.3	1.5	3.7	4.6
Total for the Eastern Route	0.3	18.6	22.3	38.1	47.7
Multimodal (Trans-Caspian) Route of the INSTC					
Kazakhstan–Iran	0.1	1.1	1.3	2.1	2.6
Kazakhstan–India	-	1.1	1.3	2.8	3.5
Kazakhstan–Pakistan	-	0.2	0.3	6.9	8.7
Russia–Iran	0.0	6.7	8.0	9.7	12.2
Russia–India	-	0.9	1.1	2.1	2.6
Russia–Pakistan	-	0.1	0.1	0.3	0.3
Iran/India/Pakistan–EAEU Member States*	-	0.4	0.4	1.1	1.4
Other Directions	0.0	0.1	0.1	0.1	0.2
Total for the Central Route	0.1	10.6	12.7	25.2	31.5
Western Route of the INSTC					
Russia–Iran	0.0	1.1	1.3	2.8	3.5
Russia–Azerbaijan	4.7	5.6	6.7	7.6	9.5
Russia–India	0.0	0.7	0.9	1.4	1.7
Russia–Pakistan	0.0	0.1	0.1	0.3	0.3
EU Countries–India	0.0	2.7	3.2	4.4	5.5
EU Countries–Pakistan	0.0	0.8	0.9	0.7	0.9
Iran/India/Pakistan–EAEU Member States**	0.0	0.7	0.9	3.0	2.9
Iran/India/Pakistan–EU Countries	0.0	2.7	3.3	4.3	5.4
EU Countries–Azerbaijan	0.0	0.0	0.1	0.1	0.1
EU Countries–Iran	0.0	0.3	0.4	0.4	0.5
Russia–Turkey	0.0	1.0	1.2	2.5	3.1
Other Directions	0.0	0.1	0.0	0.1	0.0
Total for the Western Route	4.7	15.9	18.9	27.5	33.4
TOTAL for the INSTC	**5.0**	**45.0**	**53.9**	**90.8**	**112.5**

* Russian Federation, Republic of Kazakhstan, Kyrgyz Republic
** Russian Federation, Republic of Belarus
Source: Authors' calculations.

11. Projected INSTC Containerised Wood and Paper Traffic until 2025 and 2030, thousand TEU

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Russia–India	-	0.6	0.7	1.2	1.5
Russia–Pakistan	-	0.1	0.1	0.2	0.2
Total for the Eastern Route	-	0.7	0.8	1.4	1.7
Multimodal (Trans-Caspian) Route of the INSTC					
Russia–Iran	0.1	5.6	6.7	10.0	12.5
Russia–India	-	2.2	2.7	4.2	5.2
Russia–Pakistan	-	0.1	0.1	0.2	0.2
Total for the Central Route	0.1	7.9	9.5	14.3	17.9
Western Route of the INSTC					
Russia–Iran	-	0.1	0.13	3.3	4.17
Russia–Azerbaijan	0.8	12.6	15.06	24.0	30.04
Russia–India	-	3.1	3.73	7.0	8.75
Russia–Pakistan	-	0.3	0.40	0.7	0.83
EU Countries–India	-	0.6	0.70	2.2	2.81
EU Countries–Pakistan	-	0.1	0.15	0.5	0.61
Russia–Turkey	-	0.4	0.53	1.0	1.25
Other Directions	-	0.1	0.01	0.1	0.01
Total for the Western Route	0.8	17.4	20.7	38.9	48.5
TOTAL for the INSTC	**0.9**	**25.9**	**31.0**	**54.6**	**68.1**

Source: Authors' calculations.

12. Projected INSTC Containerised Machinery and Equipment Traffic until 2025 and 2030, thousand TEU

Pairs of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
China–Iran	-	0.8	1.0	1.7	2.1
Iran/India/Pakistan–EAEU Member States	-	0.3	0.3	0.6	0.8
Total for the Eastern Route	-	1.1	1.3	2.3	2.9
Multimodal (Trans-Caspian) Route of the INSTC					
Russia–Iran	-	0.3	0.4	0.6	0.7
Iran/India/Pakistan–EAEU Member States	-	0.3	0.3	0.3	0.4
Total for the Central Route	-	0.6	0.7	0.9	1.1
Western Route of the INSTC					
Belarus/Russia–Iran	-	0.3	0.3	9.2	11.5
Belarus/Russia–Azerbaijan	4.1	12.3	14.8	14.7	18.4
Belarus/Russia–India	-	0.3	0.3	0.6	0.8
Belarus/Russia–Pakistan	-	0.0	0.0	0.0	0.0
EU Countries–India	-	5.1	6.1	14.3	17.9
EU Countries–Pakistan	-	0.8	0.9	2.2	2.7
Iran/India/Pakistan–EAEU Member States	-	1.4	1.7	3.1	3.8
Iran/India/Pakistan–EU Countries	-	0.6	0.8	0.9	1.1
Belarus/Russia–Turkey	-	0.0	0.1	0.1	0.1
Turkey–Belarus/Russia	-	0.2	0.2	0.2	0.3
Other Directions	-	0.3	0.0	0.3	0.0
Total for the Western Route	4.1	21.1	25.0	45.3	56.2
TOTAL for the INSTC	**4.1**	**22.8**	**27.0**	**48.5**	**60.3**

Source: Authors' calculations.

13. Projected INSTC Containerised Mineral Fertilisers Traffic until 2025 and 2030, thousand TEU

Pair of countries	2020	Baseline Scenario		Best-Case Scenario	
		2025f	2030f	2025f	2030f
Eastern Route of the INSTC					
Russia–India	-	3.9	4.7	6.7	8.3
China–Iran	-	0.2	0.3	0.7	0.9
Total for the Eastern Route	-	4.1	4.9	7.4	9.2
Multimodal (Trans-Caspian) Route of the INSTC					
Russia–Iran	-	0.6	0.7	1.0	1.2
Russia–India	0.0	3.3	4.0	5.6	6.9
Total for the Central Route	0.0	3.9	4.7	6.5	8.2
Western Route of the INSTC					
Belarus/Russia–Iran	-	1.1	1.33	2.8	3.47
Belarus/Russia–Azerbaijan	3.9	2.3	2.80	3.8	4.74
Belarus/Russia–India	-	1.1	1.33	4.2	5.21
Belarus/Russia–Pakistan	-	0.3	0.33	0.6	0.73
EU Countries–India	-	0.4	0.42	1.4	1.69
EU Countries–Pakistan	-	0.0	0.05	0.1	0.18
Belarus/Russia–Turkey	-	0.3	0.33	0.8	1.04
Other Directions	-	0.1	0.01	0.1	0.01
Total for the Western Route	3.9	5.6	6.6	13.7	17.1
TOTAL for the INSTC	**3.9**	**13.6**	**16.2**	**27.6**	**34.4**

Source: Authors' calculations.

14. Methodology for Assessment of the Impact of Transport Infrastructure Quality on Trade

The impact that the quality of transport infrastructure has on trade was assessed by application of the gravity model using the following basic formula:

$$LnX_{ijt}=\beta_0+\beta_1\ lnGDP_{it}+\beta_2\ lnGDP_{jt}+\beta_3\ lnDIST_{ij}+\beta_4\ LANG_{ij}+\beta_5\ INF_{it}+\beta_6\ INF_{jt}+e_{ijt} \quad (1)$$

where i is a country along the INSTC, j is a trading partner of that country (Top 20 export destinations), $lnGDP_{it}$ is the logarithmic value of the GDP by purchasing power parity (in current international dollars) of the exporter in year t, $lnGDP_{jt}$ is the same indicator for the importer in year t, $lnDIST_{ij}$ is the logarithmic value of the distance between the capitals of the countries, $LANG_{ij}$ is a dummy variable assuming the value of 1 if countries i and j, $INFit$ is the transport infrastructure of the exporter, INF_{jt} is the transport infrastructure of the importer, and e_{ijt} is the error term.

In this survey we used an alternative gravity model assessment method, the Poisson Pseudo-Maximum Likelihood Estimator. That method has a number of advantages compared to the standard logarithmic-linear model assessment by the least squares method. For example, if there is heteroscedasticity that manifests itself by unequal random error variance, the standard model significantly distorts estimated coefficients. The Poisson Pseudo-Maximum Likelihood Estimator, on the contrary, is heteroscedasticity-robust, as confirmed by a comparison of the two models by Silva and Tenreyro (2006) using a Monte Carlo simulation. Besides, observations with zero trading flows are excluded from the standard model due to the impossibility of determining the natural logarithm of zero. However, such observations are included when the Poisson Pseudo-Maximum Likelihood Estimator is used, because the dependent variable consists of a sequence of rational numbers (Shepherd et al., 2019).

At the econometric model selection stage, we considered the possibility of using a fixed-effect model. This model makes it possible to account for unobservable indicators of multilateral resistance of the exporter and the importer. However, the key limitation of the model is that it identifies the impact of only those independent variables that have individual values for each pair of countries (ESCAP, 2019). Thus, when using an importer fixed effect, it is impossible to assess the impact of certain parameters on bilateral trade, such as the quality of the importer's road infrastructure, because the value of that variable for all exporters is constant for the given importer. Accordingly, this variable and the fixed effects are ideally collinear, which results in the exclusion of the variable from the model. Given that the variables of interest in this survey are of that particular type, we used the Poisson Pseudo-Maximum Likelihood Estimator, excluding fixed effects.

Data on distances and common languages required as inputs for the econometric model were taken from the CEPII (2021) database. Data on GDP by purchasing power parity in current prices were sourced from the IMF statistical database. Foreign trade data were retrieved from the UN COMTRADE (2021) statistical database using 1 character of the SITC 3 classification. The World Economic Forum is the source of data on the quality of transport infrastructure. All other data were obtained from the World Bank statistical database.

15. Impact of Transport Infrastructure Quality on Trade in the Countries along the INSTC

Variables	Qualitative Indicators				Quantitative Indicators	
	Railway Infrastructure	Road Infrastructure	Air Infrastructure	Port Infrastructure	Cost to export	Time to export
	(1)	(2)	(3)	(4)	(5)	(6)
GDP, exports	0.849*** (0.015)	0.887*** (0.011)	0.948*** (0.013)	0.953*** (0.013)	1.011*** (0.018)	0.949*** (0.014)
GDP, imports	0.475*** (0.018)	0.496*** (0.014)	0.543*** (0.015)	0.534*** (0.015)	0.570*** (0.019)	0.575*** (0.018)
Distance	-0.555*** (0.023)	-0.587*** (0.018)	-0.615*** (0.019)	-0.604*** (0.020)	-0.694*** (0.025)	-0.623*** (0.022)
Use of a common language	0.527*** (0.048)	0.398*** (0.038)	0.391*** (0.039)	0.443*** (0.039)	0.635*** (0.051)	0.797*** (0.047)
Quality of railway infrastructure, exports	0.456*** (0.024)					
Quality of railway infrastructure, imports	0.183*** (0.016)					
Quality of road infrastructure, exports		0.317*** (0.014)				
Quality of road infrastructure, imports		0.229*** (0.013)				
Quality of air infrastructure, exports			0.377*** (0.018)			
Quality of air infrastructure, imports			0.375*** (0.019)			
Quality of port infrastructure, exports				0.406*** (0.018)		
Quality of port infrastructure, imports				0.320*** (0.016)		
Cost to export, border compliance, exports					-0.0002* (0.0001)	
Cost to export, border compliance, imports					-0.001*** (0.0001)	
Time costs, exports						-0.012*** (0.0006)
Time costs, imports						-0.007*** (0.0004)
Constant	14.570*** (0.231)	14.796*** (0.175)	12.877*** (0.227)	13.170*** (0.216)	16.75*** (0.187)	17.028*** (0.154)
Number of observations	2,606	4,073	3,475	3,475	2,169	2,169

Note: significance levels: *** 1%, ** 5%, * 10%.
Source: Authors' calculations.

16. Impact of Digital Infrastructure on Trade in the Countries along the INSTC

Variables	Baseline Model	ICT Infrastructure		
		Broadband Internet	Mobile Subscribers	Internet Users
	(1)	(2)	(3)	(4)
GDP, exports	0.947*** (0.008)	0.885*** (0.009)	0.917*** (0.008)	0.936*** (0.008)
GDP, imports	0.569*** (0.009)	0.489*** (0.011)	0.560*** (0.010)	0.524*** (0.010)
Distance	-0.787*** (0.012)	-0.595*** (0.016)	-0.762*** (0.013)	-0.668*** (0.014)
Use of a common language	0.614*** (0.024)	0.657*** (0.031)	0.634*** (0.026)	0.685*** (0.026)
Broadband Internet, exports		0.018*** (0.001)		
Broadband Internet, imports		0.009*** (0.001)		
Mobile subscribers, exports			0.001** (0.0002)	
Mobile subscribers, imports			0.002*** (0.0003)	
Internet users, exports				0.008*** (0.0004)
Internet users, imports				0.001** (0.0004)
Constant	17.893*** (0.085)	16.996*** (0.108)	17.736*** (0.089)	17.002*** (0.098)
Number of observations	9,665	6,554	9,652	9,070

Note: significance levels: *** 1%, ** 5%, * 10%.
Source: Authors' calculations.

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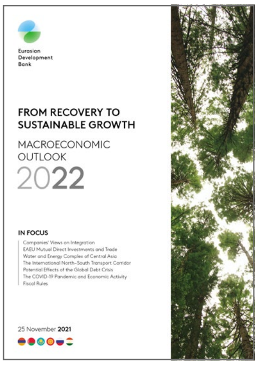
Abbreviations

ADB — Asian Development Bank
APAC — Asia-Pacific Region
BISTP — Baku International Sea Trading Port
BTK — Baku–Tbilisi–Kars railway
CA — Central Asia
CAREC — Central Asia Regional Economic Cooperation
CCTT — Coordinating Council on Trans-Eurasian Transportation
CIS — Commonwealth of Independent States
CORSIA — Carbon Offsetting and Reduction Scheme for International Aviation
COVID-19 — COronaVIrus Disease 2019
EAEU — Eurasian Economic Union
EATL — Euro-Asian Transport Linkages (UNECE project)
EDB — Eurasian Development Bank
EEC — Eurasian Economic Commission
ERAI — Eurasian Rail Alliance Index
EU — European Union
EurAsEC — Eurasian Economic Community
EWC — Europe–Western China international transport route
FCS — Federal Customs Service
FTA — Free Trade Area
GDP — gross domestic product
g/tkm — grams per tonne-kilometre
ICAO — International Civil Aviation Organisation
ICT — information and communication technologies
ITC — international transport corridor
JSC — joint stock company
m — metre
km — kilometre
MFA — Ministry of Foreign Affairs
mm — millimetre
OBOR — One Belt One Road
OSJD — Organisation for Cooperation between Railways
RES — renewable energy sources
RR — JSC Russian Railways
SCFI — Shanghai Containerised Freight Index
SCO — Shanghai Cooperation Organisation
sq.m — square metre
TAR — Trans-Asian Railway
TEU — twenty-foot equivalent unit
TIR — International Road Transport (Fr.: Transports Internationaux Routiers)
TRACECA — Transport Corridor Europe–Caucasus–Asia
UIC — International Union of Railways (Fr.: Union Internationale des Chemins de Fer)
UN — United Nations Organisation
UNECE — United Nations Economic Commission for Europe
UNESCAP — United Nations Economic and Social Commission for Asia and the Pacific
USD — United States dollar
UTLC ERA — United Transport and Logistics Company — Eurasian Rail Alliance
WEF — World Economic Forum

Macroeconomic Review

(RU)

A regular EDB publication, which provides an overview of the current macroeconomic conditions in the EDB member states and estimates their development in the short-term perspective.



Macroeconomic Outlook

(RU/EN)

From Recovery to Sustainable Growth

In the baseline scenario, the EDB member states' GDP is projected to grow by 2.9% in 2022, after 4% in 2021.

Report 21/1

(RU)

Promoting the Role of the EAEU Currencies in Global Transactions

EAEU currencies service around 2% of global trade. As for the EAEU countries, payments in their currencies have notably increased over the past seven years — their share in trade flows jumped from 63% in 2013 to 74% in 2019.

Report 21/2

(RU/EN)

Uzbekistan and the EAEU: Prospects and Potential Impact of Economic Integration

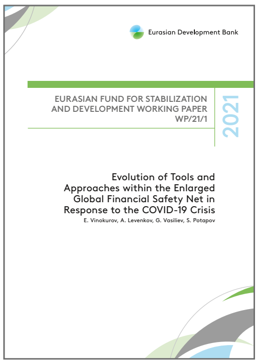
The report estimates the potential effects of Uzbekistan's integration with the EAEU and outlines promising areas for cooperation between the current Union member states and Uzbekistan.

Report 21/3

(RU/EN)

Investment in the Water and Energy Complex of Central Asia

The report analyses Central Asia's water and energy complex after 30 years of independence of the five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) and assesses their cooperation in the water and energy complex.

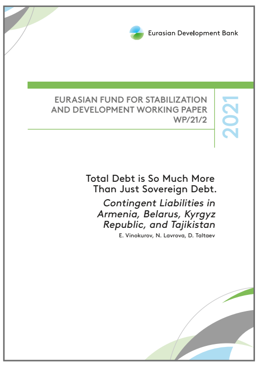


Working Paper WP/21/1

(RU/EN)

Evolution of Tools and Approaches within the Enlarged Global Financial Safety Net in Response to the COVID-19 Crisis

This working paper provides the analysis how the GFSN responded to pandemic on global level and on regional level (in the EFSD countries).

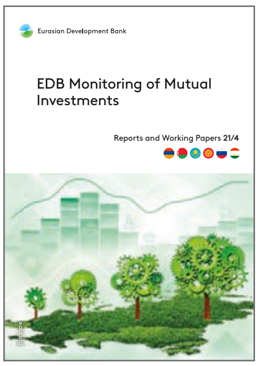


Working Paper WP/21/2

(RU/EN)

Total Debt is So Much More Than Just Sovereign Debt. Contingent Liabilities in Armenia, Belarus, Kyrgyz Republic, and Tajikistan

This study aims to contribute to understanding the potential risks and impacts of both explicit and implicit contingent liability shocks on government fiscal and debt positions in the EFSD recipient countries.



Report 21/4

(RU/EN)

EDB Monitoring of Mutual Investments

Mutual investments in Eurasia, calculated using a new methodology, reach US $46 billion. FDI has been growing steadily since 2016.

Eurasian Development Bank